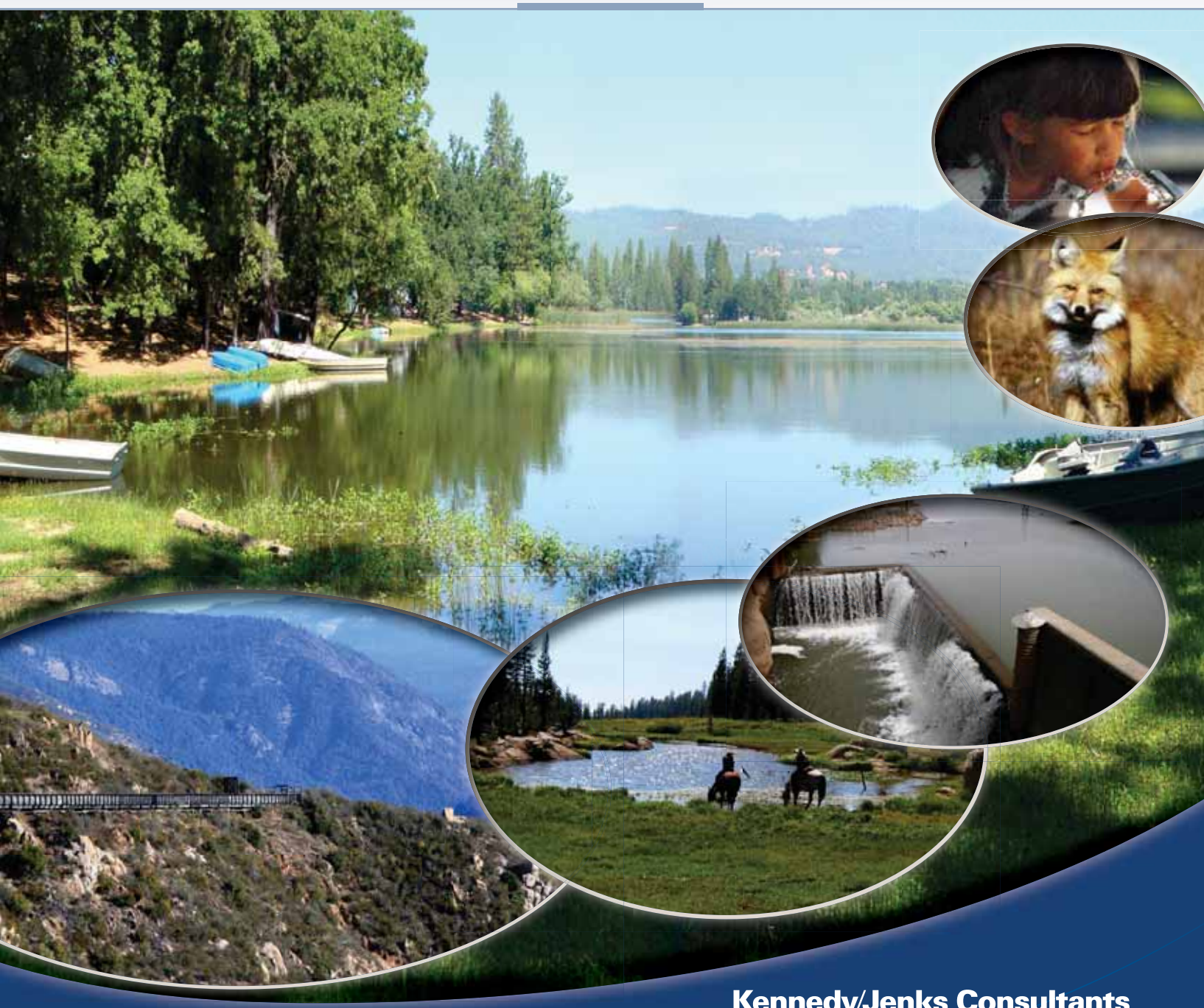
Tuolumne-Stanislaus

Integrated Regional Water Management Plan



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August 2013

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Tuolumne-Stanislaus Integrated Regional Water Management Plan

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Executive Summary

This Integrated Regional Water Management Plan (IRWM Plan or Plan) defines a clear vision for water resources management in the Tuolumne-Stanislaus Region (T-S Region or Region) and highlights important actions needed to help accomplish that vision through the year 2035.

This IRWM Plan complies with the *Integrated Regional Water Management Guidelines for Proposition 84 and 1E* published by the California Department of Water Resources (DWR) in November 2012. Financial assistance from DWR and contributions from the Regional Water Management Group funded the development of this Plan. Proposition 84 identified watershed-based funding areas throughout the state, with the T-S Region being a part of the San Joaquin River Funding Area. Each Funding Area is allocated, based on population, a portion of the $1 billion approved by the voters under Proposition 84 in 2006. Predecessor bonds, including Propositions 13 and 50, also provided incentives for development of IRWM Plans. DWR designed the IRWM planning process to be consistent with the *California Water Plan*, a statewide water resources planning document updated periodically, and DWR intends that IRWM Plans and future updates of the *California Water Plan* be integrated further in the future.

Introduction (Section 1)

This IRWM Plan is the first regional watershed management plan of its kind in the T-S Region and is intended to provide a framework to improve collective understanding and take high-priority actions to collaboratively address the many major water-related challenges/needs and conflicts within the Region through the planning horizon. These issues include water quality, local water supply reliability, better integration of water and land use management, resource stewardship and ecosystem protection. The array of goals, objectives, selected resource management strategies, and prioritized projects of this Plan represent a collective view of how to improve integrated water management throughout the Region. This Plan thereby establishes a clear path forward to enhance management of water resources in the T-S Region.

The formation of the T-S Region was initiated through efforts of Tuolumne Utilities District (TUD) and was finalized with support by numerous interest groups, federal, state and local agencies as well as non-governmental organizations (NGOs) (see Table 1-1 for a list of participants). Upon consideration of numerous factors, including but not limited to watershed boundaries, agency service areas, and physical landscape characteristics, region boundaries were established that encompass approximately 2,700 square miles, spanning the western slope of the Sierra Nevada, rising from the lower Sierra foothills to the crest of the Sierra Nevada.

To represent the T-S Region, the Regional Water Management Group (RWMG) was formed by agencies participating in an initial meeting held by TUD. The RWMG is a component of the Planning Grant Committee (PGC), which comprises all entities that have executed the Memorandum of Understanding (MOU), including 22 local, state and Federal agencies as well as NGOs. The PGC oversees the IRWM Plan development and provides leadership to the program.

Development of the IRWM Plan occurred in an iterative process, organized around monthly Planning Grant Committee meetings, which were open to any interested stakeholder. Key topics discussed during Plan development are outlined in Figure ES-1.

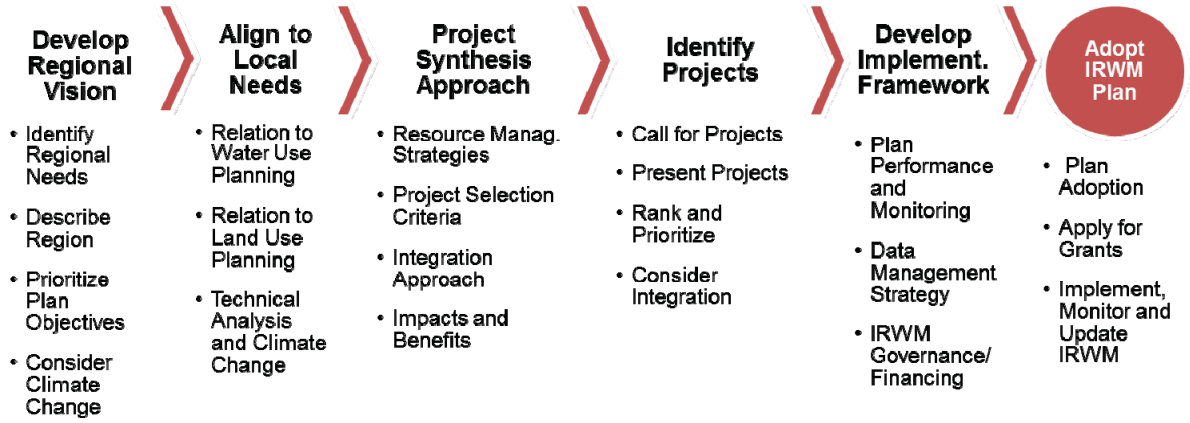


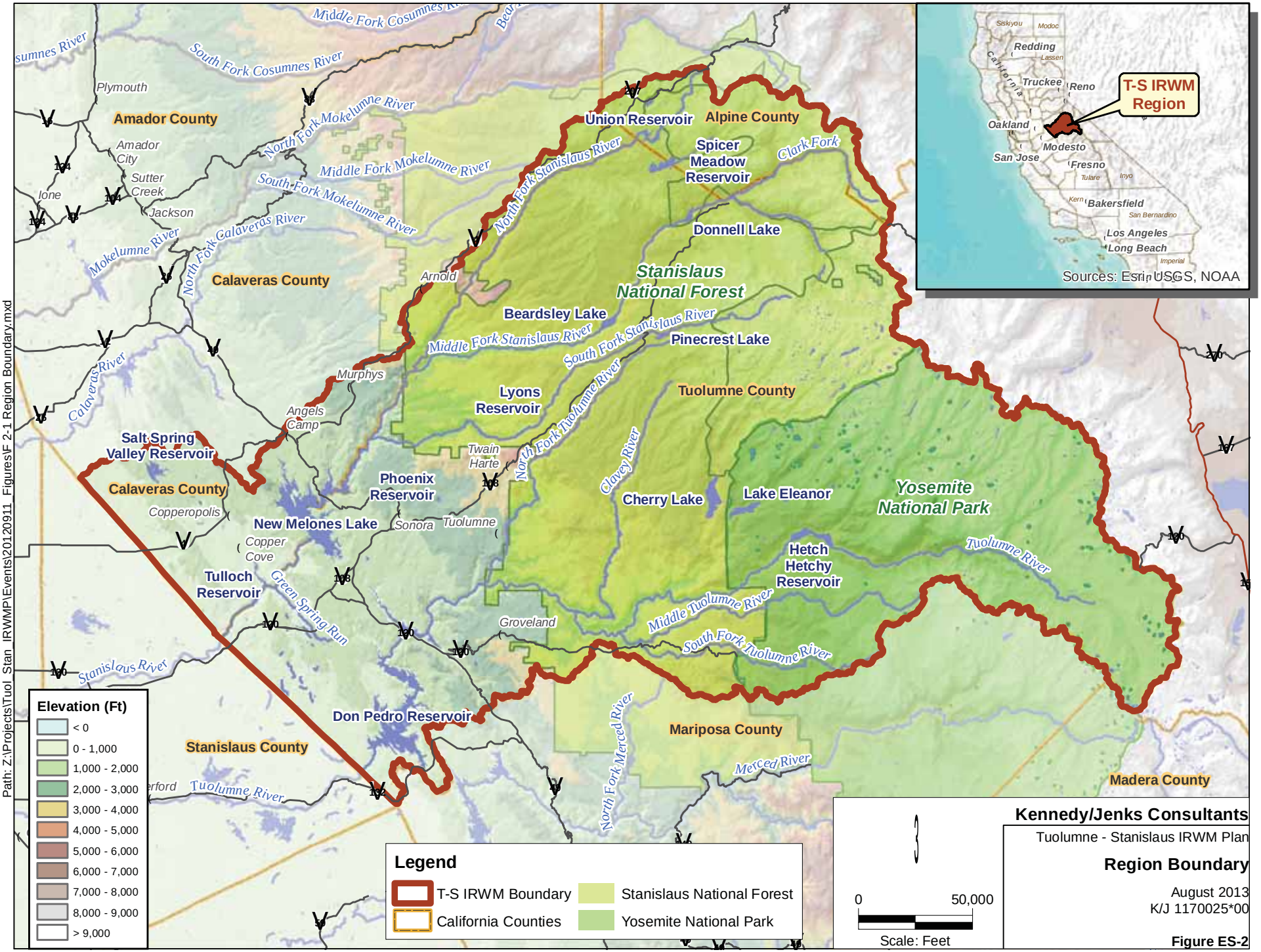
Figure ES-1: IRWM Planning Process Overview

Throughout the T-S IRWM Plan development process, inclusion of stakeholders and a consensus-driven process has been a cornerstone. This process has enabled bringing together a broad array of groups into a forum to help ensure that the Plan reflects the water-related needs of the entire Region, promotes the formation of regional partnerships, and encourages increased coordination with state and federal agencies.

The Tuolumne-Stanislaus Region (Section 2)

Section 2 describes the physical and environmental characteristics of the Region, describes social and demographic characteristics of the Region, and provides an overview of the Region's water system. The approximately 2,700 square miles of the T-S Region span the entire western slope of the Sierra Nevada, encompassing the Upper Tuolumne River, Upper Stanislaus River, and Upper Rock Creek-French Camp Slough watersheds. The Region includes all of Tuolumne County, the southern portion of Calaveras County, and southwestern Alpine County, as shown on Figure ES-2.

The majority of the Region's approximately 70,000 people reside in the foothills at elevations below 3,000 feet. Major communities of the T-S Region include Sonora, Twain Harte, Copper Cove, Copperopolis, Angels Camp, Murphys, and Groveland. A number of the Region's communities have been identified as Disadvantaged Communities (DACs) which have median household incomes less than $48,706 per DWR criteria. The Region is also home to two federally recognized Me-Wuk tribes, and federally managed national forest and national park lands represent over two thirds of the lands in the Region. The Region's economy continues to evolve from the historic industries of agriculture, mining and timber, to a more service-based economy. Residential and agricultural developments considered for the Region may contribute to the 1-2% projected growth in the Region and would result in related increases in water use demands in the Region.



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Region Boundary

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Figure ES-2

The Upper Stanislaus and Upper Tuolumne River watersheds are sources of abundant water resources relied upon as critical supplies for invaluable river ecosystems, millions of people, hundreds of thousands of acres of prime farmland, and hydroelectric resources used throughout California. In the Region, these surface water resources are the primary source of potable water, while at the same time 98% of these water supplies serve export water demands. Numerous upstream reservoirs exist within the Region that serve multiple purposes including storage, largely for users outside the Region, and hydropower.

3/4-mile Flume - Utica Power Authority

Water supplies within the Region consist primarily of surface water. The surface water conveyance system consists of an extensive system of pipelines, canals, ditches and flumes, many of which are remnants of the Region's historical water system used for mining and support industries during the 19th Century. Surface water quality in the Region is generally very good with issues primarily resulting from current or historical land use. Groundwater quality is highly variable and availability of groundwater resources primarily found in fractured bedrock is largely unquantified. Nevertheless, groundwater is a primary water supply source for many individual homeowners and small water systems in the T-S Region.

The T-S Region boasts a high diversity of ecosystems and environmental resources. About two-thirds of the land area within the T-S Region is covered by coniferous forests in the Stanislaus National Forest and Yosemite National Park. The lakes, creeks, meadows and other natural features of the Region provide key habitat for many of California's most important aquatic and terrestrial species. In addition, the Region's rivers, reservoirs and lakes provide extensive opportunities for water-dependent recreation popular to users within and beyond Region boundaries.

Relation to Local Water and Land Use Planning (Section 3)

Section 3 describes how land use planning and decision making are coordinated with water management planning and implementation within the Region and highlights opportunities for improved communication and action in the future. Water resources and land use planning in the T-S Region are inherently linked in that activities and processes that occur on the land directly affect the use and movement of water within the Region. These linkages between land use and the impacts on the hydrologic cycle, and similarly between water management and the ability to support particular land uses, are important to consider when making land or water management decisions. DWR recognizes these linkages and requires that IRWM Plans describe the relationships and interactions between regional planning efforts fostered by the Regional Water Management Group and local water planning and local land use planning.

The T-S IRWM Plan contains information from local planning efforts that have occurred throughout the Region and has drawn from numerous plans and studies related to water resources and land use management in the Region. The IRWM Plan is consistent with and supports locally-led planning and implementation of integrated water management. Additionally, through the T-S IRWM process, land and water management organizations in the Region have

taken steps towards better understanding and collaboration regarding regional water management issues.

Major Water-Related Needs, Challenges, and Conflicts (Section 4)

Section 4 presents the broad perspective of the major water-related needs, challenges and conflicts that should be addressed in the T-S Region in some manner over the 20-year planning horizon. The broad range of topics highlighted in this section serves as the foundational baseline for much of the T-S IRWM Plan, including development of IRWM Plan objectives, and prioritization of resource management strategies, programs and projects to address identified issues within the T-S Region.

The key issues, needs, challenges, and priorities for the T-S Region with respect to water resource management identified by the Region's stakeholders include the following:

- Efficient Use and Distribution of Water Needs – Limited surface water and groundwater supplies in some portions of the Region, coupled with recent California regulatory mandates have created a growing need to increase the Region's municipal water use efficiency. However, conditions exist in the Region that make implementation of such programs challenging. Recycled water provides a means to offset potable water supplies and increase water use efficiency. Currently, various water reuse programs exist in the T-S Region and there is an interest in expanding water reuse projects.

Recycled Water Use for Agricultural Application by TUD

- The Region's availability of water resources is conducive to hydropower generation, which may play an increasingly greater role as efforts increase to expand renewable energy sources. However, it is important to balance hydropower improvements with competing beneficial use requirements and costs.

- Reliable and Affordable Water Supply Needs – Water supply reliability needs within the Region is a complex issue that varies throughout the Region, but overall there is a need to develop reliable and affordable water supplies to support existing customers as well as accommodate future land use development and population growth. Although the Region in general is situated in highly productive watersheds much of the surface water available in the Region is held under senior water rights, is exported for use outside the Region, and/or stored and used for other purposes, such as hydropower generation. These factors put constraints on efforts to enhance water supply reliability within the T-S Region. Groundwater supplies that primarily serve small water systems are also subject to reliability issues.

- Meeting Water Quality Needs – The quality of local groundwater can be highly variable depending on highly localized factors including, but not limited to, high salinity, nitrate, iron, and manganese. Contamination from septic tanks is a large concern in the Region, which is related to aging systems as well as systems that are approved for newer land use projects.

- Various factors are contributing to impaired water quality in the Region relating to historic and existing activities. A major concern is pollution from non-point sources that are thought to be resulting in impacts to surface water and groundwater quality. Non-point sources in the Region include various activities, such as failing septic systems, pesticide/herbicide/fertilizer use, sediment discharge, oils and greases, cattle, and other livestock grazing and agriculture, forest use, recreation, urban runoff and historic mining activities. Many land use activities are contributing to water quality impairments and there is an identified need for increased coordination between land use planning entities and water agencies.

- Resource Stewardship and Ecosystem Needs – The health of the Region's ecosystems, including meadows and riparian systems, is an important factor in the quality and availability of water resources in the T-S Region. Various ecosystem restoration projects have the potential to provide numerous water resource related benefits in addition to species protection. Additionally, with over two-thirds of the Region's land area dominated by coniferous forests, forest management including prevention of catastrophic wildfires is considered an important component in the water management planning within the Region.

Lower Foothills Landscape in T-S Region

- Stormwater System Capacity (Flood Management) – Management and containment of localized flooding of creeks and tributaries, particularly in urban areas such as Sonora, and along some local roadways has been a challenge and several stormwater conveyance systems within the Region are in need of improvements to reduce the potential for flooding.

- Climate Change – Climate change has the potential to have significant impacts on the T-S Region. Water demand, water supply, water quality, hydropower, and ecosystem and habitat vulnerability are all areas likely to be affected in some way due to climate change. The major river systems in the Region are fed primarily by snowmelt. Therefore, expected changes in snowpack levels due to climate change may impact the Region's primary water sources. Additionally, increased temperatures could lead to decreased hydropower production, impaired water quality and increased wildfire risk.

Plan Objectives (Section 5)

The IRWM Plan objectives represent the foundational intent of the T-S Region to improve water resources management over the next 20 years. Formulating meaningful and relevant objectives for the T-S Region required more collaboration and collective interaction amongst the Planning Grant Committee and Plan stakeholders than any other section in this Plan. Section 5 presents the Plan Objectives and related Measurable Planning Targets (MPTs) that serve as building blocks and "checkpoints" to assess progress towards achieving each Plan Objective.

Table ES-1 provides a summary of the fourteen (14) identified Plan Objectives with their associated priority levels assigned based on consultation with stakeholders.

Table ES-1: Plan Objectives Prioritization

	Plan Objective	Priority
A.	Improve water supply infrastructure within DAC and urban areas that have declining water quantity/quality or other water system reliability issues (e.g., fire flow, contamination, etc.).	High
B.	Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs from the negative impacts of stormwater, urban runoff, and nuisance water.	High
C.	Improve infrastructure to meet wastewater discharge/disposal requirements and deliver drinking water that meets drinking water standards and customer expectations.	High
D.	Improve watershed health in support of increased water yield and ecosystem function.	High
E.	Improve the condition and ecosystem function of meadows.	Medium
F.	Assist in the protection and recovery of sensitive special status, threatened, culturally sensitive, and endangered native aquatic and other water dependent species in the Region.	Medium
G.	Identify, preserve, and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; reduce invasive species.	Medium
H.	Reduce the risk of localized flooding in urban areas.	Medium
I.	Increase renewable energy production for water management.	Medium
J.	Improve energy efficiency of water and wastewater system infrastructure.	Medium
K.	Improve efficiency and reliability of human-made water conveyance systems.	High
L.	Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users.	Medium
M.	Develop sufficient reliable and affordable water supplies to meet regional demands of existing and projected water supply needs under a multi-year drought now and into the future.	High
N.	Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions.	High

TUD Wastewater Treatment Facility

Section 5 also discusses climate change vulnerabilities, which were prioritized relative to Plan Objective priorities. High priority areas include Water Supply, and Water Quality. Areas of medium to high priority include Flooding, Ecosystem and Habitat Vulnerability, and Hydropower. Water Demand is identified as a medium priority and sea level rise is not applicable to the Region as there are no coastal areas. The Plan Objectives and Measureable Planning Targets (MPTs) contain a number of considerations that will facilitate the Region's preparedness and ability to adapt to identified vulnerabilities to climate change. Strategies described in Section 5 include improving water and energy efficiency of the Region's water systems, reducing invasive species infestation, improving watershed yield, and developing reliable water supplies.

Resource Management Strategies (Section 6)

The Goals and Objectives presented in Section 5 describe a range of areas in which regional stakeholders intend to improve water-related conditions in the Region over the plan horizon. Achieving these objectives will require that resource managers and other stakeholders implement a variety of water management actions. Those actions could include projects, programs, or policies designed to help agencies and local governments manage water and related resources. A broad list of these actions, referred to as resource management strategies (RMS), were identified in the California Water Plan Update 2009 and were considered for applicability to the T-S Region. Table ES-2 provides a summary of the RMS described in Section 6, divided into six management outcomes.

Table ES-2: Resource Management Strategies

CWP Management Outcome	Resource Management Strategies
Reduce Water Demand	Agricultural Water Use Efficiency Urban Water Use Efficiency
Improve Operational Efficiency and Transfers	*Conveyance – Delta Conveyance – Regional/local System Reoperation Water Transfers
Increase Water Supply	Conjunctive Management & Groundwater Storage *Desalination *Precipitation Enhancement Recycled Municipal Water *Surface Storage – CALFED Surface Storage – Regional/local
Improve Water Quality	Drinking Water Treatment and Distribution *Groundwater Remediation/Aquifer Remediation Matching Quality to Use Pollution Prevention *Salt and Salinity Management Urban Runoff Management
Improve Flood Management	Flood Risk Management

CWP Management Outcome	Resource Management Strategies
Practice Resources Stewardship	Agricultural Lands Stewardship Economic Incentives (Loans, Grants and Water Pricing) Ecosystem Restoration Forest Management Land Use Planning and Management Recharge Area Protection Water-Dependent Recreation Watershed Management
Various Outcomes	*Crop Idling for Water Transfers Irrigated Land Retirement *Waterbag Transport/Storage Technology *Dewvaporation or Atmospheric Pressure Desalination (CWP – Other Strategy) *Fog Collection *Rainfed agriculture

* RMS not applicable to T-S IRWM.

Project Selection and Prioritization (Section 7)

Section 7 describes the project solicitation, development, and review process that was used to select and prioritize projects for inclusion in the T-S IRWM Plan. The PGC began with development of Project Selection Criteria document over several meetings in order to establish metrics and a common understanding for how projects submitted by stakeholders would be reviewed and prioritized. A project submittal form was developed and during the “Call for Projects” process, stakeholders were invited to submit any projects, programs, and action ideas they thought could help contribute to fulfilling the Plan Objectives and associated Measurable Planning Targets, irrespective of the project’s current funding, level of development, or readiness to proceed. The decision and prioritization process relied on: information submitted by the proponents that addressed a standard list of project criteria; technical judgment about the relevancy of the submitted projects; and Stakeholder discussions.

A total of 29 projects were submitted during the Call for Projects, which upon scoring, review and stakeholder input were all included in the IRWM Plan. The projects submitted demonstrate the breadth of activities needed for the T-S Region to meet its water management objectives. The 29 projects were submitted by 15 different organizations and cover, to some extent, all 14 of the IRWM Plan Objectives. Several projects will help achieve multiple Plan Objectives. Projects ranged from wastewater facility improvements to habitat restoration programs, water efficiency initiatives, flood management efforts, and water quality enhancement programs. The range of projects presented multiple opportunities for resource and project integration. The projects were unanimously accepted by the PGC for inclusion in the Plan, however each PGC member may not support implementation of every individual project.

The projects included in the IRWM Plan are important to meet the Objectives of the Region and the project proponents should advance their projects, regardless of their score. Projects included in the T-S IRWM Plan are summarized in Table ES-3. This project list will be updated and appended over time as projects are completed, new projects are identified, and new funding opportunities arise. In the future, additional projects will be needed to fully address all Plan Objectives and their MPTs.

Table ES-3: Project Summary

Project No.	Project Name	Project Proponent(s)	Estimated Project Cost	Expected Start Date
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	$92,000	1/1/2013
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	$5,500,000	1/1/2013
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	$20,000	5/1/2014
4	Shell Meadow Restoration Project	Stanislaus National Forest	$47,625	8/1/2012
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	$264,731	3/1/2008
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	$303,745	4/1/2010
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	$18,500,000	12/1/2014
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	$2,638,495	9/1/2019
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	$1,937,556	8/1/2012
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	$470,304	7/15/2014
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	$948,800	5/9/2012
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	$90,000	5/1/2013
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	$1,200,000	3/1/2015
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	$1,000,000	6/1/2013
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	$872,000	12/1/2012
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	$242,375	1/1/2013
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	$250,000	1/1/2013
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	$20,000,000	3/1/2014
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	$23,900,000	3/1/2014
20	Section 4 Raw Water Storage	Tuolumne Utilities District	$8,000,000	3/1/2014

Project No.	Project Name	Project Proponent(s)	Estimated Project Cost	Expected Start Date
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	$125,000	5/1/2013
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	$450,000	5/1/2013
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	$225,000	Not Determined
24	Filter Backwash Water Settling Ponds and Recycling	City of Angels Camp	$1,200,000	6/1/2013
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	$978,500	1/1/2013
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	$109,500	5/1/2014
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	$672,000	9/1/2012
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	$1,232,000	9/1/2012
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	$1,369,000	9/1/2012

Impacts and Benefits (Section 8)

Section 8 provides an overview of the impacts and benefits likely to be realized with implementation of the T-S IRWM Plan. This preliminary impact and benefit analysis may be used as a benchmark throughout IRWM Plan implementation. As Plan performance is evaluated, the Planning Grant Committee might utilize this preliminary analysis to better understand if the potential benefits have been realized or if unanticipated impacts have occurred.

The primary benefit of the T-S IRWM Plan is development of a framework supportive of collaborative regional planning; stakeholders have already begun seeing these benefits, even prior to adoption of the Plan. For example through the IRWM project development process, Tuolumne City, the Tuolumne Band of Me-Wuk, and Twain Harte Community Services District realized that a joint project to construct a new sewer line could provide numerous benefits to each entity that would not be achieved independently. Additional potential benefits from implementation of multi-benefit, regionally focused projects may include enhanced water supply reliability, improved water quality, improved habitat quality, improved infrastructure function and efficiency and actions to adapt to climate change and reduce greenhouse emissions.

Negative impacts that may be associated with the T-S IRWM Plan projects include (1) short-term, site-specific impacts related to site grading and construction, and (2) long-term impacts associated with project operation. The significance of these impacts will be evaluated in greater detail under project-specific and/or programmatic environmental compliance processes (consistent with California Environmental Quality Act and, if applicable, the National Environmental Policy Act).

Implementation Framework (Section 9)

Section 9 documents the relationships and decision-making structure recommended for use during the continued development and implementation of the T-S Region IRWM Plan over the next 20 years. It also sets forward a proposed framework for Plan implementation and guidelines for performance monitoring to track progress, and it offers suggested initial Plan implementation activities. This section is intended to serve as the cornerstone of critical actions the Region must take to ensure the success of the IRWM program into the future. Once the T-S IRWM Plan has been adopted, the focus of the Regional Water Management Group and stakeholders will change significantly. Some of the activities conducted during Plan development will continue, but the emphasis will shift from planning toward implementation and tracking of progress. Implementation will rely on actions taken by existing agencies and organizations within the Region. In order to implement the Plan in an open and definitive way, each Region is required to develop a governance structure consistent with the Propositions 84 and 1E IRWM Guidelines. The proposed governance structure was developed to reflect the discussions of the Planning Grant Committee and numerous stakeholders to provide a means for the Region to maximize the program's functionality, open participation, longevity, and stability.

It is anticipated that the implementation governance organizational structure (shown on Figure ES-3) will be formed using a Joint Powers Authority (JPA) for the RWMG Board and an agreement document (Agreement) such as a Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA) for the Watershed Advisory Committee (WAC). It is anticipated that the majority of IRWM Plan implementation activities will occur at the WAC level but that the JPA will exist to act on recommendations of the WAC, provide continuity, financial stability, and final decision-making for all matters related to implementation of the IRWM Plan. The JPA will likely be supported by an Administration Support Team (AST) to assist with coordination, meeting scheduling, tracking, maintaining contact information and other administrative tasks. The WAC will include signatories to a WAC Agreement document with governance principles similar to the current IRWM Plan Planning Grant MOU used to constitute the existing PGC. It is anticipated that the new JPA and WAC Agreement document will be executed around the same time the IRWM Plan is adopted.

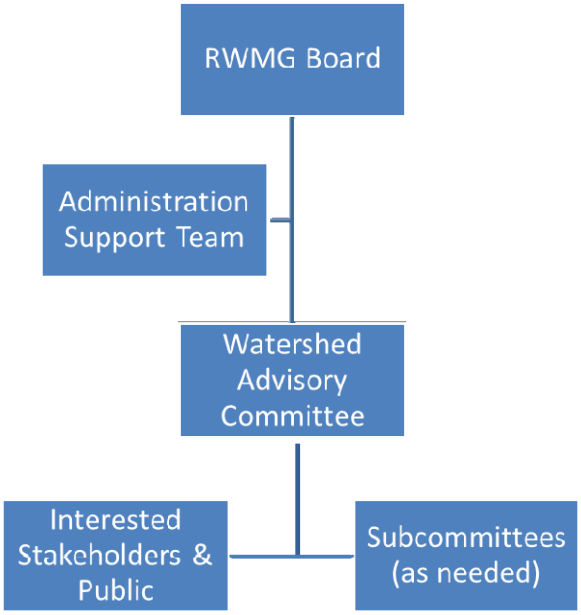


Figure ES-3: Proposed T-S IRWM Program Governance Structure

One of the most important aspects of Plan implementation is a process to ensure that the public and interested stakeholders continue to be involved. This will be accomplished through multiple avenues of communication and engagement between the RWMG, WAC and stakeholders. These will include, at minimum, conducting outreach, creating content in coordination with the WAC, facilitating quarterly input from RWMG and WAC meetings, and communicating the results of WAC Subcommittee work. During the RWMG quarterly meetings, dialog with Tribes and representatives of the disadvantaged and environmental justice communities within the Region will occur as needed to support meeting the objectives of the Plan. Another means of communication will be the posting of meeting materials and other relevant information to invite review and comment from any interested person or organization.

All WAC Agreement signatories will be invited to participate as equals during WAC meetings to discuss implementation activities to meet the objectives in the IRWM Plan. Members of the public will be invited to participate as well, but will not have a voting role. The WAC will set agendas, interact with stakeholders, and foster collaborative decisions. The primary function of the RWMG formed under the JPA will be to develop an annual budget, manage funds required to fulfill the primary roles of the RWMG, and implement the Plan pursuant to the approved objectives. The RWMG will directly consider financial, personnel management and communication and outreach issues. The RWMG will act on all matters necessary for IRWM Plan implementation including recommendations from the WAC. Decisions of the RWMG will require a majority vote of a quorum of the RWMG board. The specific details of decision-making will be described in the JPA formation agreement and documents related to formation of the WAC.

Every organization and individual with an interest in improving water management in the Region is invited and encouraged to participate in Plan implementation. The WAC and RWMG recognize that a committed public outreach and notification process is a necessary task to ensure the public is aware that there are multiple opportunities to become involved in the program. Disadvantaged communities and Tribes will continue to be an important aspect of outreach in the Region.

Financing of an IRWM Plan is an enormous undertaking and requires the contributions and attention of local, state, and federal agencies to ensure success. Financing of this T-S IRWM Plan involves two distinct tracks: funding of IRWM Plan administration and coordination, and funding of project implementation. Plan administration budgets will be developed and funded by the RWMG. The current project list includes 29 projects with a total estimated cost of $92.6 million, much of which is currently unfunded. The section highlights the anticipated funding needs for both tracks, identifies potential funding sources, and documents some of the activities that the RWMG and others may employ to secure additional project implementation funding.

Another important element of successful Plan implementation is a well-developed approach to performance and monitoring. This section describes such an approach, including monitoring, adjustments, and data sharing in order to meet the 2012 IRWM Guidelines. The key elements of plan performance and monitoring involve tracking of project implementation, progress towards achieving objectives, and the individual measurable planning targets. This tracking will be monitored in a Data Management System (DMS) and will provide key information to inform the WAC and stakeholders as to whether the Plan is being implemented as intended, or whether updates or other changes are needed to keep the Plan on track. The tracking and monitoring of plan performance does not replace required regulatory reporting by specific agencies within the Region. Plan performance tracking is being done to monitor progress on Plan implementation and provide information that can be useful for continuing implementation of, updating or amending the Plan.

In order to bring focus to specific implementation actions, and to support early and proactive progress, recommendations are provided in Table ES-4.

Table ES-4: IRWM Plan Near-Term Implementation Activities and Schedule

	Activity/Action	Lead Entity	Planned Schedule
1.	Develop and execute a Joint Powers Authority to establish a RWMG according to the terms described in this section.	A minimum of three agencies, two of which have statutory authority over water	By December 2013
2.	Establish an annual operating budget for implementation support and manage expenditures of administration support activities	RWMG	By February 2014
3.	Draft WAC Agreement document and charter the WAC (successor to the Planning Grant Committee)	Current PGC Members to transition to WAC with JPA support	By December 2013
4.	Retain Administration Support Team (AST)	RWMG	By February 2014
5.	Convene Plan Implementation Meetings to develop proposed meeting schedule for the remainder of 2013 and 2014. It is suggested that at minimum one plan implementation meeting be held per quarter.	Current PGC to transition to RWMG/WAC (to be defined in JPA/WAC agreements)	Hold one meeting by October 2013 and schedule 2013-2014 meetings
6.	Identify high priority objectives with short term implementation windows. Convene subcommittees if needed to address. Initial subcommittees to consider include DAC outreach, infrastructure, and ecosystem/meadow restoration.	WAC	By December 2013 for 2014 implementation
7.	Transition, maintain and complete DMS	RWMG/AST	By December 1, 2014
8.	Issue a Call for Projects to add, delete, or integrate existing projects	WAC with support from AST	By January 2014
9.	Issue a call for project status updates	WAC with support from AST	By August 2014
10.	Prepare for applying for Round 3 DWR Implementation Grant funds and other grant funding opportunities	WAC to transition to Project Proponents	By November 2014
11.	Coordinate with neighboring IRWM regions and local, state and federal agencies	WAC or subcommittee	On-going - quarterly

Coordination (Section 10)

As described in previous sections of this Plan, management of water and other related resources within this Region is complex and has many interdependencies. Furthermore, the authorities and responsibilities for managing water and related resources within the Region are spread across many different agencies, organizations, and other stakeholders. The complexity and the distributed network of shared responsibilities create the need for robust and effective coordination. Section 10 describes how the T-S current Planning Grant Committee has taken steps toward improving coordination on water resource related matters in the Region. This section also outlines how the successor Regional Water Management Group and Watershed Advisory Committee plan to coordinate with neighboring IRWM regions, local, state, and federal agencies and other stakeholders to improve integrated water management throughout the Region and neighboring areas.

Coordination is one of the most essential components of integrated regional water management, and coordination related to the T-S Region is described in several sections of this Plan. For example, Section 1, “Introduction,” discusses the stakeholder coordination and public outreach activities, including outreach to tribal entities and disadvantaged communities that were conducted during the development of the Plan. Section 3, “Relation to Local Water and Land Use Planning” describes how water management on the local level relates to directly to land use planning and ways that improved coordination will help directly address several water-related challenges. Section 9, “Implementation Framework,” describes the specific responsibilities of the RWMG, WAC, and others during Plan implementation.

The outreach and coordination process of the T-S IRWM Plan has brought together a broad array of groups into a forum to help ensure that the Plan reflects the water-related needs of the entire Region, promotes the formation of regional partnerships, and encourages increased coordination with local, state and federal agencies.

Section 1: Introduction

1.1 Introduction

This Integrated Regional Water Management Plan (IRWM Plan) defines a clear vision for the management of water resources in the Tuolumne-Stanislaus Region (T-S Region, Region) and highlights important actions needed to accomplish that vision through the year 2035 planning horizon. This document is intended to be a useful planning tool. It does not, in itself, provide discretionary approval for any given project or establish any new prescriptive compliance requirements. Rather, it provides a framework for improved understanding and action to address the major water-related challenges/needs and conflicts facing the Region through the planning horizon.

This plan was developed through the time and contributions of more than 25 water supply, wastewater treatment, land use management, public interest, and ecosystem-focused organizations with interests in the water resources of the T-S Region. The focus and direction described within this IRWM Plan provides an opportunity for these organizations to accomplish more to benefit the needs of the Region than they could otherwise accomplish individually. The integrated array of goals and objectives, selected resource management strategies, priority projects, and plan implementation framework demonstrate the successful collaborative working relationships fostered through the 2-year plan development process.

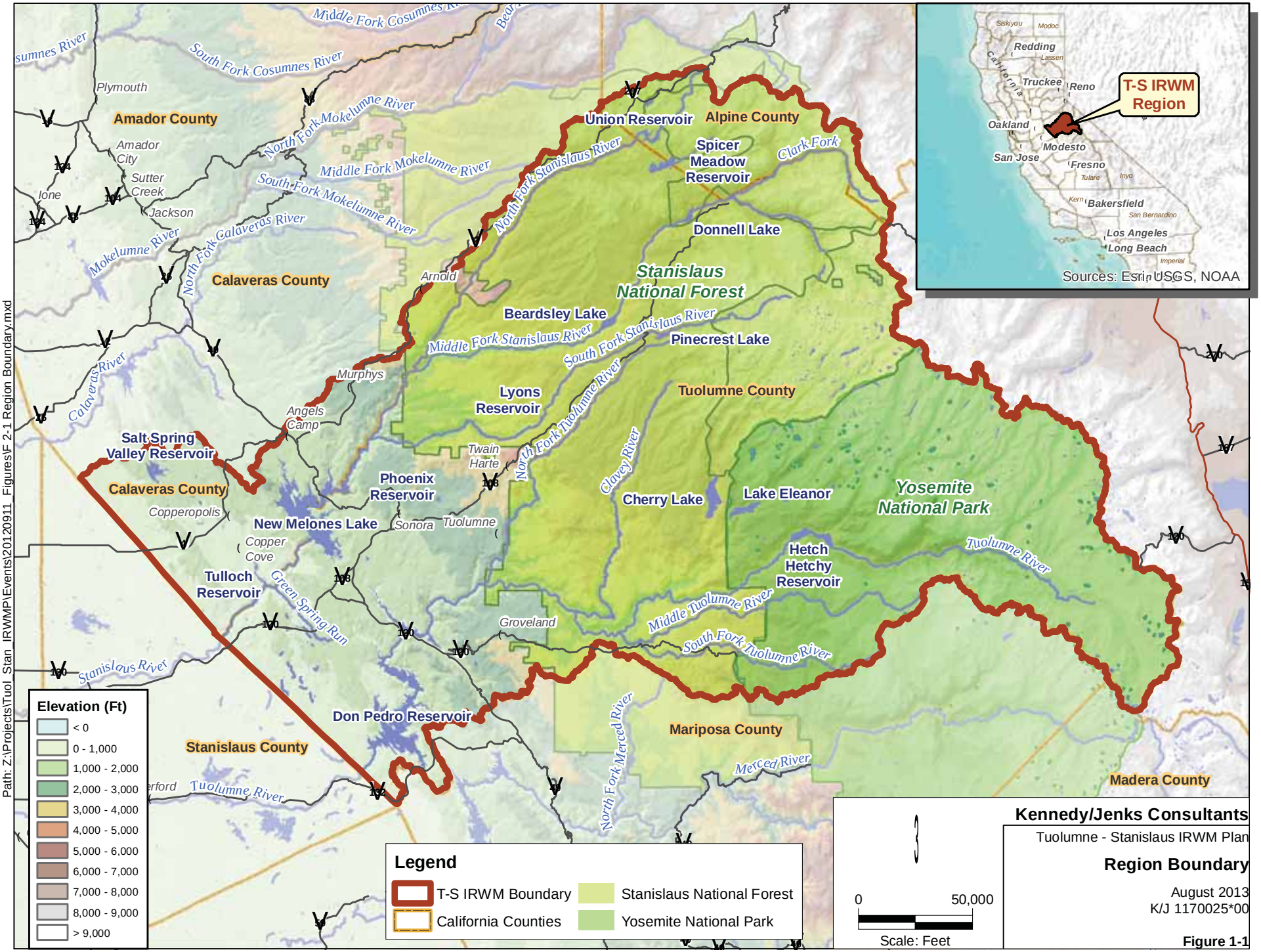
1.2 Background

1.2.1 Regional Features

The Region shown on Figure 1-1 encompasses approximately 2,700 square miles, spanning a portion of the western slope of the Sierra Nevada, rising from the lower Sierra foothills to the crest of the Sierra Nevada (a range of about 1,000 to 13,000 feet in elevation). The Region includes all of the Upper Tuolumne River, Upper Stanislaus River and Upper Rock Creek-French Camp Slough watersheds and includes all of Tuolumne County and portions of Calaveras and Alpine counties. There are numerous alpine lakes and human-made reservoirs throughout the watershed, including Lake Don Pedro at the end of the Upper Tuolumne River and New Melones Reservoir at the end of the Upper Stanislaus River. Despite the vast water resources, the Region is a sparsely populated area with a total population of about 70,200, consisting of communities situated in the foothills including Sonora, Angels Camp, Murphys, Groveland, and surrounding towns.

1.2.2 Primary Focal Points for the IRWM Plan

This IRWM Plan is the first regional watershed-management plan of its kind in the T-S Region. Its intent is to address the many major water-related needs/challenges and conflicts within the Region, including water quality, local water supply reliability, better integration of water and land use management, resource stewardship and ecosystem protection. The Region provides an important flood management function as well, since the large rim dam reservoirs provide important flood protection for large cities downstream in the San Joaquin Valley. Localized flooding does occur in certain areas of the T-S Region, but is not a focus of this first IRWM Plan.



Kennedy/Jenks Consultants

Tuolumne - Stanislaus IRWM Plan

Region Boundary

August 2013
K/J 1170025*00

Figure 1-1

The T-S Region is an area with large forested areas, including large portions of federal lands contained within Yosemite National Park and the Stanislaus National Forest. Although the Region does not have a large population, the Tuolumne and Stanislaus rivers, the two major rivers within the Region, are the primary source of water for users within the Region as well as downstream water users. The Tuolumne and Stanislaus rivers combined provide water for millions of people in the San Joaquin Valley and Bay Area, and water for irrigating hundreds of thousands of acres of prime farmland. Therefore, the protection of the rivers' many beneficial uses and improvement of water quality is essential to both aquatic ecosystems and human health. Groundwater wells also provide the only source of domestic and municipal supplies for about one third of the residents in the Region. For these reasons, preserving and improving surface and groundwater quality in the Region has been identified by stakeholders as a key topic affecting the continued viability of water resources. Issues such as sediment erosion, mercury contamination, and bacterial contamination are key regional water quality concerns addressed in this IRWM Plan.

Water use within the Region is supplied from surface water diversions and groundwater wells. Improvement of water supply sources, reliability, quality, and distribution within disadvantaged communities (DAC) and urban areas is an ongoing need. There are several water systems in the Region that rely on a single source of water supply that put the affected communities at risk of having inadequate supplies if that source becomes unavailable. The water agencies of the Region continuously strive to improve water supply reliability and quality.

Catastrophic disruptions to the Region's water resources can result from natural disturbances such as flooding and fire, and the risk of these disturbances is influenced in part by land use management decisions. Land use decisions must also be balanced with the limited availability of supply, and the risk to water quality some developments can cause – particularly those that rely on onsite wastewater treatment (septic) systems.

Many opportunities exist to improve the general public's understanding of their role in the protection of the Region's water and natural resources. Many individuals and organizations throughout the Region that are interested in the water resource management are already engaged in efforts that support the work of water management entities. However, more can be done to develop and implement broader public education efforts to further improve stewardship of the Region's precious water resources.

The Region provides hundreds of square miles of habitat for countless species, including a broad range of terrestrial and aquatic, state and federally recognized special-status and endangered species including the Foothill Yellow-Legged Frog, Sierra Nevada Yellow-Legged Frog, and California Red-legged frog as well as the hardhead catfish, Chinook salmon, and steelhead. Improvement of aquatic and terrestrial habitat to promote the survival, restoration, and growth for these important species and many others is critical.

Other important issues included in the Plan are: reduction of localized flooding, increasing green energy production, improving efficiency of water systems, water conservation, and better management of wastewater discharge/disposal. Many of these topics can be linked to the need to understand the effects climate change may have on these predominately snow-fed surface water systems.

1.2.3 Formation of the IRWM Region

The formation of the T-S Region was initiated through the efforts of Tuolumne Utilities District (TUD) and was finalized with support by numerous interest groups, federal, state and local agencies as well as non-governmental organizations (NGOs). Previous to this effort, no IRWM Plan had been created within this specific area and the only existing IRWM program nearby was the Mokelumne Amador Calaveras IRWM program to the north. As the statewide IRWM program has grown, there are now eight IRWM Regions surrounding the T-S Region.

During development of the IRWM boundaries, the Upper Tuolumne and Upper Stanislaus rivers watersheds provided the primary focus, but a number of other factors were also discussed including: political jurisdictions, water/wastewater agency service areas, physical characteristics of the landscape, streams and watersheds, water related man-made infrastructure, agency service areas, and major governmental land ownership such as the Stanislaus National Forest and Yosemite National Park. There was also recognition that the area under consideration did not have a defined groundwater basin, but groundwater resources of unknown capacity were predominantly stored in fractured rock.

Accessibility of watersheds dominate water resource management operations and future resource opportunities in the Sierra Nevada and foothills. Watersheds have heavily wooded, steep, high elevation mountains with limited access and areas that are difficult to manage within the natural watershed boundary. Therefore, consideration of watershed boundaries was also balanced with the potential for the functional participation of interests and travel times to meetings in establishing the T-S Region's boundary.

After consideration of all of the factors discussed above, the Region boundary was decided to include the Upper Tuolumne, Upper Stanislaus and Upper Rock Creek-French Camp Slough (called Littlejohn's Creek in the Regional Acceptance Process (RAP)) watersheds. The northern, eastern, and southern borders of the Region correspond with the three watershed boundaries; however, the western boundary stops at the western edge of Calaveras and Tuolumne counties in recognition of the need to focus management efforts within the political jurisdictions, which are actively supporting the program and which share common geographic features of the upper watersheds. The lands to the west of the county boundaries are areas which have terrain with less elevation differences, defined groundwater basins, larger urban areas, and large areas of agricultural irrigation. These Central Valley areas have markedly different economies (primarily agriculture) and markedly different water quality and delivery issues than the areas within the Region. Thus, from a water resources standpoint, it was not logical to include these lower watershed areas in the T-S Region, despite their ultimate connection with the Tuolumne River, Stanislaus River, and Rock Creek-French Camp Slough watersheds.

During the RAP process, the inclusion of the Upper Rock Creek-French Camp Slough watershed was greatly deliberated because it does not drain into either the Upper Stanislaus or the Upper Tuolumne watersheds; however, it was ultimately included due to future agricultural and residential development potential, which may require substantial water resources from the Upper Stanislaus River watershed and the identified need to not leave a "gap" between IRWM planning regions.

With focus on the Upper Tuolumne and Stanislaus River watersheds as the basis for the Region boundaries, the Region also accounts for the following boundaries and includes the following features:

- Political boundaries: the entirety of Tuolumne County and portions of Calaveras and Alpine counties;
- Surface water bodies: Don Pedro Reservoir, Hetch Hetchy Reservoir, Lake Eleanor, Cherry Lake, Tulloch Reservoir, New Melones Reservoir, Phoenix Reservoir, Lyons Reservoir, Beardsley Lake, Pinecrest Lake, Spicer Meadows Reservoir and Union Reservoir;
- National parks/forests: Yosemite National Park and Stanislaus National Forest; and water and resource management agency boundaries: because the Region boundary was not drawn according to political or jurisdictional boundaries, the Region encompasses the service areas of multiple local agencies (including over 15 entities with water and related resource management responsibilities).

1.3 Governance

1.3.1 Regional Water Management Group (RWMG)

The Regional Water Management Group (RWMG) was formed by agencies participating in the initial meeting convened August 24, 2007 by TUD to represent the T-S Region. Following this initial meeting, the IRWM participants began open public meetings for which invitations were sent out to numerous interest groups, federal, state and local agencies as well as NGOs. The RWMG eventually agreed to a consensus based decision making process. The consensus-based process was used for a number of years, but that was later modified to a majority vote process. However, the decision making body attempts to reach consensus and only uses a majority voting process (70% is the definition of a majority) if consensus cannot be reached. The RWMG made that change in 2012 by using the consensus based decision-making process. The RWMG also adopted an IRWM plan development governance structure with Governance Principles, a Financial Agreement and a Memorandum of Understanding (MOU), all of which are found in Appendix A. The governance body of the IRWM Plan development process is known as the Planning Grant Committee (PGC), which is comprised of all entities that have executed the MOU as shown in Table 1-1. The RWMG in the T-S Region is a component of the members of the PGC, but does not hold separate decision making authority or meet independently. Agencies with statutory authority for water management are also identified in Table 1-1.

Table 1-1: PGC and RWMG Members

Agency/Organization	Responsibilities	Statutory Authority for Water Management	MOU Signatory/ PGC	RWMG Member
Amador-Tuolumne Community Action Agency (ATCAA)	Public Interest Group/NGO		X	
Calaveras County Water District (CCWD)	Retail, Wholesale, & Ag Water/Sewer/Hydropower/ Groundwater Management	X	X	X
California Department of Fish and Wildlife (CDFW)	Resource Management		X	X
Central Sierra Audubon Society (CSAS)	Public Interest Group/NGO		X	
Central Sierra Environmental Resource Center (CSERC)	Public Interest Group/NGO		X	
City of Angels Camp (Angels Camp)	Water/Sewer/Stormwater/Flood/ Land Use	X	X	X
City of Sonora (Sonora)	Stormwater/Flood Control/ Land Use		X	X
County of Calaveras	Land Use/ Groundwater/ Stormwater and Flood Control		X	X
County of Tuolumne	Land Use/Groundwater/ Stormwater/Flood Control		X	X
Groveland Community Services District (GCSD)	Water/Sewer/Recycled Water/Fire Protection/ Parks	X	X	X
Lake Don Pedro Community Services District (LDPCSD)	Water	X	X	X
Murphys Sanitary District (MSD)	Water/Sewer	X	X	X
Tuolumne County Building Industry	Public Interest Group		X	
Tuolumne County Farm Bureau (Farm Bureau)	Public Interest Group/NGO		X	
Tuolumne County Resource Conservation District (TCRCD)	Land and Resource Management		X	
Tuolumne Group of the Sierra Club (Sierra Club)	Public Interest Group/NGO		X	
Tuolumne River Trust (TRT)	Public Interest Group/NGO		X	
Tuolumne Utilities District (TUD)	Water/Sewer	X	X	X
Twain Harte Community Services District (THCSD or Twain Harte CSD)	Water/Sewer/Fire Protection/Parks	X	X	X
Union Public Utility District (UPUD)*	Water	X	X	X
United States Forest Service, Stanislaus National Forest (USFS)	Land and Resource Management		X	X
Utica Power Authority (UPA)	Water Wholesaler & Hydroelectric Power Generation	X	X	X

* Withdrew as of 25 July 2013

1.3.2 Planning Grant Committee (PGC)

The Region submitted a RAP application in 2009 for the Tuolumne-Stanislaus Sub-Region of the Proposition 84 San Joaquin River Funding Area. Following acceptance of the Region through the RAP process by the California Department of Water Resources (DWR), the PGC applied for planning grant funding under Proposition 84 to create the IRWM Plan. Following award of planning grant funding for the Region in August 2011, the PGC began developing the IRWM Plan using a stakeholder-driven process.

The PGC oversees the IRWM Plan development and provides leadership to the program. All decisions for the IRWM Program are made by the PGC as defined in the Tuolumne – Stanislaus IRWM Governance Principles. The PGC is composed of the agencies and NGOs listed in Table 1-1, which include the majority of water management agencies and most of the land and resource management agencies within the T-S Region. This table summarizes the agencies and NGOs, their principle responsibilities, whether they have signed the MOU and are a member of the PGC, and whether they are a member of the RWMG.

As stated in the MOU, agencies and associations joined together to develop an IRWM Plan that will accomplish the following:

- Promote collaboration throughout the project implementation such that quantifiable ecosystem restoration and improved water supply and water quality benefits will occur in an integrated, cost and time efficient manner.

- Integrate activities, which will increase environmental education and stewardship, reduce conflicts and litigation potential, and through interregional stewardship and cooperation, increase understanding and participation in export water proposals as they relate to beneficial uses in the area of origin.

- Design a data management system that can inform the stakeholders of the relative success of various Resource Management Strategies, programs and projects.

A fundamental principle of the Tuolumne – Stanislaus IRWM Program process is striving toward consensus (agreement among all participants) in all of its decision-making. The IRWM Program governance structure is described in detail in Section 9, Plan Implementation Framework.

Other parties who attend meetings are also allowed to participate in general discussions and also comment during the general public portion of the agenda. Rules of participation are inclusionary.

1.4 Stakeholder Coordination and Outreach

The stakeholder engagement and outreach process was a coordinated effort throughout IRWM Plan development.

1.4.1 Overview of the Stakeholder Coordination and Outreach Process

Inclusion of stakeholders and a consensus-driven process has been a cornerstone to the work throughout the T-S IRWM Plan development process. Extensive stakeholder outreach was

conducted to help ensure that the Plan reflects the water-related needs of the entire Region, promotes the formation of regional partnerships, and encourages increased coordination with state and federal agencies. The term stakeholders is used to refer to representatives of agencies, NGOs, nonprofit groups, governmental organizations and the public who were interested and participated in the development of the IRWM Plan.

A benefit of the IRWM process is that it brings together a broad array of groups into a forum to discuss and better understand shared needs and opportunities. Members of the PGC and other stakeholders participated in monthly stakeholder meetings, reviewed meeting materials that included handout materials prepared to discuss plan content, draft IRWM Plan sections, and provided extensive collaborative input to shape this IRWM Plan. In addition, through participation in meetings, stakeholders have been exposed to a variety of opportunities for discovering and establishing mutually beneficial partnerships.

Stakeholder meetings were held at TUD every one to two months, with over 20 meetings, as shown in Table 1-2. A list containing over 130 names and 84 agencies, developed during the planning grant application process, was used as the basis for invitations to the stakeholder meetings. Efforts were made to facilitate participation of a diverse group of stakeholders and no attempt was made to restrict participation. Outreach approaches included an online website, and invitation to the meetings by e-mail. Meeting materials and agendas are posted on the TUD website's IRWM page and in its office after each stakeholder meeting; and meeting materials are sent out via e-mail to the contact list. Meeting minutes, agendas, handouts and videos of the stakeholder meetings can be viewed on TUD's website (http://www.tudwater.com/project_development/integrated-regional-water-management-plan.htm).

Membership in the stakeholder group was broad including representation from agencies, organizations, and individuals with an interest in improving water supply reliability, water quality, water conservation, natural habitat, and land-use planning within the Region; the result was collaboration among a broadly varying stakeholder group that represents the entire Region. Neither a financial contribution nor agency status was required to be part of the collaborative IRWM Plan development process. All meetings were open to the public.

1.4.2 Stakeholders

A list of all of the agencies and organizations that were involved in the development of the T-S IRWM Plan is provided in Table 1-3. The broad array of stakeholders includes the agencies that comprise the PGC, as well as an extensive mix of regulatory, environmental, tribal and land use planning entities that represent all areas of the T-S Region including:

- Municipal and County Governments
- Wholesale and Retail Water Purveyors, Wastewater Agencies, and Similar Special Districts
- State and Federal Regulatory and Resource Agencies
- Environmental Community
- Tribal Communities
- Disadvantaged Communities
- Others

Each of these types of organizations is listed in Table 1-3.

Table 1-2: Summary of PGC Meetings

Meeting No.	Date	Key Topics	No. of Attendees
1	9/21/2011	Region Description, Data Management, Governance	27
2	10/19/2011	Region Description, Finance, Resource Management Strategies	26
3	11/16/2011	Technical Analysis, Resource Management Strategies	26
4	1/18/2012	Region Description, Objectives	26
5	2/15/2012	Objectives, Round 2 Planning Grant Applications	29
6	3/21/2012	Objectives	33
7	4/18/2012	Relation to Local Land Use and Water Use Planning	30
8	6/20/2012	Governance	27
9	7/18/2012	Objectives, Land Use, & Water Use Planning	21
10	8/15/2012	Governance, Project Selection Criteria	24
11	9/19/2012	Project Selection Criteria	20
12	10/17/2012	Relation to Local Planning, Climate Change, Region Description	24
13	11/28/2012	Project Presentations	38
14	12/19/2012	Objectives, Projects Impacts & Benefits	28
15	1/16/2013	Introduce Plan Implementation Governance, Introduce Plan Implementation/Governance	25
16	2/20/2013	Implementation/Governance/Financing, Plan Performance & Monitoring/Data Management	20
17	3/20/2013	Plan Implementation/Governance, Plan Performance & Monitoring/Data Management	31
18	4/17/2013	Plan Implementation/Governance Framework	31
19	5/15/2013	Plan Implementation/Governance Framework Continued	29
20	6/19/2013	Present Draft IRWM Plan, Prepare for Plan Adoption and Post-Adoption Implementation	24
21	8/21/2013	Prepare for Plan Adoption	N/A
	August/ September 2013	PGC Board Adoptions and Submit to DWR	N/A

Table 1-3: Participating Stakeholders

Amador-Tuolumne Community Action Agency	Tuolumne County Business Council
Calaveras County	Tuolumne County Building Industry
Calaveras County Water District	Tuolumne County Community Resources Agency
Central Sierra Audubon	Tuolumne County Economic Development Authority
Central Sierra Environmental Resource Center	Tuolumne County Farm Bureau
City of Angels Camp	Tuolumne County Resource Conservation District
Department of Water Resources	Tuolumne Me-Wuk Tribal Council
Groveland CSD	Tuolumne River Trust
Lake Don Pedro CSD	Tuolumne Utilities District
Mountain Counties Water Resources Association	Twain Harte CSD
Murphys Sanitary District	U.S. Forest Service-Stanislaus National Forest
Oakdale Irrigation District	UC Cooperative Extension
Sierra Club	Union Public Utilities District
Tuolumne County	Utica Power Authority

1.4.2.1 Municipal and County Governments

Municipal and county governments participating in the IRWM Plan process included local jurisdictions and land use planning agencies. They were involved in the identification of issues, formation of objectives, and development of projects for the Plan by offering discussion in the meetings. Such participants included Calaveras County, City of Angels Camp, and Tuolumne County.

1.4.2.2 Wholesale and Retail Water Purveyors, Wastewater Agencies, and Similar Special Districts

The participation of agencies with water management focus was particularly important to the IRWM process. These agencies include wholesale and retail water purveyors, wastewater agencies, reclamation districts (RD), and other special districts. The active participants were involved in the development and implementation of the objectives and projects for this IRWM Plan. Their participation focused primarily on water supply and resource management concerns of the Region. Active agencies included Calaveras County Water District, GCSD, Lake Don Pedro CSD, Murphys Sanitary District, Oakdale Irrigation District, Tuolumne County Resource Conservation District (RCD), Tuolumne Utilities District, Twain Harte CSD, Union Public Utilities District, and Utica Power Authority.

1.4.2.3 State and Federal Regulatory Resource Agencies

Several state and federal regulatory and resource agencies helped describe ongoing activities that require coordination with IRWM, identify issues and objectives, and develop projects for this IRWM Plan. Their involvement was essential not only because of the need for coordination, but also because of the need for regulatory and environmental coordination prior to implementation. Involved state and federal agencies included DWR and the United States Forest Service-Stanislaus.

1.4.2.4 Environmental Community

The role and responsibility of the environmental community in the IRWM Plan process was to help ensure that goals for conservation and protection of the natural resources and habitat within the Region were incorporated. Members of the environmental community involved in the Plan included representatives of Central Sierra Audubon Society, Central Sierra Environmental Resource Center, Sierra Club, and Tuolumne River Trust.

1.4.2.5 Tribal Community

The participation of tribal communities is an important component of this IRWM Plan. Tribal communities located within the region were contacted during the planning process through a focused tribal outreach process described below. Input on the development and direction of the IRWM Plan was provided by the Tuolumne Band of Me-Wuk and Chicken Ranch Band of Me-Wuk tribal communities.

1.4.2.6 Disadvantaged Community

Involvement of DACs was an important component throughout the planning process through a focused DAC outreach process described below. A significant portion of the Region qualifies as a DAC.

1.4.2.7 Others

Other entities involved in the planning process were representatives from Amador-Tuolumne Community Action Agency, Mountain Counties Water Resource Association, Tuolumne County Economic Development Authority, Tuolumne County Farm Bureau, Tuolumne County Business Council, Tuolumne County Business Industry, Tuolumne County Resources Agency, Twain Harte Homeowners Association, and University of California (UC) Cooperative Extension. Several private citizens with interest in water management were also in attendance.

1.4.3 Community Outreach Overview

To recognize the diverse regional and local interests, the planning process included community outreach focused on building involvement and interest wide variety of stakeholders. The planning process centered around stakeholder meetings, which were open to the public. Stakeholders were invited to participate through facilitated discussions and review of draft documents; the meetings were announced to a broad distribution list via e-mailed invitations, as described above. All meeting materials were made available on the website after each meeting.

Public outreach activities occurring throughout the process included:

- **Review of Plan Sections** – The sections of the IRWM were drafted incrementally and provided to stakeholders for review and input at multiple points during the Plan development process. Materials were accepted and finalized only after the stakeholders reached consensus.

- **Stakeholder Meetings** – Over 20 stakeholder meetings were held throughout the IRWM process. These meetings provided background on the planning process, discussed Plan goals and objectives, considered opportunities for coordination among local and regional agencies, presented Plan sections to provide opportunity for comments on Plan sections, identified potential projects, discussed project selection criteria, as well as discussed Plan governance.

- **Website** – The T-S website (http://www.tudwater.com/project_development/integrated-regional-water-management-plan.htm) was published on part of TUD's district website. As noted previously, handouts distributed at each stakeholder meeting were posted on the website after each meeting. Additional information regarding the IRWM Plan was also posted to this webpage, including a link to the data management website.

- **Data Management Website** – The T-S data management website (http://aims.kennedyjenks.com/ts-irwm/) was published through a consultant based webpage. This site contains pertinent mapping of the IRWM Region for stakeholder use throughout the IRWM Plan and into the future.

- **Electronic and Written Communication** – Email was the main tool used to maintain stakeholder communication and engagement. The email list, which contained approximately 140 entries, was used to invite stakeholders to the meetings and provide materials for review.

- **Contact Information** – Consultant contact and TUD staff contact information were made available to any stakeholder or interested party to ask questions about the IRWM Plan and receive feedback.

- **Notices to Prepare and Adopt the IRWM Plan**: Notices to Prepare and Adopt the IRWM Plan were published in accordance with Government Code §6066 in local newspapers including the Calaveras Enterprise and Union Democrat.

1.4.3.1 Disadvantaged Communities

DAC outreach was an important component of the IRWM Plan process. A significant portion of the Region qualifies as a DAC because the median household income is less than $48,706 per the DWR criteria. It should be recognized that one of the challenges of engaging with DACs in the T-S Region is that they are generally fairly wide spread and many do not have resources available to be actively engaged in many of the public processes.

The PGC convened a DAC outreach subcommittee to identify and develop a list of DACs throughout the Region to improve DAC engagement in the IRWM Planning process. The intent of the DAC outreach subcommittee was to enable interested organizations to contact DACs directly, rather than have this process led by the consultant team. In this way, the Region developed the framework for an ongoing and open dialogue between the IRWM program and DACs. DACs were identified using 2010 U.S. Census data and is described in detail in Section 2. The DAC subcommittee members, who were all active participants in the IRWM Plan preparation process, included representatives from the following organizations: GCSD, TUD, Amador-Tuolumne Community Action Agency (ATCAA), City of Angels Camp, and Murphys Sanitary District. All of the subcommittee participants are connected to DAC: they are either a municipality that serves DAC or in the case of ATCAA, provides community advocacy and benefits directly to DAC constituents.

Subcommittee follow up teleconference calls were conducted to identify and discuss ways in which the T-S Region could reach out to DACs. These meetings were conducted to discuss issues and concerns, DAC water-related needs, and to identify opportunities to improve conditions in the DAC. These meetings were also used to assist DACs in developing projects for inclusion in the Plan. Inclusion of DAC needs is an integral and significant component of the T-S IRWM Plan, and participation from DACs was highly encouraged throughout the process.

Although no organizations specifically addressing Environmental Justice (EJ) concerns have been identified in the Region, opportunities to address EJ issues were coordinated with DAC outreach as appropriate.

1.4.3.2 Tribal Outreach

Consistent with the 2009 Update to the California Water Plan, the T-S RWMG has used the term “California Native American Tribe” to signify all indigenous communities of California, including those that are non-federally recognized and federally recognized. The following tribes were identified within the Region boundaries:

- Chicken Ranch Band of Me-Wuk Indians of California (federally recognized)
- Tuolumne Band of Me-Wuk Indians of the Tuolumne Rancheria of California (federally recognized)
- Tuolumne Algerine Band of Yokut (currently non-federally recognized)

The purpose of tribal outreach as part of the IRWM plan was to engage and identify issues and ultimately projects specific to water resources that would benefit each tribe. To begin this process, an initial letter was sent to each tribal chairperson to introduce the IRWM process and

request further communication. An initial tribal meeting was held with the Tuolumne Band of Me-Wuk Indians at which representatives of the Chicken Ranch Rancheria were present. This meeting was used to discuss tribal issues and concerns, tribal water-related needs, and identify opportunities to improve conditions for the tribes. Since the initial meeting, the Tuolumne Band of Me-Wuk Indians has been an active attendee at the PGC meetings and submitted 2 projects for inclusion in the plan.

1.4.4 Neighboring IRWM Regions

Based on the T-S Region's central location in California and the western slope of the Sierra Nevada mountains, the Region is bounded by eight neighboring IRWM regions, and shares significant water resources with a ninth, as shown in Figure 1-2. Coordination with neighboring IRWM Regions is described in detail in Section 10.

- Tahoe-Sierra
- Inyo-Mono
- Mokelumne/Amador/Calaveras (MAC)
- Eastern San Joaquin
- East Stanislaus
- Yosemite-Mariposa
- Madera
- Merced
- Bay Area (shares significant water resources)

1.5 Plan Development

This subsection gives a brief overview of the process of developing this IRWM Plan which includes an overview of the iterative plan development process that was integrated into the IRWM meetings.

1.5.1 Overview

The IRWM Plan development process was organized around monthly stakeholder meetings. The topics and plan sections were introduced and discussed during the meetings. Stakeholders were provided the opportunity to review the content and sections prior to the meetings and submit written comments after the meetings. Content was then drafted and finalized by a consultant team led by Kennedy/Jenks Consultants.

The key topics discussed during the Plan development process are outlined in Figure 1-3. These topics consist of content items defined in DWR's published standards for IRWM Plans (see Proposition 84 and Proposition 1E Integrated Regional Water Management Grant Program Guidelines; November 2012). Although not specifically highlighted in Figure 1-3, the IRWM Plan Standards for stakeholder involvement and coordination were a key topic addressed throughout the process, as described in Section 1.4.

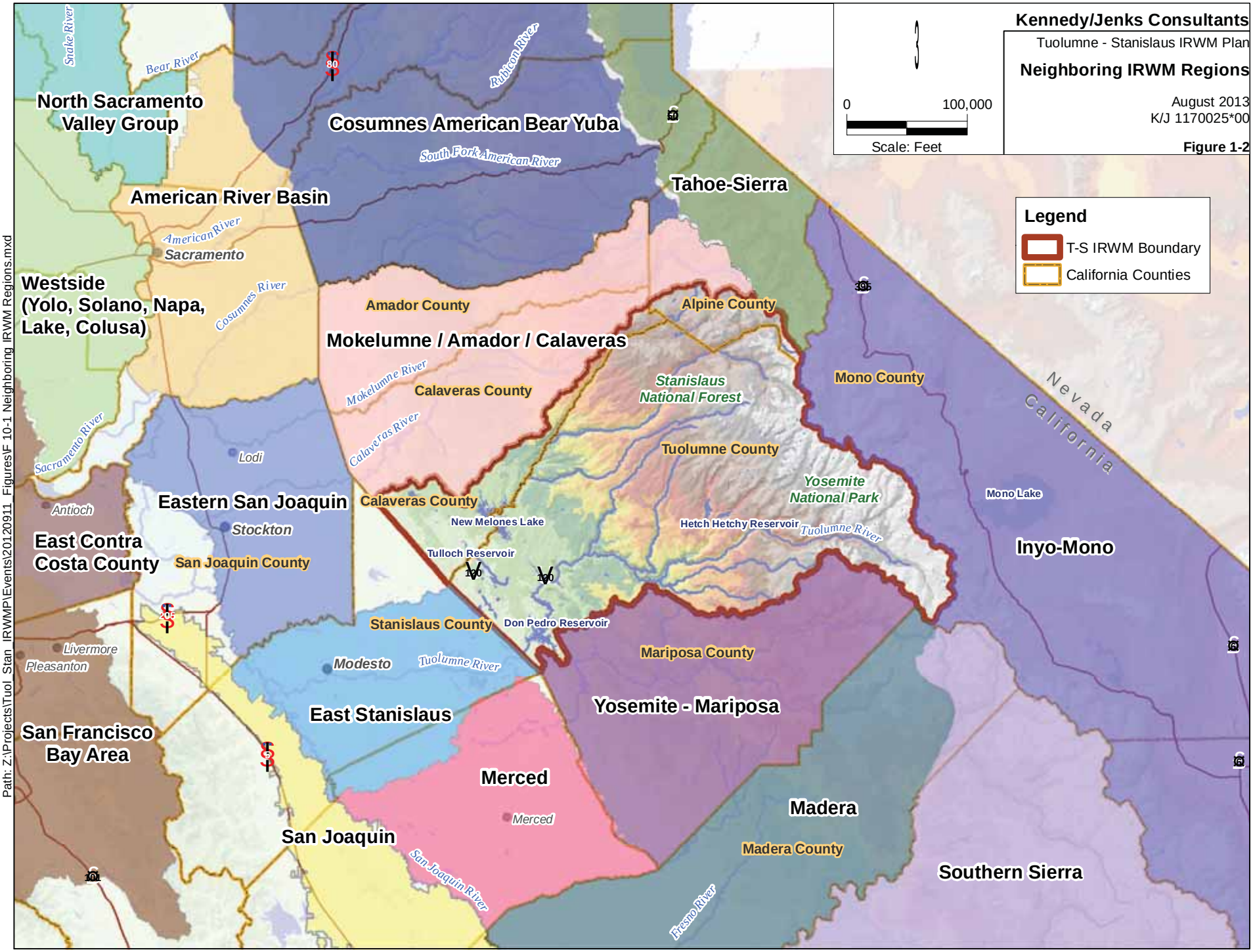

Kennedy/Jenks Consultants
Tuolumne - Stanislaus IRWM Plan
Neighboring IRWM Regions
August 2013
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Figure 1-2
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Scale: Feet
Legend
T-S IRWM Boundary
California Counties
North Sacramento Valley Group
Cosumnes American Bear Yuba
American River Basin
Tahoe-Sierra
Westside (Yolo, Solano, Napa, Lake, Colusa)
Mokelumne / Amador / Calaveras
Eastern San Joaquin
East Contra Costa County
East Stanislaus
San Francisco Bay Area
San Joaquin
Merced
Madera
Yosemite - Mariposa
Inyo-Mono
Southern Sierra
Amador County
Alpine County
Calaveras County
Mono County
Tuolumne County
San Joaquin County
Stanislaus County
Mariposa County
Madera County
Stanislaus National Forest
Yosemite National Park
Mono Lake
New Melones Lake
Tulloch Reservoir
Hetch Hetchy Reservoir
Don Pedro Reservoir
Nevada
California
Snake River
Bear River
Rubicon River
South Fork American River
American River
Sacramento
Cosumnes River
Mokelumne River
Calaveras River
Sacramento River
Tuolumne River
San Joaquin River
Fresno River
Lodi
Antioch
Stockton
Livermore
Pleasanton
Modesto
Merced
Path: Z:\Projects\Tuol_Stan_IRWMP\Events\20120911_Figures\F 10-1 Neighboring IRWM Regions.mxd

Information related to each of the key topics was presented and discussed through an interactive process initiated during stakeholder meetings. The topics include relevant items to be covered in one or more stakeholder meetings. Draft IRWM Plan content was prepared based on the discussion of each topic and then was provided for public review and comment. The draft content was discussed at the meeting and then revised through an iterative process based on comments received by the stakeholders until consensus was reached. As described below, a Plan Review Committee was convened on an as needed basis to assist in refining content and resolving any conflicting comments. At the end of the planning process, the agreed upon content was synthesized into this IRWM Plan for final public review and RWMG member adoption.

Figure 1-3: IRWM Planning Process Overview

1.5.2 Subcommittees

Subcommittees were formed during the course of plan development to allow for a more detailed discussion of specified topics in a focused setting. These committees included the following, with their specified roles in the IRWM Plan process:

- Data Management – Reviewed and discussed format of and content for the data management system;
- DAC Outreach – Discussed DAC outreach goals and methods for outreach throughout the IRWM Planning process. The committee aided in outreach efforts throughout the plan process;
- Tribal Outreach – Discussed tribal outreach goals and methods for outreach throughout the IRWM Planning process. The committee aided in outreach efforts throughout the plan process;
- Plan Review Committee – Reviewed development of plan sections and key plan content when requested. Provided alternative forum to resolve any issues that could not be settled in the PGC meetings; and
- Technical Review Committee – Scored submitted projects in accordance with the project selection criteria.

The subcommittees convened to participate with and/or assist staff and consultants with a variety of matters for which staff needs more regular input and consultation, but they have no independent decision-making authority. The participating agencies for each subcommittee are shown in Table 1-4.

Table 1-4: IRWM Plan Subcommittee Participating Agencies

IRWM Plan Subcommittee	Participating Agencies
Data Management	TCRCD, TUD, UPA and USFS
DAC Outreach	ATCAA, City of Angels Camp, GCSD, Murphy's Sanitary District and TUD
Tribal Outreach	Tuolumne Me-Wuk Tribal Council
Plan Review	CCWD, Central Sierra Audubon, CSERC, Tuolumne County, TUD, USFS
Technical Review	ATCCA, CCWD, GCWD, Sierra Club, TCRCD, Tuolumne County, Tuolumne County Farm Bureau, Tuolumne Me-Wuk Tribal Council, THCSD, and USFS

1.5.3 Plan Organization

The Region IRWM Plan is organized as a narrative, telling the story of the conflicts/challenges and opportunities and how they inform the goals and objectives for the Region. The Plan is also organized to address the standards required by the November 2012 IRWM Guidelines issued by DWR. The key plan standards and sections addressing each standard is summarized in Table 1-5. Appendix A presents a detailed cross-referencing table, which links DWR plan elements with the Tuolumne-Stanislaus IRWM Plan topics.

Table 1-5: Proposition 84 Standards and Plan Cross-Reference

IRWM Standard	IRWM Plan Section
A. Governance	1, 9
B. Region Description	2, 4
C. Objectives	5
D. Resource Management Strategies (RMS)	6
E. Integration	7
F. Project Review Process	7
G. Impact and Benefit	8
H. Plan Performance and Monitoring	9
I. Data Management	9
J. Finance	9
K. Technical Analysis	2, Appendix C
L. Relation to Local Water Planning	3
M. Relation to Local Land Use Planning	3
N. Stakeholder Involvement	1, 9, 10
O. Coordination	1, 9, 10
P. Climate Change	2, 4, 5, 6, 7, 8

1.6 Plan Adoption

The IRWM Plan is recommended to be adopted by all participants in the planning process, including the governing boards of the RWMG and PGC. If a governing board does not exist for the PGC member, a written documentation accepting, supporting, and endorsing of the Plan is requested. The Guidelines require that each agency that is part of the RWMG responsible for the development and implementation of the Plan formally adopt the IRWM Plan. The Guidelines also require that each project proponent named in an IRWM Grant Application adopt the Plan.

Plan adoption by the governing bodies of the various public agencies will begin once the final IRWM Plan has been released in August 2013. The deadline for adopting the Plan for purposes of fulfilling the planning grant requirements and to secure potential implementation grant funding is by the notice award date, which is expected to occur during the fall of 2013. A list of organizations that have adopted or endorsed the T-S IRWM Plan will be included in Appendix A.3 as the documentation is provided. Adoption or endorsement of the T-S IRWM Plan does not imply that the organization necessarily supports every project that is included in the Plan. Rather, the organization is documenting their support for the objectives, targets, actions, and implementation framework recommended to implement the Plan. Projects will be reviewed by the Region's governing agencies (see Section 9) for implementation on a case-by-case basis as the Plan is implemented.

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Section 2: Region Description

2.1 Introduction

This section describes the Tuolumne-Stanislaus Region (T-S Region, Region). This section is intended to portray the Region's vast water resources and its linkage to the Region's geographical and socioeconomic makeup. Each subsection has been developed to address the IRWM Plan Requirements of Proposition 84 for the Region Description standard. The following description covers topics ranging from depictions of physical and climatological features, summary of water resources and demand projections, groundwater and surface water quality, ecological and environmental resources, and climate change considerations.

2.2 Region Overview

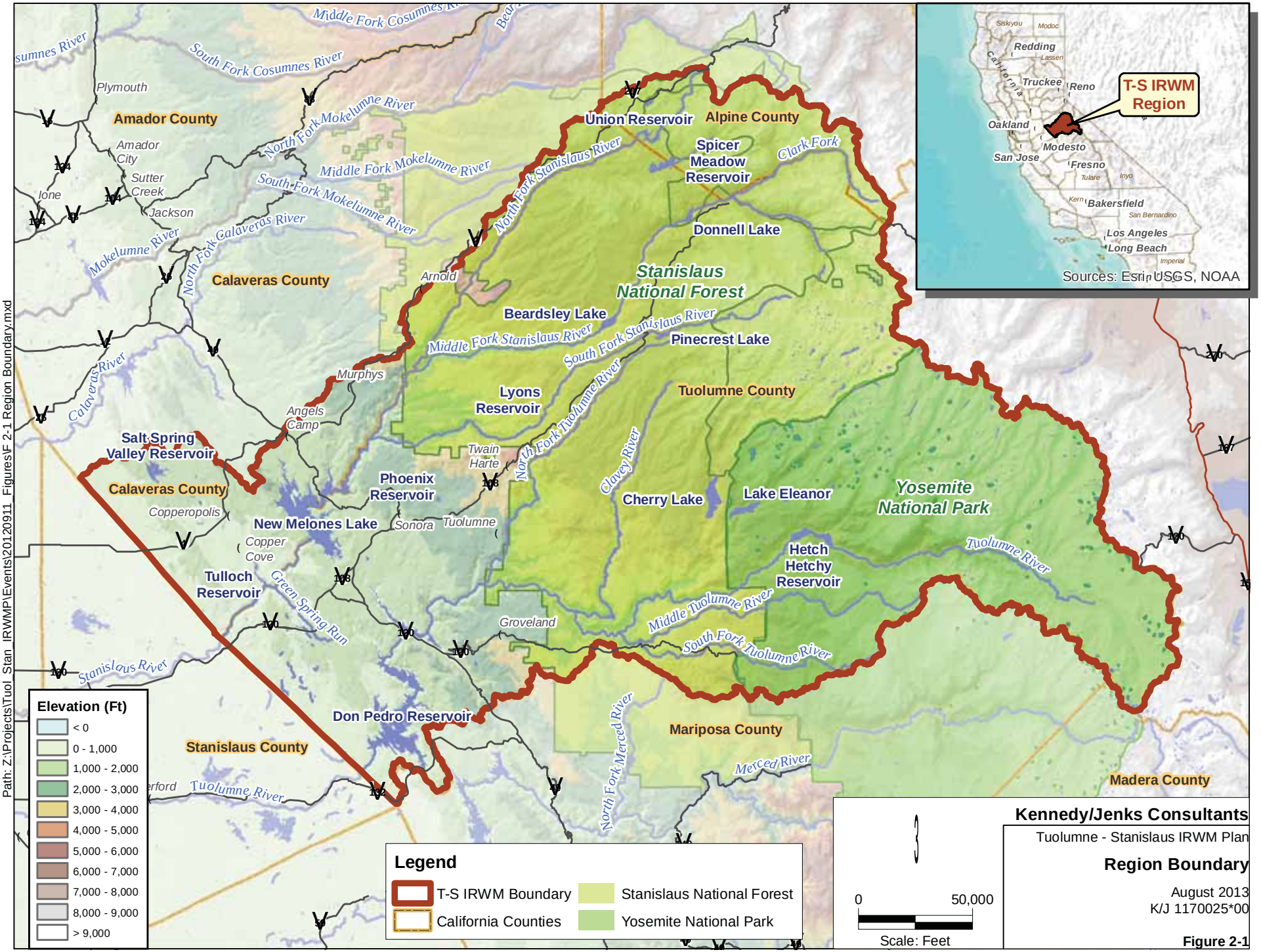
The T-S Region includes the Upper Tuolumne River, Upper Stanislaus River, and Upper Rock Creek-French Camp Slough watersheds. The Region boundaries, topography and key features are shown on Figure 2-1, with the watershed boundaries depicted on Figure 2-2. The Region land base varies significantly in topography, spanning a portion of the western slope of the Sierra Nevadas, rising from the lower Sierra foothills to the crest of the Sierra Nevada (a range of about 1,000 to 13,000 feet in elevation). The North Fork and mainstem Stanislaus River drainages delineate the northern boundary of the Upper Stanislaus River watershed, which also defines the boundary between Tuolumne and Calaveras counties. A series of ridgelines to the south delineate the drainage divide between the Upper Tuolumne River and the Merced River watersheds. The Rock Creek subwatershed catchment delineates the northern boundary of the Rock Creek-French Camp Slough Watershed.

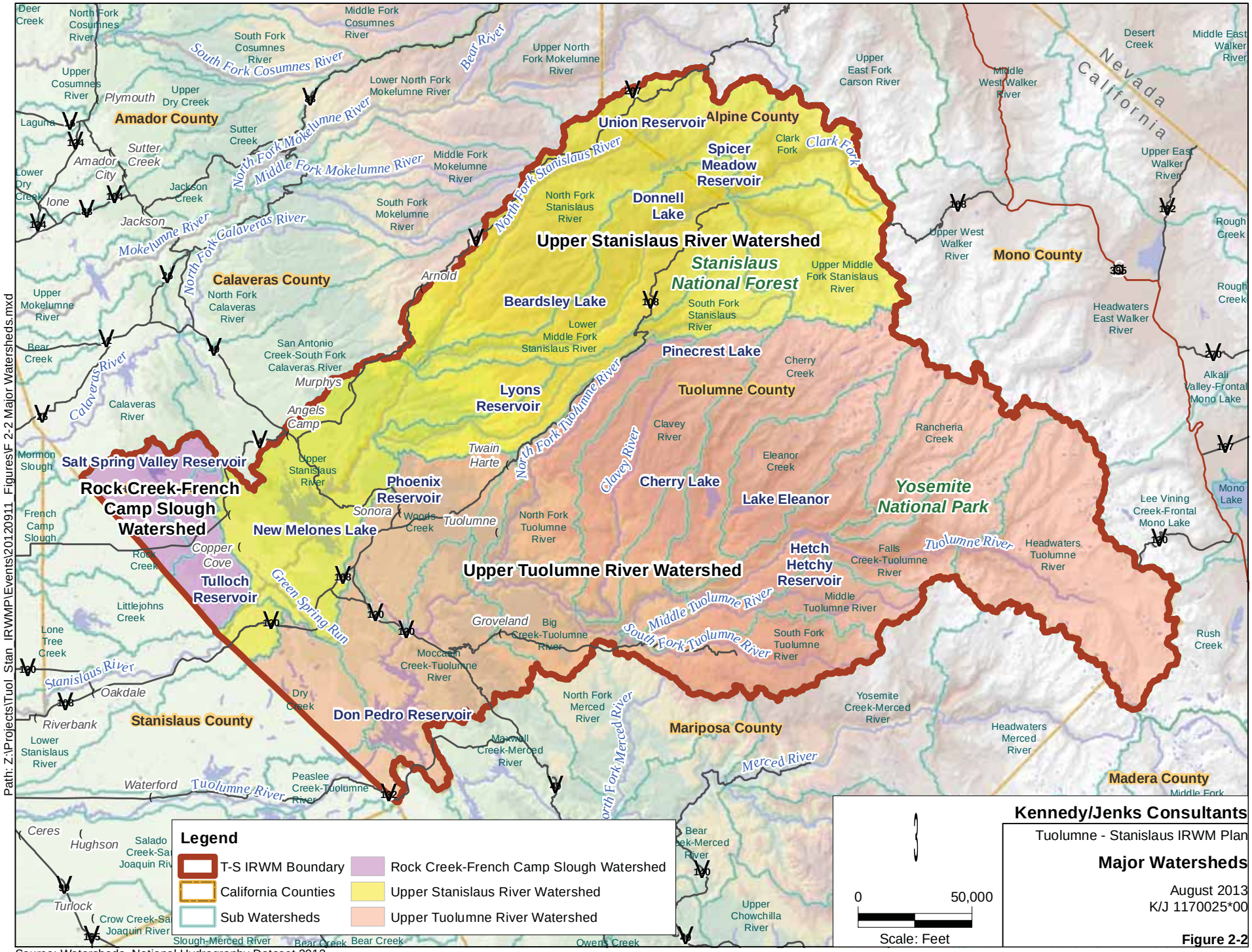
The Region is a sparsely populated area, consisting of communities situated in the foothills including Sonora, Angels Camp, Murphys, Groveland, and surrounding towns. Nearly all of the population of approximately 70,000 within the Region is in the Sierra foothill communities along the corridors of State Highways 4, 108 and 120, which are the Ebbetts, Sonora and Tioga Pass roads respectively. Upslope of these more developed communities are areas dominated by largely undeveloped forested lands.

The Stanislaus National Forest and Yosemite National Park occupy about two-thirds of the land area within the T-S Region. The total area of the T-S Region covers approximately 2,700 square miles (1,735,421 acres) as shown in Table 2-1 and encompasses all of Tuolumne County, the southern portion of Calaveras County, and a portion of southwestern Alpine County.

Table 2-1: T-S Region Boundary Areas

Land Category	Acres	Square Miles
Tuolumne County	1,459,110	2,280
Calaveras County	191,540	300
Alpine County	84,771	132
Total Area within Region Boundary	**1,735,421**	**2,712**


Path: Z:\Projects\Tuol_Stan_IRWMP\Events\20120911_Figures\F 2-1 Region Boundary.mxd
Amador County
Calaveras County
Tuolumne County
Alpine County
Mariposa County
Madera County
Stanislaus County
Stanislaus National Forest
Yosemite National Park
Union Reservoir
Spicer Meadow Reservoir
Donnell Lake
Beardsley Lake
Pinecrest Lake
Lyons Reservoir
Phoenix Reservoir
Cherry Lake
Lake Eleanor
Hetch Hetchy Reservoir
Salt Spring Valley Reservoir
New Melones Lake
Tulloch Reservoir
Don Pedro Reservoir
Plymouth
Amador City
Sutter Creek
Ione
Jackson
Arnold
Murphys
Angels Camp
Twain Harte
Copperopolis
Copper Cove
Sonora
Tuolumne
Groveland
Mokelumne River
North Fork Mokelumne River
Middle Fork Mokelumne River
South Fork Mokelumne River
North Fork Calaveras River
Calaveras River
Middle Fork Cosumnes River
South Fork Cosumnes River
North Fork Stanislaus River
Middle Fork Stanislaus River
South Fork Stanislaus River
Clark Fork
North Fork Tuolumne River
Clavey River
Tuolumne River
Middle Tuolumne River
South Fork Tuolumne River
Green Spring Run
Stanislaus River
North Fork Merced River
Merced River
Elevation (Ft)
< 0
0 - 1,000
1,000 - 2,000
2,000 - 3,000
3,000 - 4,000
4,000 - 5,000
5,000 - 6,000
6,000 - 7,000
7,000 - 8,000
8,000 - 9,000
> 9,000
Legend
T-S IRWM Boundary
California Counties
Stanislaus National Forest
Yosemite National Park
0
50,000
Scale: Feet
Redding
Truckee
Reno
Oakland
Modesto
San Jose
Fresno
Bakersfield
Los Angeles
Long Beach
T-S IRWM Region
Sources: Esri, USGS, NOAA
Kennedy/Jenks Consultants
Tuolumne - Stanislaus IRWM Plan
Region Boundary
August 2013
K/J 1170025*00
Figure 2-1



Source: Watersheds, National Hydrography Dataset 2012

2.2.1 History of Water Development in the Region

The waters of the Stanislaus and Tuolumne rivers are relied upon as critical supplies for invaluable river ecosystems, millions of people, hundreds of thousands of acres of prime farmland, and hydroelectric resources that are used throughout California. The history of the Region and development of specific linkages between the abundant water resources of the upper watersheds of the T-S Region to the downstream water users in the Bay Area, San Joaquin Valley, and southern California is described throughout this IRWM Plan.

Understanding the historical influences on water supply development and use in the Region provides essential context for the complex relationships that surround water management and the way these relationships have affected the water resources landscape over time. Historical understanding also provides a common foundation for addressing the Region's challenges and opportunities in the IRWM Plan.

2.2.1.1 Early History

The earliest known inhabitants within the T-S Region are Native Americans, thought to have first inhabited the area roughly 12,000 years ago. The Region was most recently inhabited by the Central Sierra Me-Wuk Indians. The Me-Wuk Indians had several villages throughout the lower foothills of the Region, located on ridges near small creeks and springs to use the associated resources such as willows for basket making and fish for consumption.

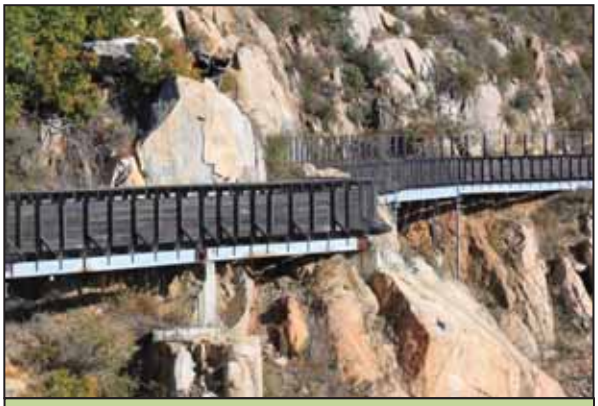
2.2.1.2 19th Century

Before the discovery of gold, few westerners settled within the Region. The discovery of gold in 1848 and the resulting influx of prospectors into California dramatically changed the makeup of the Region. Hillsides soon became pockmarked from mining operations. Channels and tunnels were cut to divert water so that streambeds could be mined. Invasive mining techniques were used such as dredging and re-routing waterways as well as the use of toxic chemicals for gold extraction such as mercury and cyanide. Mining in the Sierra Nevada was intimately connected to the development of lumber and water resources and promoted the development of camps and towns, such as Jamestown, Sonora, and Jacksonville, to supply the needs of miners and loggers. Water was necessary for gold production, and in later times it provided power for mining activities. Lumber was required to construct flumes to convey water, to support excavations, to provide fuel for steam engines and pumps, and to support tunnels. Lumber was also needed for housing and business structures. In addition, agriculture and livestock became a growing industry between the late 1800s to early 1900s, to support the growing population. Growth of logging and agriculture industries within the Region led to the development of an extensive roadway and rail system, much of which exists today and forms the base of the expanded road network.

2.2.1.3 Development of Water Supply Infrastructure

Rapid growth in mining activities during the mid-1800s created a need for reliable sources of water throughout the Region. Except during the rainy season and spring, the diggings were often dry, with too little water available to separate gold from the gravels. By 1850, the horde of miners who had poured into the area began to look for additional sources to provide a year-round supply of water. Potential sources were the creeks and rivers higher in the foothills, principally the watersheds of the South and Middle forks of the Stanislaus River and the North Fork Tuolumne River and their tributaries. Most other major drainages had ditches or small

dams as well, and were often dammed later in the 19th century for hydropower generation. Soon, there was an intricate set of ditches and flumes throughout the Region. Flumes were constructed of wood to divert water from streambeds, requiring the cutting of adjoining forests. This water was used and reused farther downstream.



¾ Mile Flume - Utica Power Authority

During this period, much of the water infrastructure was poorly built and maintained. Flumes often leaked or collapsed, creating erosion gullies. Water storage dams burst, generating great surges of water that pushed mud, stones, and trees before the flood.

With the general exodus after the gold was exhausted, many of the ditches throughout the Region were abandoned for a period. Over the ensuing years, the use of these ditches shifted from placer mining to hard-rock mining, on to agriculture, and, finally, to domestic use and hydropower, thus reflecting the changing economic pattern of not only Tuolumne County, but the entire foothill region.

2.2.1.4 20th Century and Development of Water Systems

As need for water in other areas within the state of California (State) grew during the early 1900s, many agencies from outside the Region secured water rights along the Tuolumne and Stanislaus rivers. These agencies include Pacific Gas and Electric Company (PG&E), San Francisco Public Utilities Commission (SFPUC), Modesto Irrigation District (MID), South San Joaquin Irrigation District (SSJID), Oakdale Irrigation District (OID) and Turlock Irrigation District (TID). Many of these agencies built and/or own the dams and hydroelectric facilities along the Tuolumne and Stanislaus Rivers and their tributaries. Below is a brief summary of the history of some of the major facilities, shown on Figure 2-1, that were constructed within the Region. Each of the facilities listed below are still operational today (although ownership of some facilities has changed).

- PG&E Hydropower Facilities: Spring Gap-Stanislaus Hydroelectric Project: Spring Gap Dam was built to form Pinecrest Lake (also known as Strawberry Reservoir) in 1914. The impoundment was built to provide water through a series of ditches and flumes to the lower elevation communities such as Columbia and to generate power through the Spring Gap powerhouse. In 1923, PG&E purchased the Spring Gap Dam and currently operates the 18,310 acre-feet (AF) Pinecrest Lake under Federal Energy Regulatory Commission (FERC) license 2130. Most of the Spring Gap-Stanislaus Project is located within the Stanislaus National Forest (SNF) and project operations must also be consistent with the SNF's Land Resource Management Plan. In addition, Tuolumne Utilities District (TUD) has a contract whereby PG&E provides 95% of TUD's water supply, delivered through the ditches and flumes, many of which were constructed in the early 1900s. (FERC, 2004)

- Hetch Hetchy Project: In the late 1800s, the City of San Francisco decided to develop its own water supply system, which culminated in the planning, financing, and construction of the Hetch Hetchy Project, along the Upper Tuolumne River, with construction

beginning in 1914. A series of tunnels and aqueducts were built that span from Hetch Hetchy Reservoir to San Francisco (SFPUC, 2011). The Hetch Hetchy Project includes three reservoirs, associated hydroelectric facilities, and a major diversion to the Hetch Hetchy tunnel and aqueduct system, which transports water over 150 miles across the Central Valley to the San Francisco Bay Area for municipal use. Water transferred from the 360,000 AF Hetch Hetchy Reservoir provides an average of 220 million gallons per day (246,000 acre-feet per year (AFY)) to more than 2.4 million people in the San Francisco Bay Area.

- New Don Pedro Reservoir: As irrigation became a growing industry in the San Joaquin Valley, agencies realized the need for additional water sources. TID and MID secured water rights on the Tuolumne River in the early 1900s and built the original Don Pedro Dam in 1923. A larger Don Pedro was completed in 1971 creating what is known today as the New Don Pedro Reservoir. Water passes through a powerplant at the dam and then down the Tuolumne River to La Grange Dam, 2.5 miles downstream, where it is diverted into the Turlock and Modesto canals for irrigation. (ESA, 2007)

- Tri-Dam and New Melones Lake: In 1910 the OID and the neighboring SSJID purchased Stanislaus River water rights and some existing conveyance facilities from previous water companies. The districts continued to expand their facilities and infrastructure over the next several decades. Since their creation, OID and SSJID have constructed dams and reservoirs to regulate surface water storage and deliveries. Most dams were constructed in the 1910s and 1920s, including Goodwin Dam (1913), Rodden Dam (1915), and Melones Dam (1926). Sites were approved in 1948 for the Tri-Dam Project, which included Donnells Dam and Beardsley Dam on the Middle Fork Stanislaus River, and Tulloch Dam above Goodwin. In the 1970s, the United States Bureau of Reclamation (Reclamation) replaced the Melones Dam with the larger New Melones Dam and Reservoir, which is part of the Federal Central Valley Project. (ESA, 2007)

2.3 Social and Cultural Makeup

The story of the Region's development earlier in this section hints at the broad range of social and cultural values that characterize the area. Although there is not a large population within the Region, much of the community areas that do exist are considered disadvantaged communities.

2.3.1 Population

The estimated permanent residential population of the T-S Region is 70,200 (2010 U.S. Census Data). Regional population growth was estimated through 2035, as provided in Table 2-2. The growth rates used in the projections were based on historical growth rates presented in the Calaveras County General Plan Housing Element Update (2010) for Calaveras County (period from 2000-2009). Because the Tuolumne County General Plan is currently being updated, TUD's projections presented in the 2010 Urban Water Management Plan (UWMP) were used for Tuolumne County. Because the portion of Alpine County that is a part of the T-S Region is a small, relatively isolated part of the county, it was assumed that population projections for Tuolumne County more closely represented this portion of Alpine County; therefore, the same growth rates assumed for Tuolumne County were also assumed for Alpine County.

As stated above, the population estimates in Table 2-2 represents the permanent residential population. There are multiple reasons why community-specific and seasonal populations vary

considerably across the Region. A significant percentage of the community lives outside the Region for much of the year and maintains a second home or part-time residence within the Region. For this reason, the actual population within the Region can fluctuate widely between seasons, with notable peaks occurring during the summer months. Large residential development proposals in recent years in certain areas within Calaveras County, and to a lesser extent Tuolumne County, could also significantly affect population growth patterns within the T-S Region. The areas with the greatest projected growth within the Region are the areas of Copper Cove/Copperopolis area, located in the southern portion of Calaveras County, and Sonora in Tuolumne County.

Modern historical population growth rates in Tuolumne County were the highest in the 1970s and 1980s with an average annual growth rate of 6 %. Similarly, Calaveras County, as a whole, had a high of approximately 5% annual population increases in the 1980s. Recent growth trends and current projections for the entire T-S Region are much lower and are in the range of 1-2% annual population growth. Low growth rates in the T-S Region are due to a number of factors including not enough job opportunities that results in higher than average unemployment rates, low median household income, and lack of affordable housing. Additionally, infrastructure to support growth within the Region is limited, and when combined with development fees and requirements, land values and permit processing, make providing affordable housing for growth for new residents challenging. (Tuolumne County, 1996)

Table 2-2: Population Projections

Area within T-S Region	2010[3]	2015	2020	2025	2030	2035
Portion of Alpine County[1]	120	127	134	141	149	157
Portion of Calaveras County[2]	14,704	15,685	16,731	17,847	19,038	20,308
Tuolumne County[1]	55,365	58,420	61,644	65,045	68,634	72,421
Total	70,189	74,232	78,508	83,033	87,821	92,886

1. County-wide projections based upon TUD 2010 UWMP, non-acquisition growth rate, estimated for period 2010-2035.
2. Calaveras County General Plan Housing Element Update (2010), average of period 2000-2009.
3. 2010 U.S. Census Data.

2.3.2 Socioeconomic Conditions

The T-S Region's socioeconomic conditions have greatly changed since its early development in the 1850s. Prior to western industrialization, mining, and agricultural, the area was sparsely populated, primarily by Native Americans residing in the foothills. In 1848, the discovery of gold brought a new economic boom to the area, which led to the creation of many of the small towns in the Region that are still in existence today. After World War II, gold mining was largely abandoned and industries such as lumber, mining of other minerals, and agriculture, originally support industries, became the key industries. Today, the economy is continuing to evolve from the historic industries of agriculture, mining and timber, to a more service-based economy. This trend is expected to continue into the future (Tuolumne County, 1996).

The median 2010 household income is $47,462 in Tuolumne County, $54,971 in Calaveras County, and $63,478 in Alpine County (see Table 2-3 below). The unemployment rate within the Region has been generally higher than the average unemployment rate within California. According to the California Employment Development Department, Tuolumne County reported unemployment to be 12.8% in December 2011. The unemployment rate in Calaveras County is even higher at 14.1%. These rates have increased from around 6% since 2000, following trends in the State and national economy. In recent years, the closure of lumber mills, tourist-oriented

businesses, and other commercial and industrial-based enterprises in the Region have prompted a continued and sustained decline in prosperity. Table 2-3 provides a summary of demographic data including age, gender, race and income for the counties of Calaveras, Tuolumne, and Alpine based on 2010 five-year data from the American Community Survey. The data includes the areas of Calaveras and Alpine Counties that are not within the T-S Region boundary.

Table 2-3: Demographic Data

	Calaveras County	Tuolumne County	Alpine County
Age			
Under 5 years	4.1%	4.3%	9.4%
5 to 9 years	4.8%	4.7%	8.0%
10 to 14 years	6.6%	5.2%	3.3%
15 to 19 years	6.4%	5.9%	9.3%
20 to 24 years	4.4%	5.6%	6.2%
25 to 34 years	7.6%	10.8%	3.9%
35 to 44 years	10.8%	11.7%	16.2%
45 to 54 years	17.6%	16.2%	21.9%
55 to 59 years	8.5%	8.9%	7.5%
60 to 64 years	9.1%	7.3%	4.4%
65 to 74 years	11.8%	10.4%	6.8%
75 to 84 years	5.5%	6.4%	2.7%
85 years and over	2.7%	2.4%	0.3%
Gender			
Male	50.0%	53.1%	56.6%
Female	50.0%	46.9%	43.4%
Income			
Less than $10,000	4.7%	4.7%	4.1%
$10,000 to $14,999	5.4%	6.7%	2.7%
$15,000 to $24,999	10.4%	13.4%	7.3%
$25,000 to $34,999	9.6%	11.5%	14.4%
$35,000 to $49,999	15.1%	15.5%	13.7%
$50,000 to $74,999	18.5%	19.1%	21.2%
$75,000 to $99,999	13.6%	11.4%	10.0%
$100,000 to $149,999	15.7%	11.4%	15.1%
$150,000 to $199,999	4.4%	3.0%	7.6%
$200,000 or more	2.6%	3.2%	3.9%
Median household income (dollars)	54,971	47,462	63,478

Source: 2006-2010 American Community Survey

2.3.3 Disadvantaged Communities

Disadvantaged Communities (DACs), as defined by both Propositions 50 and 84, are communities whose average Median Household Income (MHI) is less than 80% of the statewide annual MHI. Severely disadvantaged communities are defined as communities whose average MHI is less than 60% of the statewide annual MHI. In 2010, 60% of the state of California's MHI was $36,530, and 80% of the state of California's MHI was $48,706, with a statewide MHI of $60,883. A number of communities within the T-S Region have been identified as DACs.

Figure 2-3 shows the areas based on Census tracts, block groups, and places within the T-S Region that are considered a DAC based on the 2006- 2010 data from the American Community Survey. The communities that are considered to be DAC include the Angels Camp, Arnold, Murphys, Twain Harte as well as portions of Sonora, and Groveland and unincorporated county areas.

2.3.4 Native American Tribes

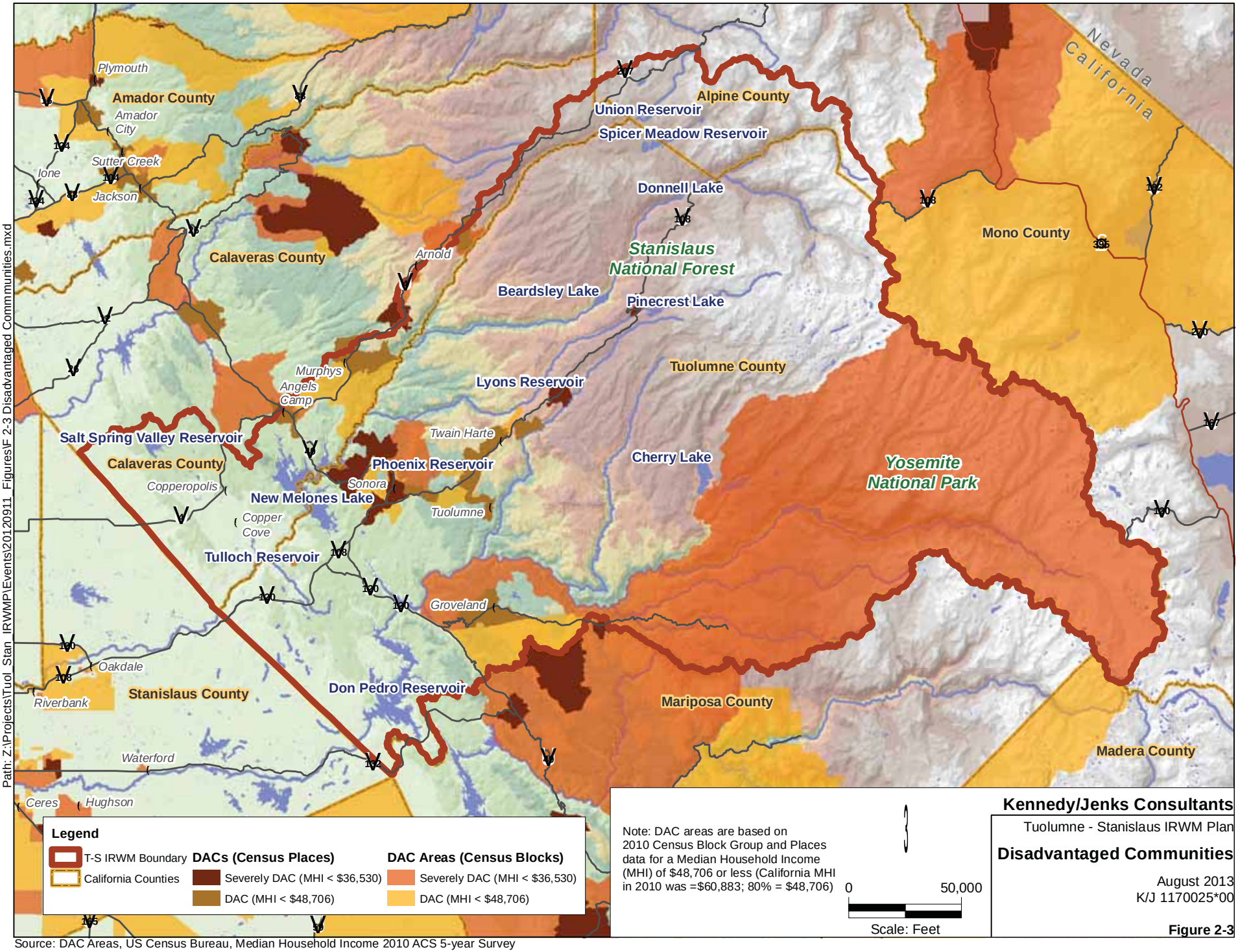
The earliest recorded history of the Region begins with Native Americans. Research suggests that people have inhabited the Sierra Nevada region for roughly 12,000 years, with the most recent Native American occupants being the Central Sierra Me-Wuk. Due to the severe weather in the upper Sierras, the Me-Wuk tribes historically lived in the lower foothills of the Sierra Nevada's. Most of their villages were located on ridges or terraces above streams. Movement of westerners to Tuolumne County, during the gold rush, greatly impacted the lives of the Me-Wuk tribes. Disease, disturbance of hunting and fishing grounds, and skirmishes with the Westerners led to a large decrease in population by the early 1900s.

The T-S Region is home to two federally recognized Me-Wuk tribes, the Tuolumne Band and the Chicken Ranch Band. The tribal areas within the Region are shown on Figure 2-4. In addition, the T-S Region is home to non-federally recognized tribes such as the Tuolumne Algerine Band of Yokut. Protection of sacred lands, waters, and natural resources (i.e., native plants, birds, animals, and medicines of the land) continue to be a priority for these tribes. Water is seen as sacred and goes beyond just quantification. Water is seen as a cycle of life, from the ocean to the top of the mountain snows, and natural filtration of streams and rivers. Water stewardship is important in managing headwaters, mountain meadows, watersheds, and major rivers. Among many of the current Tribal concerns relating to water include restoration of meadows that have dried and are no longer available for gathering and have become inundated with invasive species such as star thistle.

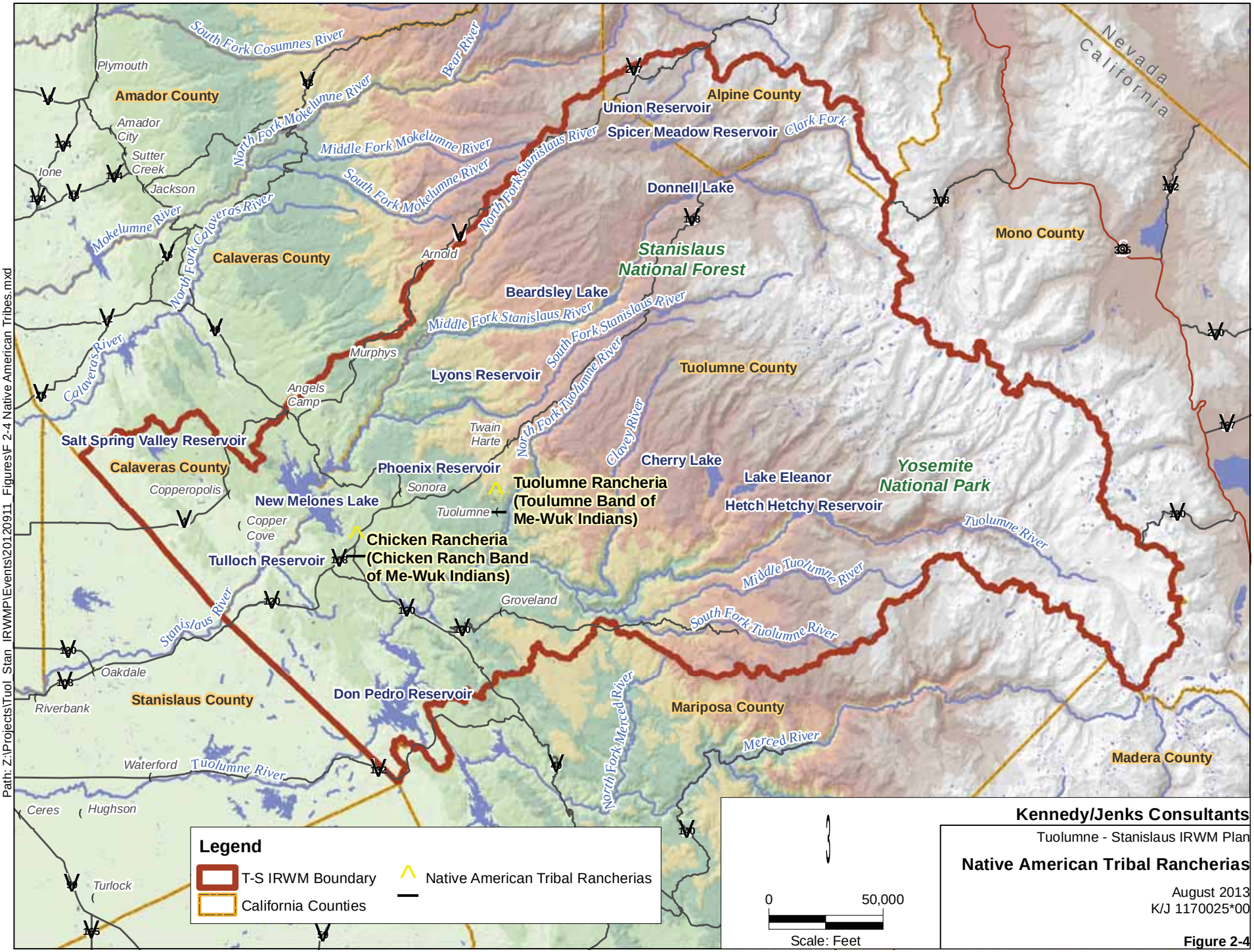
2.3.5 Water-Dependent Recreation

The Stanislaus River, Tuolumne River and their associated reservoirs and lakes provide extensive opportunities for water-dependent recreation. Fishing, boating, rafting, and kayaking are among many water-based activities that are popular in the Region. Some of the popular recreation reservoirs include New Melones Lake, Don Pedro Reservoir, and Pinecrest Lake.

Snowmelt from Mount Lyell forms the headwaters of the Tuolumne. The headwaters of the Tuolumne River begin at 13,000 feet in Yosemite National Park in the Sierra Nevada mountains. As the river increases in flow, it carves out canyons that provide 27 miles of world-class whitewater for rafters and kayakers. Similarly, the Stanislaus River is also a popular whitewater destination with the North Fork Class IV rapid starting in Calaveras Big Trees State Park.



Source: DAC Areas, US Census Bureau, Median Household Income 2010 ACS 5-year Survey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South Fork Cosumnes River
Bear River
Plymouth
Amador County
Amador City
Sutter Creek
Ione
Jackson
North Fork Mokelumne River
Middle Fork Mokelumne River
South Fork Mokelumne River
Mokelumne River
North Fork Calaveras River
Calaveras County
Calaveras River
Arnold
North Fork Stanislaus River
Alpine County
Union Reservoir
Spicer Meadow Reservoir
Clark Fork
Donnell Lake
Stanislaus National Forest
Beardsley Lake
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Calaveras County
Phoenix Reservoir
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Lake Eleanor
Yosemite National Park
Copperopolis
Sonora
Tuolumne Rancheria (Toulumne Band of Me-Wuk Indians)
New Melones Lake
Tuolumne
Hetch Hetchy Reservoir
Copper Cove
Chicken Rancheria (Chicken Ranch Band of Me-Wuk Indians)
Tulloch Reservoir
Tuolumne River
Middle Tuolumne River
Groveland
Stanislaus River
South Fork Tuolumne River
Oakdale
Riverbank
Stanislaus County
Don Pedro Reservoir
Mariposa County
North Fork Merced River
Merced River
Madera County
Waterford
Tuolumne River
Ceres
Hughson
Turlock
Nevada
California
Mono County
Legend
T-S IRWM Boundary
California Counties
Native American Tribal Rancherias
0
50,000
Scale: Feet
Kennedy/Jenks Consultants
Tuolumne - Stanislaus IRWM Plan
Native American Tribal Rancherias
August 2013
K/J 1170025*00
Figure 2-4

2.4 Climate

The T-S Region's dramatic elevation differences from the crest of the Sierras to the low elevation foothills creates a wide range of temperatures, precipitation, and snowfall. The lower elevation Sierra Nevada foothill areas experience hot, dry summers with little to no precipitation and mild, wet winters with moderate to heavy precipitation. The higher elevations, generally above 5,000 feet, typically experience long and severe winters, accompanied by heavy snowfall. In the foothill region, total annual rainfall averages range from approximately 32 inches (in.) in the lower foothills to 55 inches in the upper foothills, with little to no snowfall in the lower foothills and minimal snow pack in the upper foothills.

The higher elevation, mountainous terrain of the Sierras receives large amounts of snow fall, which during periods of snowmelt provides significant seasonal runoff of stored water that feeds the watersheds streams and rivers throughout the spring and early summer. For example, an upper Sierra snow monitoring station (Gaylor Meadow) at elevation 9,200 feet has experienced an average maximum snow accumulation of 82 inches between 2007 and 2011. Snow depths throughout the Sierras vary widely due to terrain composition, vegetation, and elevation changes. An example of monthly snow depth variation within the T-S Region is shown in Figure 2-5.

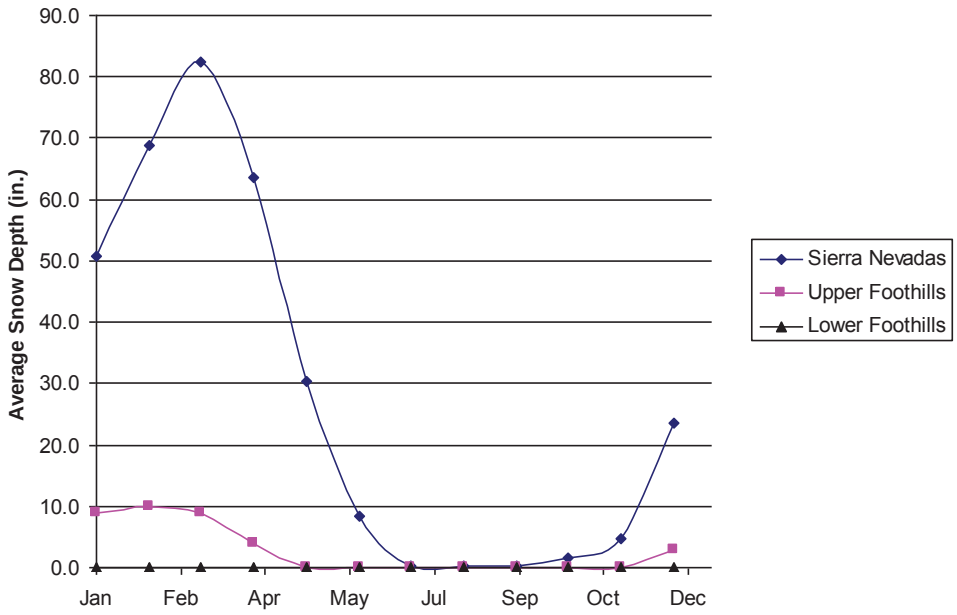


Figure 2-5: Snow Depth Variation within the T-S Region

The Western Regional Climate Center records temperature, rainfall, and snowfall at various stations throughout the Western United States and provides the data on their website (www.wrcc.dri.edu). Three stations were chosen to provide a representative sample of the varying climates in the Region: the stations are located at elevations of 1,000 feet above sea level (New Melones Dam Station), representative of the lower foothills; 4,700 feet above sea level (Calaveras Big Trees Station), representative of the upper foothills; and 9,200 feet above sea level (Gaylor Meadows), representative of the Sierra Nevadas. The average daily rainfall, temperature averages, snowfall, and snow depth, provided in Table 2-4, Table 2-5, and Table 2-6 are based on averages of record temperatures measured over an extended period of time, dependent on the available station data.

Evapotranspiration is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). Evapotranspiration rates are affected by temperature, relative humidity, wind and air movement, soil-moisture availability, and type of plant. Similar to the Western Regional Climate Center, the California Irrigation Management System (CIMIS) web site (Http://www.cimis.water.ca.gov) tracks and maintains records of evapotranspiration (ETo) for select cities. ETo statistics used for the Region come from a nearby foothill region as there are no CIMIS stations located within the T-S Region. The average ETo is calculated from the foothill stations, with historical records ranging from 1 to 28 years. As most agriculture and populated areas are located in the lower foothills, ETo was included for this elevation only.

Table 2-4: Climate Information for Lower Foothills, Elev. 1,000 ft

	Standard Monthly Average ETo (in.)	Average Total Precipitation (in.)	Average Total Snowfall (in.)	Average Snow Depth (in.)	Average Max Temperature (°F)	Average Min. Temperature (°F)
January	1.21	6.93	0	0	56.3	38.1
February	1.77	5.36	0	0	59.2	39.9
March	3.02	4.21	0.3	0	64.8	43.2
April	4.54	2.55	0	0	69.2	45.1
May	5.92	1.75	0	0	79.3	52.3
June	7.34	0.52	0	0	88.3	58.2
July	8.64	0.03	0	0	96.7	65
August	7.83	0.05	0	0	95.9	63.9
September	5.88	0.21	0	0	90.5	59.7
October	4.04	1.56	0	0	78.8	52
November	1.86	2.8	0	0	65.1	43.6
December	1.21	5.78	0	0	56.5	38[1,2]
Total	53.26	31.75	0.30	Not applicable	Not applicable	Not applicable

1. Evapotranspiration (ETo) based on foothill region data from http://www.cimis.wataer.ca.gov/cimis/welcom.isp
2. Other Climate Data based on Station number 046174 (New Melones Dam), period of record 3/1/1992-10/31/2011. www.wrcc.dri.edu

Table 2-5: Climate Information for Upper Foothills, Elev. 4,700 ft

	Average Total Precipitation (in.)	Average Total Snowfall (in.)	Average Snow Depth (in.)	Average Max Temperature (°F)	Average Min. Temperature (°F)
January	10.39	29.6	9	45.2	27.6
February	9.43	23.6	10	46.9	28.5
March	8.06	27.3	9	50.4	30.1
April	4.57	16.1	4	56.4	33.6
May	2.23	2.1	0	65.2	39.7
June	0.65	0.1	0	74.6	46.3
July	0.14	0	0	83.2	52.3
August	0.15	0	0	82	51.1
September	0.68	0	0	75.9	46.9
October	2.94	0.4	0	65.4	39.9
November	5.76	8.2	0	53.5	32.6
December	9.37	22	3	46.6	28.7
Total	54.37	129.40	35.00	Not applicable	Not applicable

1. Climate Data based on Station number 041277 (Calaveras Big Trees), period of record 10/1/1929-10/31/2011. www.wrcc.dri.edu

Table 2-6: Climate Information for Sierra Nevadas, Elev. 9,270 ft

	Average Total Precipitation (in.)	Average Snow Depth (in.)	Average Max Temperature (°F)	Average Min. Temperature (°F)
January	1.72	50.6	32.5	21.4
February	2.4	68.9	30.9	19.3
March	2.5	82.5	35.1	21.5
April	2.2	63.6	36.8	23.8
May	2.3	30.3	45.1	31.2
June	0.8	8.3	53.5	38.5
July	0.3	0.4	62.0	46.4
August	0.4	0.4	60.0	44.7
September	0.7	0.4	55.2	40.5
October	2.6	1.6	41.1	29.0
November	1.7	4.6	37.1	26.6
December	3.8	23.4	31.4	21.6
Total	21.42	335.00	Not applicable	Not applicable

1. Climate Data based on Station number 043611 (Gaylor Meadows), period of record 1/1/2003 to 12/31/2011, except for snow depth, which was from 1/1/2007 to 12/31/2011. www.wrcc.dri.edu
2. Snow fall data was not available for Gaylor Meadows station.

2.5 Land Use

As discussed in Section 2.1, the Region has had a unique history over the past few centuries, which is essential to understanding the manmade transformation the Region has undergone and the influence these land use activities have had on the management of water resources. Since Westerners first began to populate the Region in the 1850s, a portion of the landscape was largely transformed through forestry, mining, construction of roadways, urban development and construction of dams on streams and rivers within the Region.

Today, land use in the T-S Region remains diversified, ranging from small developed urban areas, rural communities, large ranches and agricultural areas, to vast areas of federally managed National Forest and National Park lands, as shown in Table 2-7. The Region affords an abundance of natural resources, including water, and provides extensive recreational opportunities. The T-S Region as a whole is sparsely populated, with the majority of its communities located along the corridors of state Highways 4, 108 and 120 – the Ebbetts, Sonora and Tioga Pass roads. These towns include Angels Camp, Murphys, Copper Cove, Copperopolis, Sonora, Twain Harte and Groveland.

This farm depicts agricultural land use in the T-S Region.

Table 2-7: DWR Survey Land Use in T-S Region

Land Use Category	Acres	Percentage
Native (including National Forest and National park areas)	1,695,527	97.7%
Agricultural	3,074	0.2%
Urban	29,585	1.7%
Commercial	1,779	0.1%
Industrial	2,021	0.1%
Other	3,434	0.2%
Total	1,735,421	100%

Source: Land Use Survey, Department of Water Resource
Tuolumne County (1997), Calaveras County (1998), Alpine County (2001)

A majority (approximately two thirds) of the T-S Region is dominated by coniferous forests. The forests consist primarily of federally owned land including the Stanislaus National Forest and Yosemite National Park, which are managed by the U.S. Forest Service (USFS) and the National Park Service (NPS). Approximately 90% of the 898,099 acre Stanislaus National Forest area is within the T-S Region; a portion of these lands are privately owned for timber harvesting and other uses. The *Stanislaus National Forest Plan-Forest Plan Direction,* along with the *Forest Service Manual,* promulgates the policies and regulations governing the Stanislaus National Forest. The portion of the Stanislaus National Forest within the T-S Region contains portions of dedicated wilderness, called the Emigrant Wilderness and the Carson-Iceberg Wilderness which are restricted to foot or equine access. There are various recreational opportunities for visitors throughout these forest and wilderness areas including camping, swimming, hiking, and fishing.

The state of California manages the 6,498 acre Calaveras Big Trees State Park, which is located in Calaveras County along Highway 4, just north of the unincorporated area of Arnold. The *Calaveras Big Trees State Park General Plan* lays out the policies and regulations governing the Park including future development of visitor facilities, protection of resources and park operations. The federal and state parks/forests comprise the majority of the eastern portions of the T-S Region.

The northern portion (about 50 %) of the 761,266 acre Yosemite National Park (Yosemite) is located within the southeastern portion of the T-S Region. Yosemite is best known for its waterfalls, notably those present in the southern portion of the park; however, the park also contains large areas of wilderness, meadows and giant sequoias. The park is managed by the NPS.

In addition to agriculture and timber production, mineral resources and grazing are a fundamental part of the Region's economy. Although gold mining dominated the mining industry between the 1850s and the 1940s, since then, other mining operations of mineral commodities within the Region have increased. These include, asbestos, clay, chromite, construction aggregate, copper, decorative rock, diatomite, dimension stone, dolomite, graphite, lead, limestone, magnesite, manganese, platinum, silver, talc, tungsten, uranium, and zinc. The most important of these in tonnage and value are construction aggregate, dimension stone, dolomite, limestone, and silver. Additionally, grazing is an important land use within the T-S Region. Originally grazing within the area was dominated by sheep; however, since the 1900s, cattle have replaced sheep on many grazing areas with the Region.

The T-S Region, like many regions in California, is facing increased growth and development pressures. Significant residential and agricultural developments have been considered for areas within the T-S Region, particularly in Calaveras County near the Copperopolis and Salt Springs Valley communities, where increased water use projections for agricultural and residential use in the area increase by approximately 38,000 AFY by the year 2035. An increase in agricultural development would create an increased need for water resources within the area. In Tuolumne County, much of the growth is expected to be focused on urbanization and expansion of Sonora and the surrounding communities; agricultural water use projections are much smaller, with a projected increase of approximately 900 AFY by the year 2035. Figure 2-6 shows the current general plan land use designations for the entire T-S Region. The general plan land use acreages shown in Table 2-8 for the Region show much larger areas of residential, commercial, industrial and agricultural areas than is shown in the land use data recorded during the DWR land use surveys conducted between 1997-2000 (Table 2-7). The zoned land use within the Region, which may or may not actually be developed. Additionally, the agricultural areas shown in Table 2-7 do not include non-irrigated pasture or forested areas used for timber production.

Table 2-8: General Plan Land Use in the T-S Region

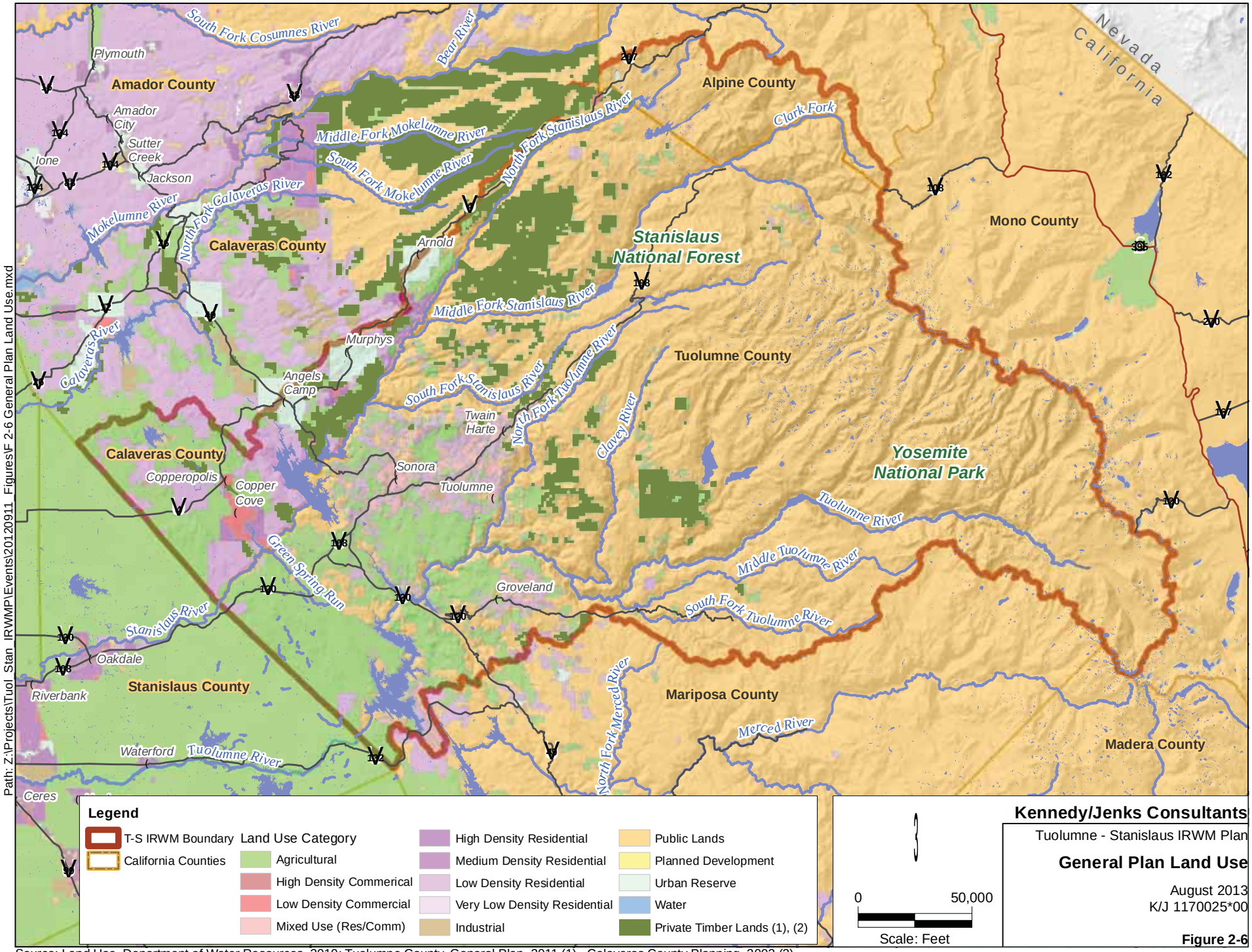
Land Use Category	Acres	Percentage
Open Space/Public Lands/Water	1,224,792	71%
Agricultural	115,601	7%
Timber	230,179	13%
Urban Reserve	16,677	1%
Residential	103,337	6%
Mixed Use (Res/Comm)	33,752	2%
Commercial	6,451	0.4%
Industrial	3,081	0.2%
Other	1,552	0.1%
Total	1,735,421	100%

Source: Land Use, DWR, 2010. Tuolumne County General Plan, 2011. Calaveras County General Plan, 2002.

2.6 Jurisdictional Boundaries

A number of natural boundaries such as groundwater basins and watersheds as well as jurisdictional boundaries such as county lines, municipalities, water service areas, wastewater service areas, federally recognized Native American Tribes, and land use agencies exist within the boundaries of the Tuolumne-Stanislaus Region. Jurisdictional boundaries are discussed in this section.

The T-S Region's boundary includes all of Tuolumne County and part of Calaveras County and Alpine County, as shown on Figure 2-1. The Region's main communities are situated in the foothills and include Copperopolis, Copper Cove, Angels Camp, Murphys, Arnold, Sonora, Groveland, Tuolumne and Twain Harte. The only two incorporated cities are Sonora and Angels Camp; the remaining communities are unincorporated and are governed by their respective counties. Upslope of these developed areas, the Stanislaus National Forest, managed under the authority of the USFS, and Yosemite National Park, managed by the NPS, occupy about two-thirds of the land base within the T-S Region's boundaries. Additionally, Calaveras Big Trees State Park is located near Arnold. The two wilderness areas, Emigrant and Carson-Iceberg, are managed by the USFS.



Source: Land Use, Department of Water Resources, 2010; Tuolumne County, General Plan, 2011 (1), Calaveras County Planning, 2002 (2).

The larger water providers in the Region include TUD, Groveland Community Services District (GCSD), Calaveras County Water District (CCWD), Utica Power Authority (UPA), Union Public Utilities District, Lake Don Pedro Community Services District, Angels Camp, and Sierra Conservation Center (a state prison). Additionally there are a number of mutual and private water agencies, which include areas such as mobile home parks and campgrounds.

Special districts within the T-S Region provide agricultural and municipal water and wastewater collection and treatment services. Wastewater collection and treatment agencies include TUD, Angels Camp, CCWD, Tuolumne Sanitary District, Jamestown Sanitary District, GCSD, Murphy's Sanitary District, and Twain Harte CSD. Unsewered areas within the T-S Region are served by onsite septic systems.

The two federally recognized Native American tribes with sovereignty over their lands within the region are the Tuolumne Band of Me-Wuk and Chicken-Ranch Band of Me-Wuk.

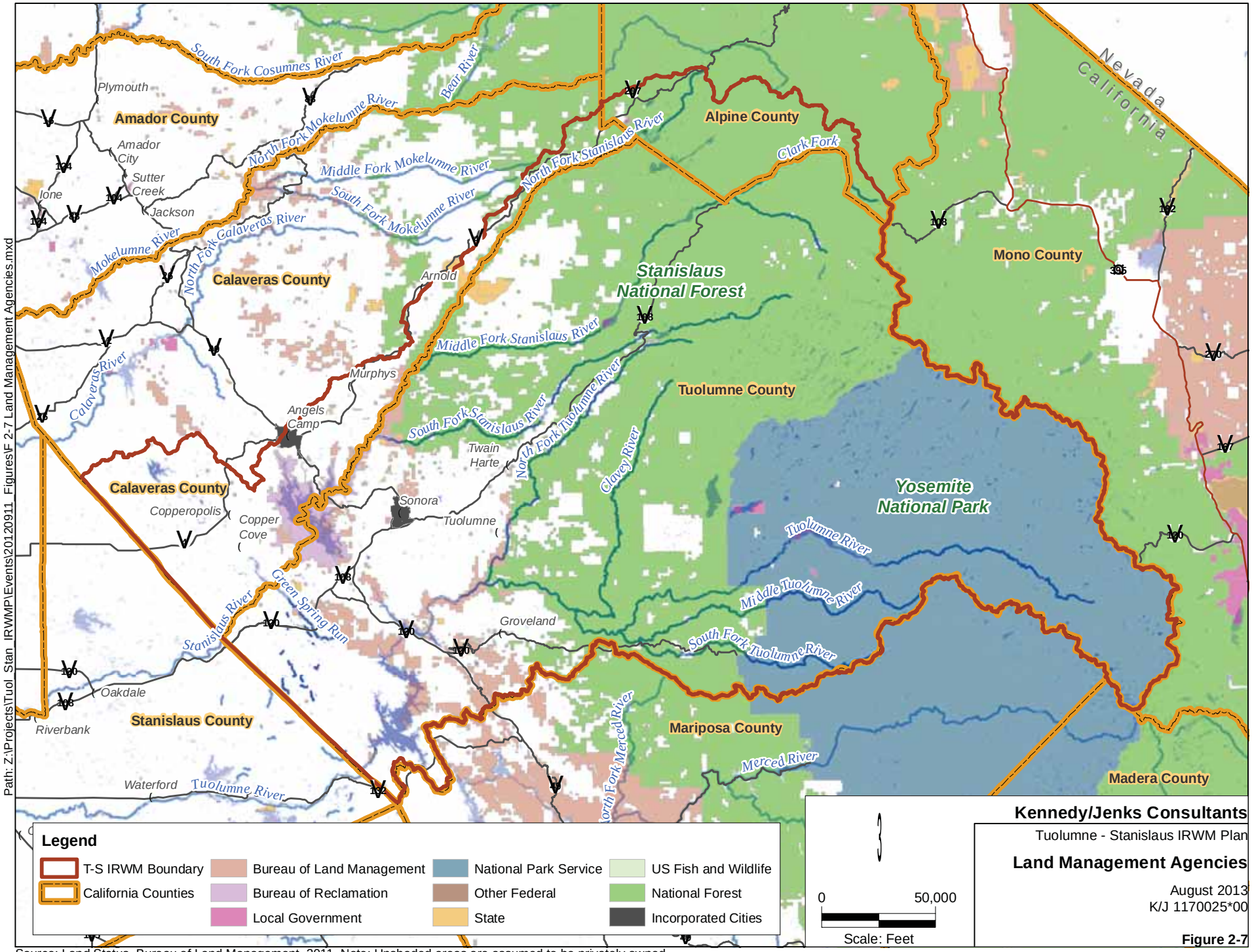
Figure 2-7 and Figure 2-8 provide the jurisdictional and service area boundaries for all of the internal political boundaries described in Table 2-9 and Table 2-10.

Table 2-9: Governmental and Land Management Agencies

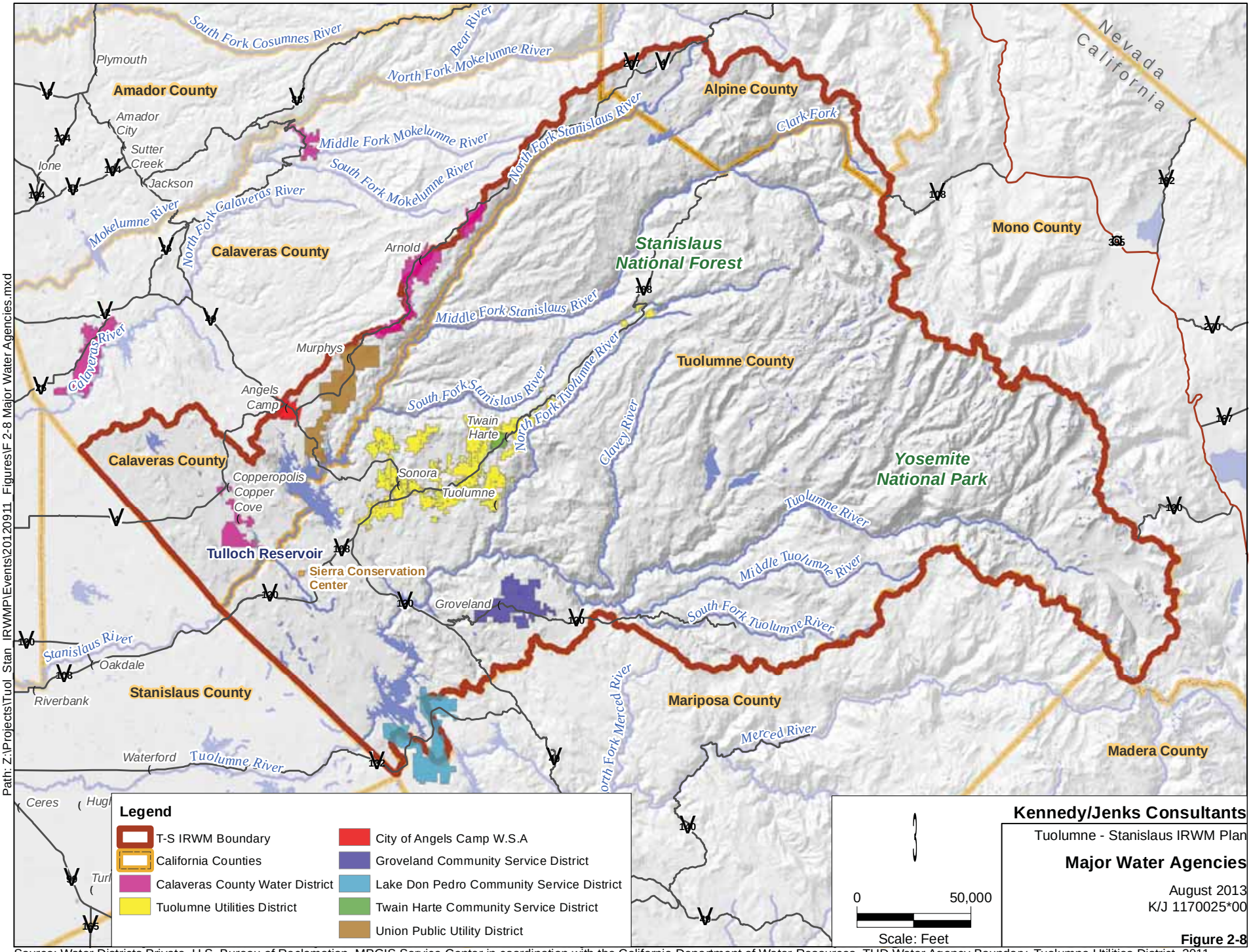
Agency	Jurisdictional Role
Tuolumne County	County
Calaveras County	County
Alpine County	County
Angels Camp	City/Water/Wastewater Provider
City of Sonora	City
United States Forest Service	Management of Stanislaus National Forest
National Park Service	Management of Yosemite National Park
California State Parks	Management of Calaveras Big Trees State Park
Bureau of Land Management	Federal Agency
Tuolumne Band of Me-Wuk	Federally Recognized Native American Tribes
Chicken Ranch Band of Me-Wuk	Federally Recognized Native American Tribes

Table 2-10: Water and Wastewater Agencies

Agency	Jurisdictional Role
Calaveras County Water District	Water/Wastewater Provider
Groveland Community Services District	Water/Wastewater Provider
Tuolumne Utilities District	Water/Wastewater Provider
Twain Harte Community Services District	Water/Wastewater Provider
Utica Power Authority	Water Provider, Joint Powers Authority for Union Power Utility District (UPUD) and Angels Camp
Union Public Utility District	Water Provider
Lake Don Pedro Community Services District	Water Provider
Tuolumne Sanitary District	Wastewater Provider
Jamestown Sanitary District	Wastewater Provider
Murphy's Sanitary District	Wastewater Provider
Sierra Conservation Center	Water/Wastewater Provider



Source: Land Status, Bureau of Land Management, 2011. Note: Unshaded areas are assumed to be privately owned.



Source: Water Districts Private, U.S. Bureau of Reclamation, MPGIS Service Center in coordination with the California Department of Water Resources. TUD Water Agency Boundary, Tuolumne Utilities District, 2011

Although their water service areas are not geographically located within the Region, entities that export water or own major water infrastructure also play a key role in water management activities. Table 2-11 lists these entities along with their role within the Region. The key water infrastructure features owned and/or operated by each of these entities is further discussed in Section 2.10.

Table 2-11: Out-of-Region Export and Hydropower Entities

Agency	Jurisdictional Role
San Francisco Public Utilities District	Water Exporter; Water/Hydropower Infrastructure Owner
Oakdale Irrigation District	Water Exporter; Water/Hydropower Infrastructure Owner
Tuolumne Irrigation District	Water Exporter; Water Infrastructure Owner
Modesto Irrigation District	Water Exporter; Water/Hydropower Infrastructure Owner
South San Joaquin Irrigation District	Water Exporter; Water/Hydropower Infrastructure Owner
United States Bureau of Reclamation	Water Exporter; Water Infrastructure Owner
Pacific Gas and Electric Co.	Hydroelectric power generation
Northern California Power Agency	Hydroelectric power generation Operator/Owner

2.7 Watersheds

The three major watersheds of the Region: the Upper Tuolumne River, Upper Stanislaus River, and the Upper Rock Creek-French Camp Slough (shown on Figure 2-2) are tributary to the San Joaquin River, which is a major source water to the Sacramento- San Joaquin Bay-Delta.

The North Fork and mainstem Stanislaus River delineate the northern boundary of the Upper Stanislaus River watershed, which also defines the boundary between Tuolumne and Calaveras Counties. This drainage divide is a result of the Calaveras Table Mountain geologic sequence situated along the southwestern boundary of Calaveras County and Summit Level Ridge further east. A similar Table Mountain sequence forms the division between the Upper Tuolumne and Stanislaus River systems. A series of ridgelines to the south delineate the drainage divide between the Upper Tuolumne River and Merced River watersheds, which also corresponds to the Tuolumne and Mariposa County boundaries. The western edge of the boundary for each portion of the three (3) watersheds corresponds to the county lines for Tuolumne and Calaveras counties, rather than the full watershed boundary.

Stream Flows in Curtis Creek, a tributary to the Tuolumne River

Surface water generally flows from the river headwaters at the crest of the Sierra Nevada mountain range in the east, towards the San Joaquin Valley in the west. The streams flow out of

deeply incised watersheds with extensive coniferous forests in the mountains, to foothill regions with brush and annual grasslands. The physical natural and man-made key features that depict the hydrology of each watershed are significantly interconnected and complex, as shown on the watersheds schematic shown on Figure 2-9 and described in greater detail in the following sections.

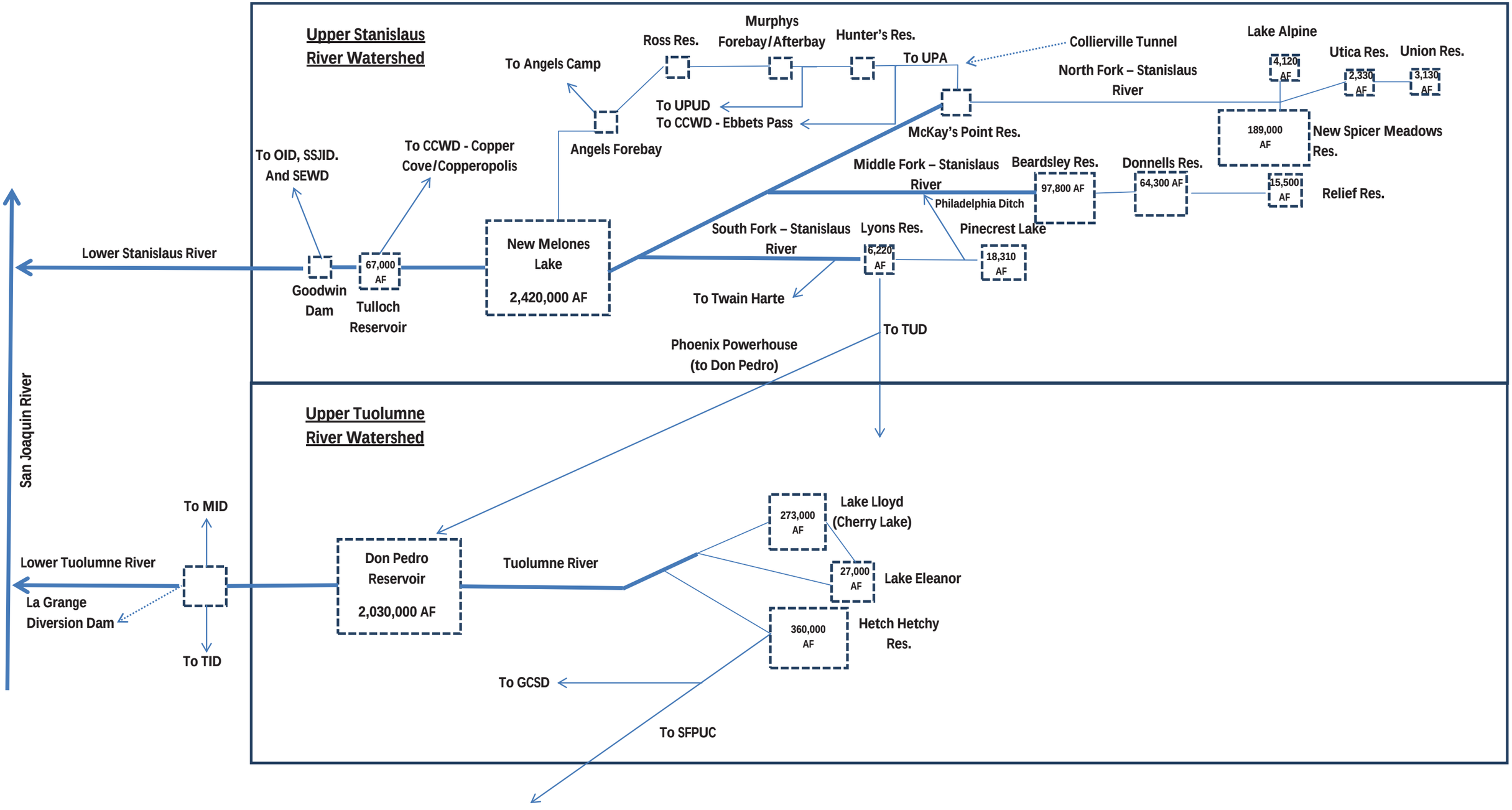
2.7.1 Upper Tuolumne River Watershed

The Upper Tuolumne River Watershed (Figure 2-10), located entirely in Tuolumne County, includes an extensive, mountainous terrain draining 1,900 square miles of west-sloping Sierra Nevada Mountains in southern Tuolumne County and Yosemite National Park. The watershed produces an average unimpaired runoff of 1.85 million acre feet (MAF) (DWR, 2007). The Upper Tuolumne River presents a dichotomy of breathtakingly scenic natural stretches with multiple manmade reservoirs, hydroelectric, and water diversion facilities, which provide water for millions of people in the San Francisco Bay Area and irrigation of hundreds of square miles of prime agricultural land in the San Joaquin Valley. The Tuolumne River Watershed drains snowmelt and rainfall that flows between the Upper Merced River watershed to the south and Stanislaus River Watershed to the north.

The headwaters of the mainstem Tuolumne River are formed by snowmelt from Mount Lyell in Yosemite National Park and flow west through several lakes and reservoirs to its confluence with the San Joaquin River in the Central Valley. The Upper Tuolumne River meanders unimpaired for 48 miles through the Wild and Scenic Designated stretch including a 3-mile long stretch flowing through Tuolumne Meadows, until the river reaches the 360,000 AF Hetch Hetchy Reservoir, which was created by the construction of O'Shaughnessy Dam by the SFPUC in 1923. SFPUC also maintains two additional reservoirs as part of its Hetch Hetchy System on the Tuolumne River: Cherry Reservoir, also known as Lake Lloyd, is fed by the Cherry Creek Watershed, which is a tributary to the Tuolumne River downstream of Hetch Hetchy. Likewise, Eleanor Creek supplies Lake Eleanor, which is also a tributary to Cherry Creek below Cherry Reservoir.

Once water re-enters the river downstream of the O'Shaughnessy Dam, the mainstem Tuolumne River flows unimpaired until it reaches the 2,030,000 AF Don Pedro Reservoir, the sixth largest reservoir in California. The Don Pedro Reservoir, constructed in 1923 and enlarged significantly in 1971, is owned by, and stores water for Turlock and Modesto Irrigation Districts, which use the water for agricultural irrigation, flood control, and municipal use in the San Joaquin Valley. TID and MID are currently undergoing a Federal Energy Regulatory Commission (FERC) license renewal process for the hydroelectric project at Don Pedro Reservoir. The current FERC license expires in 2016. Water is diverted by TID and MID from the Lower Tuolumne River (downstream of Don Pedro Dam) at the La Grange Diversion Dam, which is just outside the T-S Region boundary.

The mainstem of the Tuolumne River forms from the Dana and Lyell Forks. It has several major tributaries, which contribute flow throughout the year including the middle, north and south forks, Clavey River, Cherry Creek, and Turnback Creek. The middle and south forks of the Tuolumne River also begin in Yosemite National Park and join the mainstem near the confluence with the Clavey River, approximately 20 miles downstream of O'Shaughnessy Dam. The north fork of Tuolumne River originates in the Stanislaus National Forest to the south of Pinecrest Lake on the South Fork Stanislaus River and flows southwest to its confluence with the mainstem Tuolumne River. The Clavey River is one of three natural unimpaired rivers in the Sierra



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Surface Water Flow Schematic Upper Tuolumne and Stanislaus River Watersheds

August 2013

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Figure 2-9

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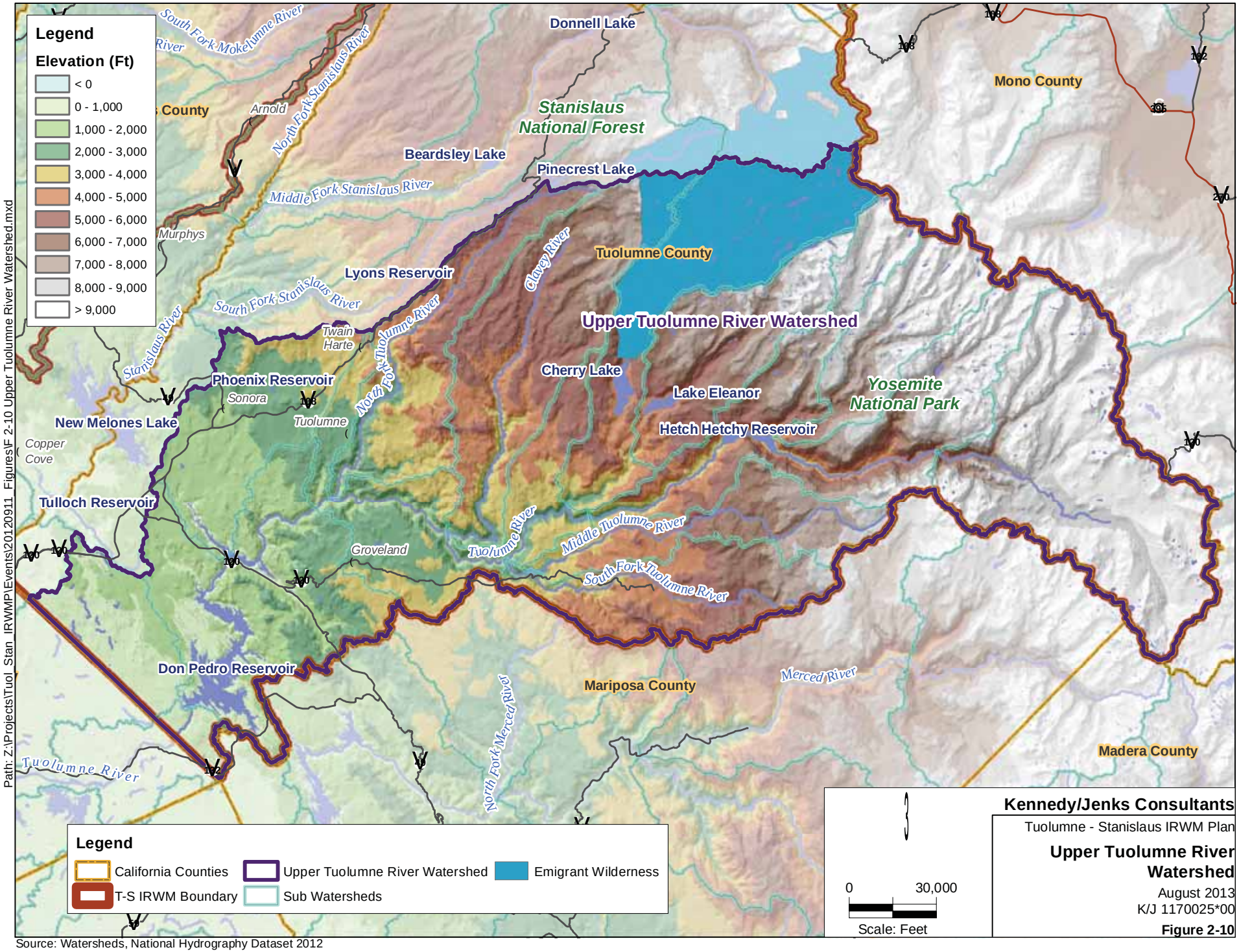

Source: Watersheds, National Hydrography Dataset 2012

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Nevadas. Turnback Creek originates in the community of Twain Harte and flows southwest, generally parallel to the North Fork Tuolumne River.

2.7.2 Upper Stanislaus River Watershed

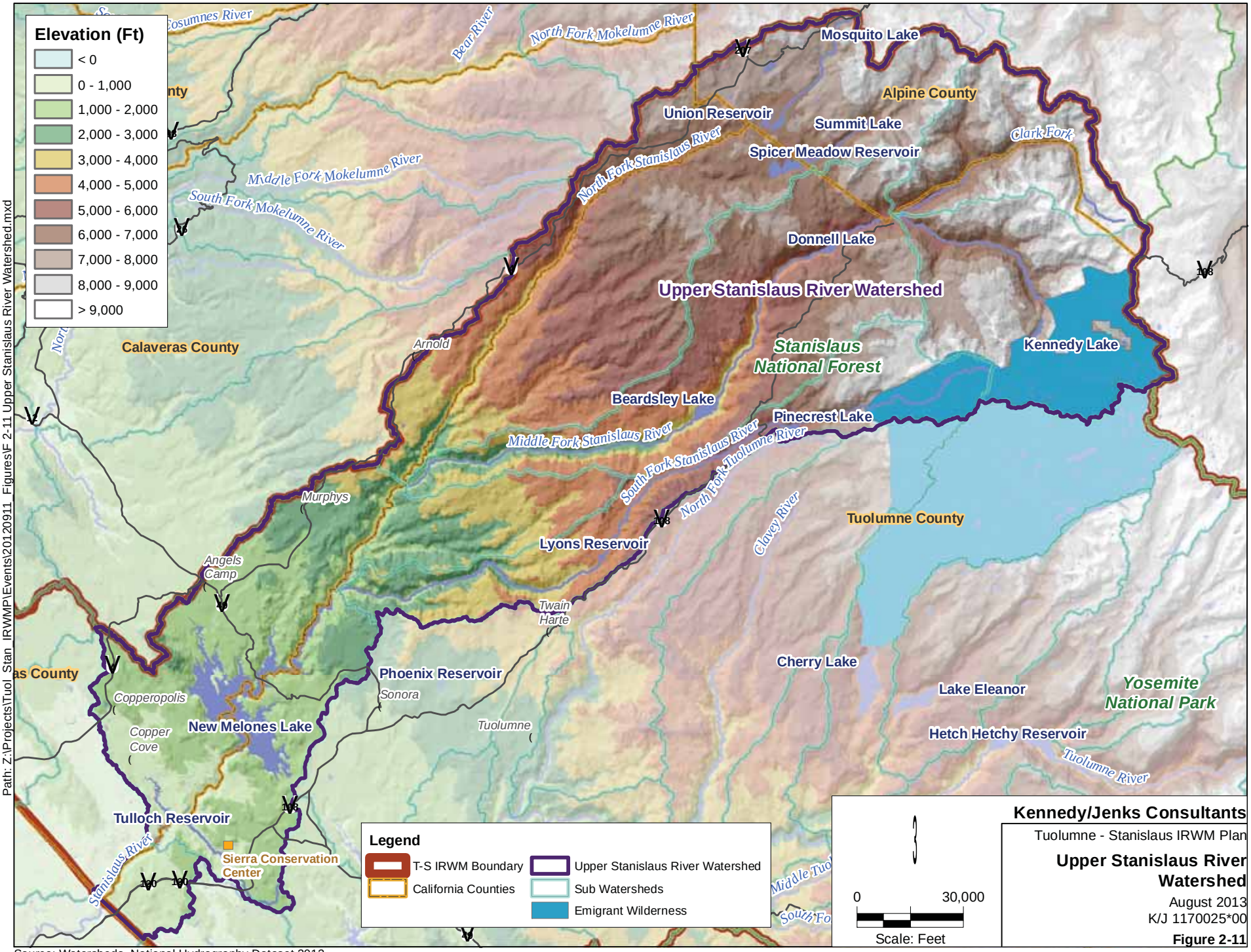
The Upper Stanislaus River Watershed (Figure 2-11) drains an area of about 997 square miles of deeply-incised mountainous topography, with about a 2,000 feet elevation drop from ridge top to the river and has an average annual unimpaired runoff of 1,050,000 AF of water. The watershed, which occupies portions of Alpine, Tuolumne, and Calaveras counties is dominated by three major forks of the Stanislaus River: the North Fork, South Fork, and Mainstem. The headwaters of the Upper Stanislaus River originate at elevations in excess of 9,000 feet near the crest of the Sierra's in the Emigrant Wilderness area of the Stanislaus National Forest. The Upper Stanislaus River Watershed drains snowmelt and rainfall that flows between the Mokelumne Watershed to the North and the Tuolumne River watershed to the south. Similar to the Tuolumne River, the Stanislaus River forks have been modified to include manmade water storage, diversion, and hydroelectric power generation facilities.

The 39-mile long North Fork Stanislaus River originates in Alpine County near Mosquito Lake and flows generally southwest as it passes through Union Reservoir, Utica Reservoir, and flows through a deeply incised canyon until it reaches the confluence with the Middle Fork Stanislaus River. New Spicer Meadows is an 184,298 AF reservoir owned by CCWD, which is fed by Highland Creek, a tributary to the North Fork Stanislaus River. Hydroelectric projects along the North Fork include the New Spicer Meadows powerhouse, Collierville Tunnel and powerhouse (FERC Project No. 2409), owned by CCWD (operated by Northern California Power Agency) and the Murphys and Angels powerhouses on the Utica Power Authority canal system. The North Fork also provides water supplies for communities along the Ebbett's Pass/Highway 4 corridor including Murphy's and Angels Camp.

The Middle Fork of the Stanislaus River begins at Relief Reservoir, and flows southwesterly for approximately 50 miles, as it passes through Donnell's and Beardsley Reservoirs until it reaches the confluence with the mainstem river. Beardsley and Donnell's Reservoirs each have powerhouses owned and operated by the Tri-Dam Project (FERC Project No. 2005). Tri-Dam is a joint powers authority whose members are OID and SSJID. Tributaries that feed into the Middle Fork include Kennedy Creek in the Emigrant Wilderness Area, Summit Creek, and the Clark Forks of the Stanislaus River.

The South Fork Stanislaus River begins near Bay Meadow (elevation 8,800 feet) and travels for approximately 35 miles until it reaches the confluence with the mainstem Stanislaus River. The two reservoirs along the South Fork Stanislaus River are Pinecrest Lake and Lyons Reservoir, both used for hydropower generation and owned by PG&E. The South Fork Stanislaus River is also used by Tuolumne Utilities District to provide water to much of Tuolumne County from Lyons Reservoir. The main canal that diverts water from Lyons Reservoir by TUD includes a separate diversion to the Phoenix Powerhouse. Flows that pass through the Phoenix Powerhouse that are not diverted by users along the canal eventually end up crossing watersheds and end up in Don Pedro Reservoir in the Upper Tuolumne River watershed.

The Upper Stanislaus River ends at two manmade reservoirs: the 2,420,000 AF New Melones Lake, a rockfill dam, which was completed in November 1978 and Tulloch Reservoir. New Melones Lake is owned and operated by the Bureau of Reclamation and provides water for irrigation, municipal uses, and flood protection in the San Joaquin Valley. The 67,000 AF Tulloch Reservoir is downstream of New Melones Lake, and is owned by Tri-Dam. CCWD



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Source: Watersheds, National Hydrography Dataset 2012

diverts water from Tulloch Reservoir to provide water for the Copper Cove and Copperopolis service areas. Sierra Conservation Center also diverts water from Tulloch Reservoir for drinking water supply.

2.7.3 Upper Rock Creek-French Camp Slough Watershed

The Upper Rock Creek-French Camp Slough watershed (shown in Figure 2-12), located entirely in Calaveras County, is located in the northwestern portion of the Region and drains approximately 110 square miles. The area of this watershed within the boundary contains the upper portion of the Rock Creek and Littlejohn's Creek sub-watersheds. The landscape of this watershed is similar to the westernmost, lower elevation portions of the Upper Tuolumne and Upper Stanislaus watersheds, with rolling hills covered by grasslands and chaparral eventually draining to the San Joaquin River through Rock Creek, Littlejohn's Creek, and French Camp Slough.

Salt Springs Valley Reservoir is the only major surface water body in the watershed. Salt Springs Valley Reservoir covers approximately 1.4 square miles. The Reservoir feeds Rock Creek, which is a tributary to Littlejohn's Creek in San Joaquin County. Salt Springs Valley Reservoir has been annexed by the Rock Creek Water District which releases water from Salt Springs Valley Reservoir for agricultural uses in the Rock Creek Water District, located in Stanislaus County, west of the Region.

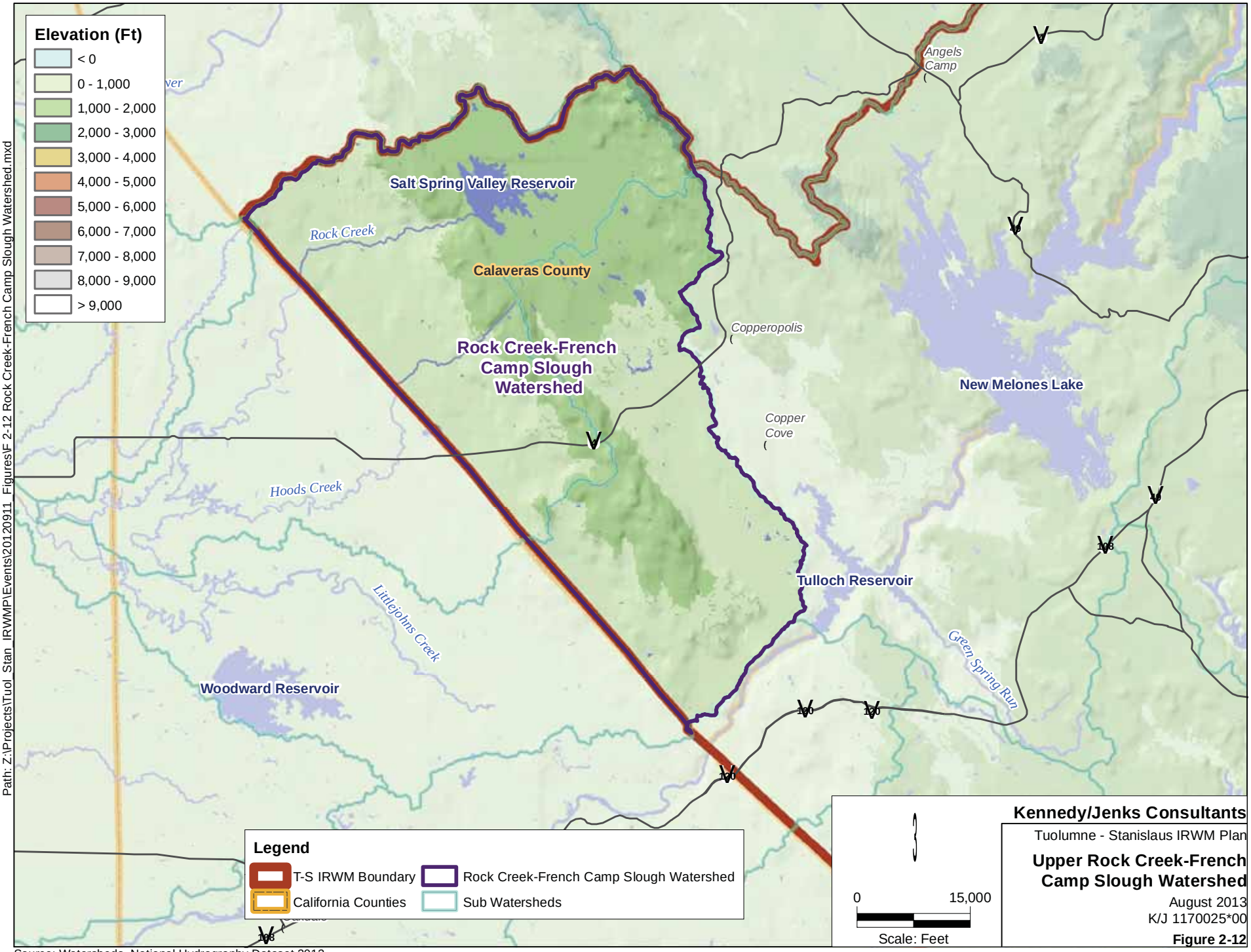
2.8 Ecological Processes and Environmental Resources

The lakes, creeks, meadows and other water features that form the Region provide key habitat for many of California's most important aquatic and terrestrial species, including many fish and wildlife species. Anadromous fish once migrated into the Region, using its waterways for spawning as far upstream as the waterfalls that did not allow further fish passage; fish passage is now limited to reaches below downstream dams. Over 50 special status species are found in the Region today, many of which are federally or state listed species. Protection and restoration of these species is an important aspect of this IRWM program.

2.8.1 Aquatic Ecosystems and Fisheries

The wild and scenic river system, created by Congress in 1968, preserves selected rivers with remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values. The goal is to counterbalance dams and other construction in order to preserve these selected rivers/portions of rivers in their free-flowing condition to protect water quality and wildlife habitat for the benefit of future generations. The Upper Tuolumne is the only Wild and Scenic river in the T-S Region as designated by Congress in 1984. The Clavey River is recommended for inclusion in the system, as well and a Value Review was conducted in 1997, which describes the status of the Clavey River's Wild and Scenic River values. A study conducted by the USFS preceding the Clavey River Review recommended the inclusion of the Clavey River, North Fork Stanislaus, Stanislaus, South Fork Tuolumne and five segments of the Middle Fork Stanislaus into the Wild and Scenic River System.

The upper Stanislaus and Tuolumne Rivers historically had strong runs of Chinook salmon. Spring, fall and late winter runs of Chinook salmon are believed to have historically extended up to natural migration barriers on the Stanislaus River, specifically the Middle Fork Stanislaus and South Fork Stanislaus, but are now excluded above Goodwin Dam and La Grange Dam, which



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Upper Rock Creek-French Camp Slough Watershed

August 2013

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Figure 2-12

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Source: Watersheds, National Hydrography Dataset 2012

lie at the far downstream end of the Region. These natural migration barriers prevented fish passage to the upper watershed areas.

Trout populations are a key species in both the Stanislaus and Tuolumne watersheds below the migration barriers. In the Stanislaus watershed, as in other Sierra Nevada watersheds, the California Department of Fish and Wildlife has stocked fish for decades; the majority of the fish stocked in the past 30 years have been rainbow and brown trout. In the Tuolumne watershed, the Clavey River is designated by the California Department of Fish and Wildlife as a Wild and Heritage Trout Water; this designation indicates that the stream supports a population of trout that best exemplifies indigenous strains of native trout within their historic drainage and domestic strains of trout of catchable-size are not to be planted within the stream.

The Region has both native and non-native fish; the non-native fish are the result of fish plantings that occurred starting as early as 1877. Non-native fish in Yosemite National Park include bullgill, smallmouth bass, and seven trout species including brook, brown, lahontan cutthroat, golden, rainbow and hybrid species. Some of the reservoirs are home to non-native species such as land-locked Kokanee and Chinook salmon, black bass, catfish, crappie, carp, and blue gill; trout species are often stocked from California Fish and Wildlife fish hatcheries. Non-native fish can impact native species through predation of threatened or endangered species such as the Sierra Nevada yellow-legged frog and provide competition for food resources by consuming invertebrates and zooplankton.

Other aquatic species of interest in the Region, including federally and state listed amphibian, reptile, and invertebrate species are listed in Table 2-12.

Table 2-12: Endangered and Listed Species

Common Name	Scientific Name	Status
Birds		
great gray owl	*Strix nebulosa*	CE, FSS, IS
Osprey	*Pandion haliaetus*	CSC
bald eagle	*Haliaeetus leucocephalus*	FT, CE, MIS
northern goshawk	*Accipiter gentilis*	FSC, CSC, FSS, MIS
American peregrine falcon	*Falco peregrinus anatum*	CE, FSS, MIS
California spotted owl	*Strix occidentalis occidentalis*	FSC, CSC, FSS, MIS
Pileated woodpecker	*Dryocopus pileatus*	MIS
Mountain quail	*Oreortyx picta*	MIS
Little willow flycatcher	*Empidonax traillii*	FSC, CE, FSS, MIS
American dipper	*Cinclus mexicanus*	IS
Double crested cormorant	*Phalacrocorax auritus*	CSC
Harlequin duck	*Histrionicus histrionicus*	FSC, CSC
yellow warbler	*Dendroica petechia brewsteri*	CSC
Yellow-breasted chat	*Icteria virens*	CSC
Bank swallow	*Riparia riparia*	CT, FSV

Common Name	Scientific Name	Status
Mammals		
California wolverine	*Gulo gulo*	FSC, CT, FSS
Sierra Nevada red fox	*Vulpes vulpes necator*	CT, FSC, FSS
American marten	*Martes americana*	FSS
Pacific fisher	*Martes pennanti (pacifica) DPS*	FSC, CSC, FSS
Mule deer	*Odocoileus hemionus*	IS
Yuma myotis	*Myotis yumanensis*	FSC, CSC
Hoary bat	*Lasiurus cinereus*	FSV
Silver-haired bat	*Lasionycteris noctivagans*	FSV
Townsend's big-eared bat	*Corynorhinus townsendii*	FSC, CSC, FSS
Pallid bat	*Antrozous pallidus*	CSC, FSS
Western mastiff bat	*Eumops perotis*	FSC, CSC, FSV
River otter	*Lutra Canadensis*	IS
American mink	*Neovision vision*	IS
Black bear	*Ursus americanus*	MIS
Amphibians		
California red-legged frog	*Rana aurora draytonii*	FT, CSC
California tiger salamander	*Ambystoma californiense*	FPT
Yosemite toad	*Bufo canorus*	FSC, CSC, FSS
Foothill yellow-legged frog	*Rana boylii*	FSC, CSC, FSS
Sierra Nevada yellow-legged frog	*Rana sierra*	FSS
Reptiles		
Western pond turtle	*Clemmys marmorata*	FSC, CSC, FSS
Invertebrates		
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT
Hara's cave amphipod	*Stygobromus harai*	FSC, IS
Simply hydroporus diving beetle	*Hydroporus simplex*	FSC, IS
California floater	*Anodonta californiensis*	FSC, IS
Fish		
Chinook Salmon - spring run	*O. tshawytsha*	FT, CT, FSS
Chinook Salmon - winter run	*O. tshawytsha*	FE, CE
Chinook Salmon - late fall run	*O. tshawytsha*	FE, CSC, FSS
Pacific Lamprey	*Lampetra tridentata*	FSC
Hardhead	*Mylopharodon conocephalus*	CSC, FSS
Red Hills Roach	*H. s. spp. Lavinia*	CSC
San Joaquin Roach	*H.s. spp.*	CSC
Eagle Lake Rainbow Trout	*O. mykiss aquilarum*	FSC, CSC, FSS, MIS
Lahontan Cutthroat trout	*Oncorhynchus clarki henshawi*	FT (in home range but not native to region), MIS

Common Name	Scientific Name	Status
Plants		
Sierra bolandra	*Bolandra californica*	FSW, CNPS-4
Mountain lady's slipper	*Cypripedium montanum*	FSS, CNPS-4
Stebbins' lomatium	*Lomatium stebbinsii*	CNPS-4
Cut-leaved monkeyflower	*Mimulus laciniatus*	FSC, FSS, CNPS-1B
Chinese Camp brodiaea	*Brodiaea pallida*	FT, CE, CNPS-1B
California vervain	*Verbena californica*	FT, CT, CNPS-1B
Ione manzanita	*Arctostaphylos myrtifolia*	FT, CNPS-1B
Greene's tuctoria	*Tuctoria greenei*	FE, CR, FSS, CNPS-1B
Layne's ragweed	*Senecio layneae*	FT, CR, FSS, CNPS-1B

CE	state listed endangered
CNPS 1B	rare, threatened or endangered in California and elsewhere
CNPS-4	limited distribution; a watch list
CSC	state species of concern
CT	state listed threatened
FPT	federally proposed threatened
FSC	federal species of concern
FSS	Federal Species (FS) sensitive, Region 5
FSV	Sierra Nevada framework species of moderate to high vulnerability
FSW	FS Watch List
FT	federally listed threatened
IS	Indicator species
MIS	FS management indicator species

Sources: DEIS for Hydropower Licenses-Stanislaus River Projects; New Melones Lake Area Final RMP/EIS

2.8.2 Terrestrial Ecosystems

Native forest is the dominant vegetation in the Region, covering roughly two-thirds of the land area. Major tree species found in the lower elevation zones at about 1,800 feet foothill-woodland zone include manzanita, blue oak, interior live oak, and gray pine. The lower montane forest from around 3,000 feet elevation includes California black oak, Ponderosa pine, white fir, and incense cedar. Two groves of giant Sequoias within Calaveras Big Trees State Park are also located within the Stanislaus River watershed in the lower montane forest zone. Upper montane forest begins at elevations near 6,000 feet and include trees such as red fir, lodgepole pine, Jeffrey pine, and western juniper. The subalpine forest, at elevations near 8,000 feet and above, includes species such as white pine, mountain hemlock and lodgepole pine.

Riparian areas found along the banks of the rivers and creeks are arguably the most productive and diverse part of the Region, and they serve an important water resource function in their ability to stabilize streambanks and provide filtering. Riparian vegetation in the lower portions of the Region is typically dense, with the overstory consisting of willows and Fremont cottonwoods, valley oaks, California sycamore, box elder, and Oregon ash. Upper watershed areas have species such as arroyo willow, red willow, shiny willow, dusky willow, narrow leaf willow and black cottonwood. Willows, cottonwood and valley oak are particularly important in that they provide habitat for a variety of birds including egrets, herons, osprey, ducks, and bald eagle. The understory consists of willows and herbaceous plants such as buttonbush, honeysuckle, elderberry, and gooseberry, which are attractive to certain birds including sparrows and warblers. Smaller plants typically include poison oak, nettle, mule fat, wild grape, and longstemmed, shade-tolerant grasses. The dense understory provides habitat for rodents, deer

and their predators. Historical riparian habitat in the Region has been lost due to land use management and flow regulation. In addition, native riparian plant species are facing competition from invasive species. As indicated in the invasive species discussion below, areas where soils have been disturbed are most susceptible to non-native invasion.

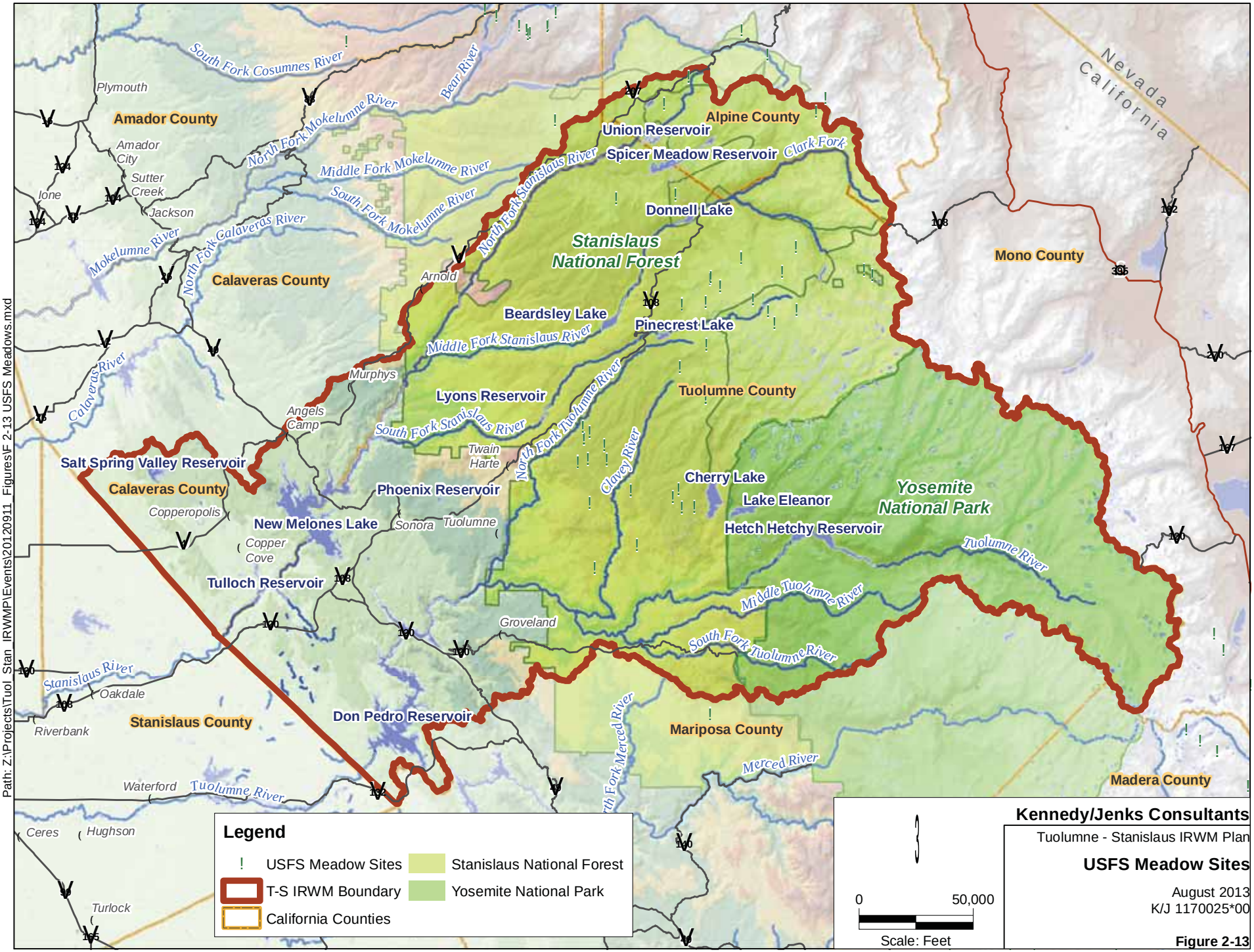
Mountain Meadows are an important resource in the T-S Region (Photo courtesy of Tuolumne County Farm Bureau)

Mountain meadows are another important habitat in the Region. Meadows are hydrologic convergence points in the watershed where topographic or geologic conditions lead to sediment deposition and high water tables. Meadows provide a number of water related benefits including filtering of sediments from flows from upland areas, serving as natural water storage reservoirs, promoting groundwater recharge/augmented baseflows and attenuating floods. Plant communities within meadows are biologically active and contribute a high proportion of forage for both wildlife and livestock grazing. Unfortunately, overgrazing has led to deterioration of meadows in some areas of the Region. Meadows that have been located within the Stanislaus National Forest are shown on Figure 2-13. Tuolumne Meadows, in Yosemite National Park is an example of a meadow that occurs in the subalpine forest zone while Happy Isles on the Valley Floor is an example of a fens, the wettest portion of a meadow. Approximately 3,000 meadows are located in the park and cover about 3% or almost 23,000 acres of the entire park area in elevations from 3,000 to above 9,500 feet. These meadows represent a small area of Yosemite, but contain large proportions of species and are considered “islands” of high diversity. The meadows in Yosemite are believed to have been largely unchanged for the past 10,000 years, since near the last ice age.

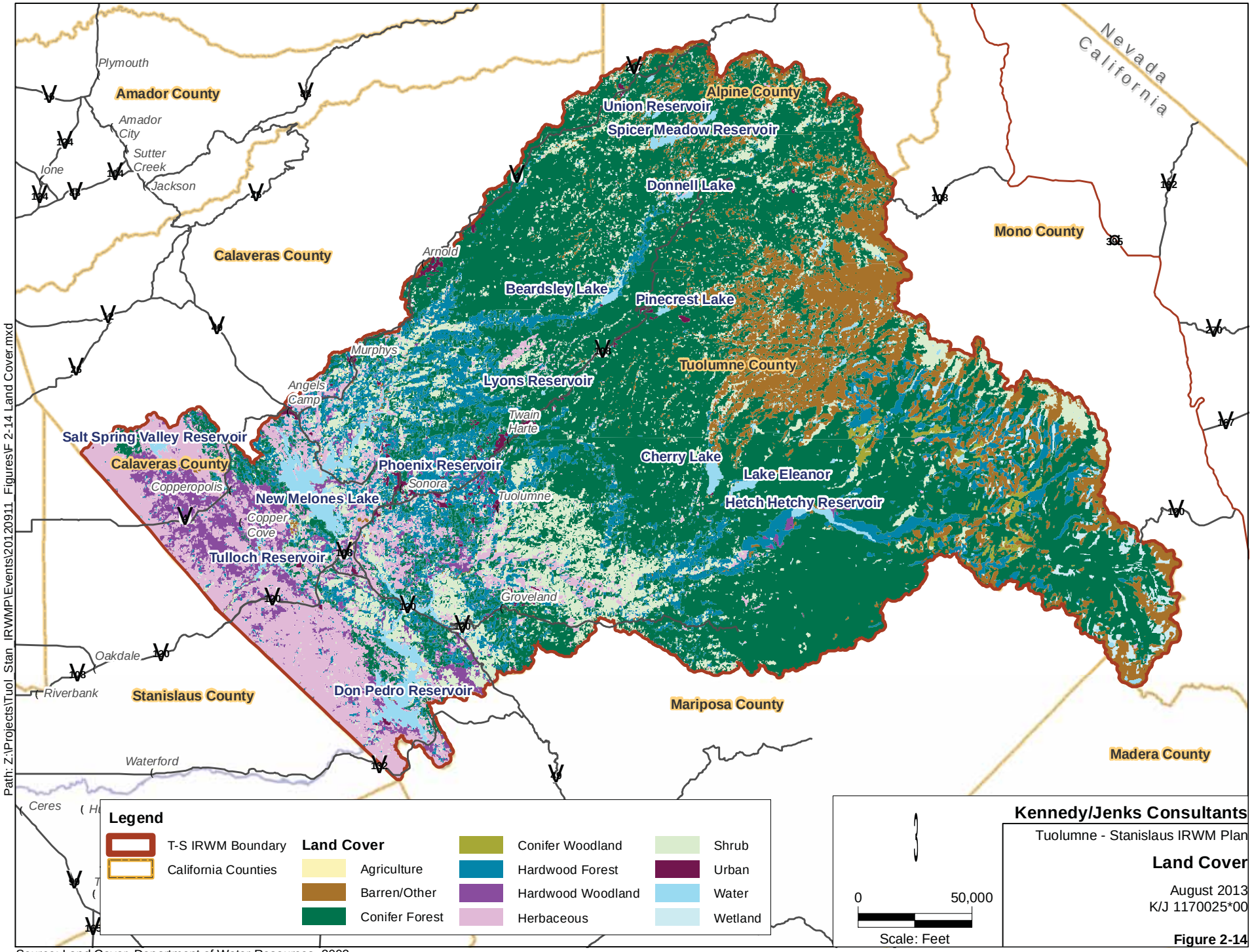
Additional habitat types in the Region include grasslands, scattered woodlands and chaparral. General land cover types throughout the Region are shown in Figure 2-14.

2.8.3 Endangered and Listed Species

This subsection presents a sampling of wildlife and plant species that occur or have been known to historically occur in the Region. Many of the species listed below have special status designations of endangered, threatened or species of concerns. Some species, while not federally or state listed, have been identified as management indicator species or are of regional interest. A more comprehensive listing of special status species that occur or may occur in the Region is included in Appendix C.



Source: Meadows, United States Forest Service, 2010. Note: Meadow site data not available for all areas.



Source: Land Cover, Department of Water Resources, 2002.

2.8.4 Ecosystem Challenges

2.8.4.1 Invasive Species

Invasive species management in the Region is focused mainly on invasive plant species, which compete with native, often threatened/endangered species for resources, alter wildlife habitat and threaten biological diversity, increase fire potential, and accelerate erosion and flooding. While the following discussion is limited to invasive plants, it should be noted that invasive fish predation is also a concern, as mentioned in the aquatic ecosystem and fisheries discussion.

The federal government and state of California have categorized some invasive species as "noxious weeds" mainly due to their threat to agriculture. Noxious weeds are found in higher abundance in the lower elevations of the Region and are less prevalent in the higher elevations. Areas where soils have been disturbed and transportation vectors exist are most susceptible to invasion. Noxious weed populations have been observed around roadways and other infrastructure and within riparian habitat, where vehicles, foot traffic and water serve as transportation vectors.

Yellow Star-Thistle

Invasive species management activities are generally prioritized based on the impact of the species on regional resources, the extent of the invasion and the potential to spread. The California State Department of Agriculture and California Exotic Pest Plan Council provide ratings of noxious weeds and other non-native plants that can help prioritize control activities.

Priority species for control in the Region include: cheat grass, Italian thistle, Spotted knapweed, yellow star-thistle, bull thistle, French broom, common velvet grass, perennial pepperweed and Himalayan blackberry. Yellow star-thistle, cheat grass and bull thistle are among the most widespread and prevalent species in the Region. In Yosemite National Park, it is estimated that approximately 10 new non-native species are found each year.

A list of invasive species that are of concern for the Region is provided in Appendix C.

2.8.4.2 Forest Management

With over two-thirds of the Region's land area located in either the Stanislaus National Forest or Yosemite National Park, forest management is an important component of Regional planning.

Challenge areas within the Region's forest include mature forest, riparian habitat, fire and fuels maintenance, noxious weed prevention and control, hardwood ecosystem, trail and roadway maintenance and recreation management. Old forest ecosystems are not reaching the desired mature forest conditions because of overstocking; the high stand density minimizes individual tree growth and also presents a strong threat of mortality through the spread of insects, disease and fire. In aquatic and riparian ecosystems, riparian plant species are being suppressed due to increased conifer cover. Extensive accumulation of surface fuels increases the risk of fire, creating a threat to communities and wildlife. The extent and types of invasive species found in the forest land is increasing. Maintenance of hardwood ecosystems through regeneration of and recruitment of young hardwood trees to replace older trees ecosystems is necessary to maintain habitat. Road density and stream crossing are too high relative to desired conditions; some forest roads are built on highly erodible soils, and much of the road system drainage is directly

connected to streams contributing sediments and impairing water quality. Aging infrastructure and lack of funding for upkeep affects recreational opportunities within the forest land.

The forest management issues with the strongest relation to water resources are the overstocking within old forest ecosystems, encroachment of conifer cover on riparian areas and hydrologic connectivity of roadways with streams. A forest area is considered overstocked when it has too many trees per acre, causing tree stress because it forces trees to compete with their neighbors for light, water and nutrients. Overstocking is a water resource concern because of its water supply implications. Less snow is able to accumulate in areas with increased tree cover, meaning that the available water supply for the Region is reduced with increased stand densities. In addition to reducing the amount of water entering the Region through reduced snowpack, overstocked areas represent an increase in water demand through plant transpiration, further reducing the water available for streamflow. Suppression of riparian plants affects wildlife, results in loss of the streambank stabilization provided by cottonwood and willows typically found along the streams and reduces the filtering of runoff provided by the normal understory species. The loss of riparian plants intensifies the issue of hydrologically connected segments of roadways, as sediments from the roadways may directly enter the stream instead of first passing through a riparian buffer.

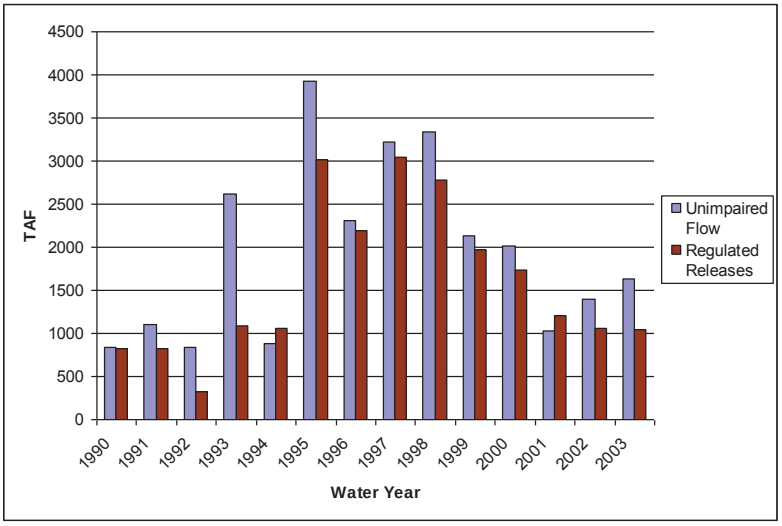
2.9 Water Resources

Water resources in the T-S Region are abundant; surface water from the Upper Tuolumne and Upper Stanislaus River watersheds provides essential water for users locally and throughout the State of California. Over 95% of the water supply is from surface water. This section describes the current and projected water supply conditions of surface water and groundwater, and projected water demands within the T-S Region.

2.9.1 Water Supply

2.9.1.1 Surface Water Sources

Runoff from the Tuolumne River and its tributaries is typified by early spring snowmelt, common amongst rivers in the Sierra Nevadas. Unimpaired runoff is the runoff from a watershed that would have occurred had man not altered the flow of water within the watershed. The average unimpaired flow from the Tuolumne River is 1.8 MAF per year (average, 1923 to 2009), although the annual flow can be highly variable dependent upon seasonal snowpack and precipitation totals. Figure 2-15 shows the annual unimpaired flow and historical regulated release flows (actual flows released from the manmade dams within the watershed) occurring between 1990 and 2003; the maximum historical estimated unimpaired flow was 3.9 MAF in 1995 and the minimum

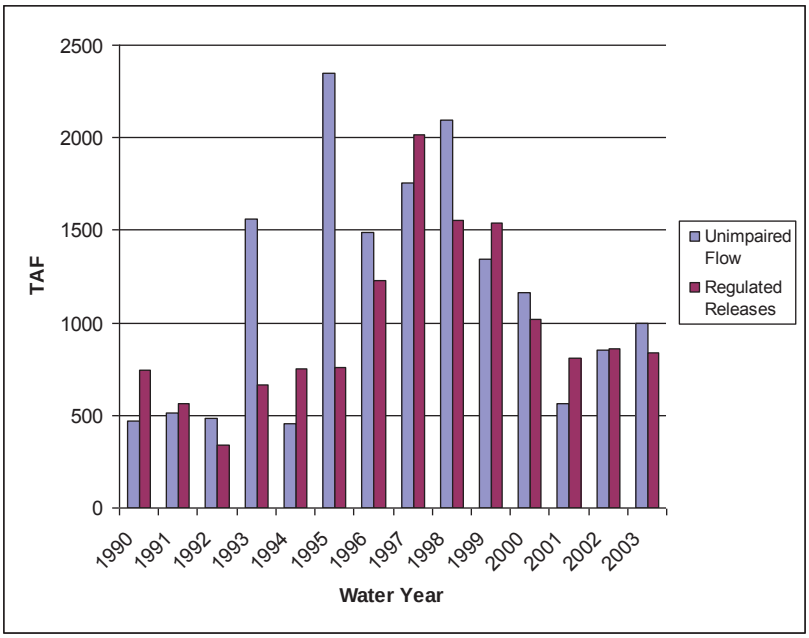


Sources: USGS Gage 11289651 (Tuolumne River 0.5 miles downstream of LaGrange Dam); California Central Valley Unimpaired Flow Data 4th Edition, 2007.

Figure 2-15: Upper Tuolumne River Watershed Unimpaired and Regulated Releases

estimated unimpaired flow is 0.9 MAF in 1994. Average releases are lower than average unimpaired flow due primarily to water exported by SFPUC.

Runoff feeding the Stanislaus River and its tributaries also peaks during early spring snowmelt. The average unimpaired runoff from the watershed is 1.1 MAF per year (average, 1923 to 2009), although the annual runoff can be highly variable dependent upon seasonal snowpack and precipitation totals. Figure 2-16 shows the annual unimpaired runoff and historical regulated flow occurring between 1990 and 2008 from the Stanislaus River; the maximum estimated unimpaired flow was 2.3 MAF in 1995 and the minimum estimated unimpaired flow was 0.4 MAF in 1994.



Sources: USGS Gage 11299200 (New Melones Power Plant below dam); California Central Valley Unimpaired Flow Data 4th Edition, 2007.

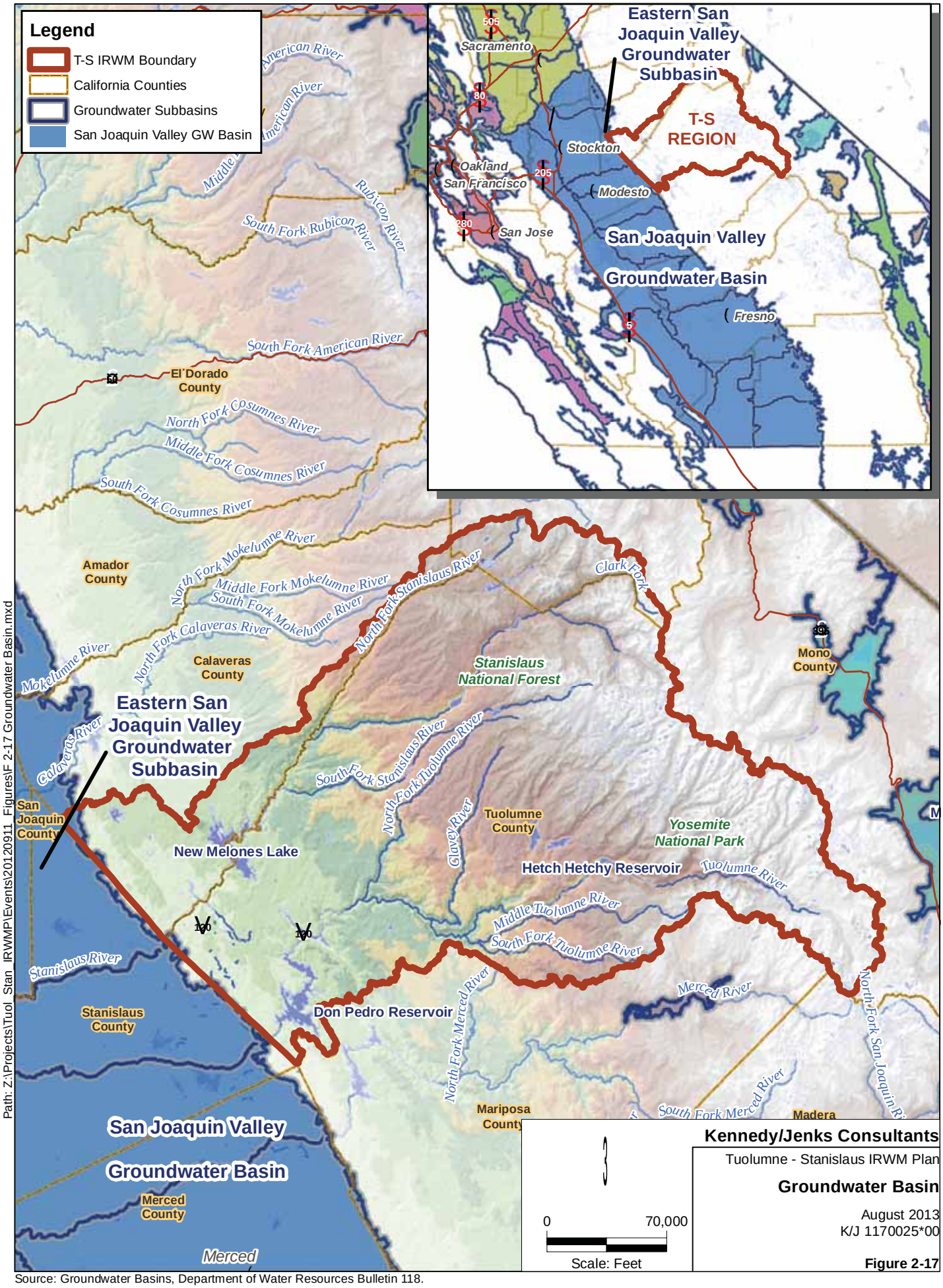
Figure 2-16: Upper Stanislaus River Watershed Unimpaired Flow and Regulated Releases

The Upper Rock Creek-French Camp Slough watershed is by far the smallest of the three drainages in the Region. Flows from Salt Springs Reservoir as well as flows within Littlejohns and Rock Creek are not well documented. There are presently no USGS or CDEC stations located within the portion of these creeks located within the Region. Water within this watershed generally drains to the Salt Springs Valley Reservoir where it is released to Rock Creek. Rock Creek is a tributary to Littlejohn's Creek in the lower watershed within San Joaquin County.

2.9.1.2 Groundwater Resources

The majority of available groundwater resources in the Region are contained within the Sierra Nevada Geomorphic province, where water is transient and found in fractured rock, volcanic, and metamorphic fissures. The T-S Region is located within the foothills and higher elevations of the Sierra Nevada where the subsurface material consists primarily of impermeable granitic and greenstone bedrock, which often results in a low groundwater yield.

The only exception is a small area in the northwestern corner of the Region that is within the Eastern San Joaquin Groundwater subbasin, as shown on Figure 2-17. The 707,000 acre Eastern San Joaquin Groundwater Subbasin is a portion of the larger San Joaquin Groundwater Basin (as identified in Department of Water Resources Bulletin 118-80), which has been determined to be in an overdraft condition. This groundwater basin is defined by the areal extent of unconsolidated to semiconsolidated sedimentary deposits that are bounded by the Mokelumne River on the north and northwest; San Joaquin River on the west; Stanislaus River on the south; and consolidated bedrock on the east. CCWD has prepared a number of groundwater studies including a 2007 groundwater management plan update for the



Path: Z:\Projects\Tuol_Stan_IRWMP\Events\20120911_Figures\F 2-17 Groundwater Basin.mxd

Kennedy/Jenks Consultants

Tuolumne - Stanislaus IRWM Plan

Groundwater Basin

August 2013
K/J 1170025*00

Figure 2-17

Source: Groundwater Basins, Department of Water Resources Bulletin 118.

Camanche/Valley Springs area, which includes a small portion of the Region around the community of Milton. However, there are no wells in the T-S Region portion of the Camanche/Valley Springs area and therefore limited data are available.

2.9.1.3 Groundwater Supply

Groundwater wells are used by many private property owners, especially in areas that are geographically isolated, and some water suppliers in the Region. Based on the population served by community water systems and the population of the Region, approximately 20,000 to 25,000 people in the Region may use groundwater as a potable supply. Due to the difficulty of predicting sustainable yield and storage capacity of the largely fractured bedrock groundwater storage that underlies the T-S Region, and lack of a regional level groundwater study, there is not sufficient data available at this time to quantify total available sustainable groundwater supply.

2.9.1.4 Regional Water Supplies

Water supply for use within the T-S Region is largely controlled by downstream senior water rights holders. For example, TUD, which provides water to many of the water users in the T-S Region, relies on an agreement with PG&E to obtain water from Lyons Reservoir. Table 2-13 below provides a general summary of the water supply sources for the major water suppliers within the Region.

Table 2-13: Water Supply Sources

Water Supplier	Primary Supply Source	Water Rights Source
CCWD – Copper Cove/Copperopolis Area	North Fork Stanislaus River	CCWD Water Rights
CCWD – Ebbetts Pass Area	North Fork Stanislaus River	CCWD Water Rights
Utica Power Authority (provides water to Angels Camp and Union Public Utility District)	North Fork Stanislaus River	UPA Water Rights and Agreement with CCWD for Water Rights
GCSD	Tuolumne River/Hetch Hetchy Reservoir	Agreement with SFPUC
TUD	South Fork Stanislaus River	Agreement with PG&E
Lake Don Pedro CSD	Groundwater – backup water supply agreement for surface water from Lake McClure.	Not Applicable

Calaveras County Water District

CCWD's Copper Cove/Copperopolis service area receives water from the North Fork of the Stanislaus River from Tulloch Reservoir, which is located just downstream of the New Melones Reservoir. The current water rights and permits that CCWD has obtained authorize a 6,000 AFY maximum diversion from Tulloch Reservoir for the Copper Cove/Copperopolis Area. When the demand approaches this supply, the District will request a higher diversion allowance. In addition, Copper Cove produces recycled water for use on local golf courses.

CCWD provides water to the Ebbetts Pass area from the North Fork of the Stanislaus River through the Collierville Tunnel, which is supplied by McKay's Point Reservoir. The current water rights and permits that CCWD has obtained allow for a 8,000 AFY diversion through the Collierville Tunnel. An additional 1,000 AFY may be diverted through an existing "cement slurry line" right to meet agricultural needs in the Ebbetts Pass area. In addition, recycled water from the Ebbetts Pass area is used on local golf courses and for pasture irrigation.

Groveland Community Services District

GCSD receives water primarily from water released from Hetch Hetchy Reservoir via the Hetch Hetchy Mountain Tunnel under a 1964 agreement with SFPUC. In addition to the tunnel, GCSD uses surface water from Pine Mountain Lake for potable use and recycled water for use on local golf courses.

Tuolumne Utilities District

TUD obtains water primarily from the South Fork of the Stanislaus River under TUD's Agreement with PG&E. This surface water is supplied to TUD from the South Fork of the Stanislaus River, including the Lyons Reservoir and Pinecrest Lake. The water is delivered through the Main Tuolumne Canal to the Phoenix Power House, where TUD then delivers the water for Sonora, Jamestown, and Twain Harte. TUD also operates some groundwater wells for potable use and recycles wastewater for agricultural irrigation.

Hetch Hetchy Reservoir

TUD is the largest water supplier in Tuolumne County and provides wholesale water supply to several municipal water companies and Twain Harte CSD.

Utica Power Authority

Utica Power Authority provides water from the North Fork Stanislaus River to Angels Camp and UPUD, which supplies water to the Murphy's area along the Highway 4 corridor.

Regional Water Supply Projections

The T-S Regional water supply projections summarized in Table 2-14 are based on data obtained from 2010 UWMPs for CCWD, GCSD, and TUD. The projected supply availability for UPA was provided directly by UPA and is based on water rights allocations. Due to a lack of available data, quantifiable supply projections were not available for smaller community water systems, Lake Don Pedro CSD, or private domestic groundwater users in the T-S Region. However, it is estimated that from 20,000 to 25,000 persons in the T-S Region may be served by local fractured rock groundwater.

Table 2-14: Water Supply Projections (AFY)

Agency	2015	2020	2025	2030	2035
CCWD - Copper Cove/Copperopolis	66,659	66,869	67,078	67,287	67,497
CCWD – Ebbetts Pass	9,294	9,324	9,353	9,383	9,410
GCSD	3,215	3,645	3,860	4,075	4,075
Lake Don Pedro CSD	N/A	N/A	N/A	N/A	N/A
UPA	2,998	3,278	3,641	4,011	4,510
TUD	26,993	27,084	27,182	27,284	27,372
Rural[4]	N/A	N/A	N/A	N/A	N/A
Total	**109,159**	**110,200**	**111,114**	**112,040**	**112,864**

Sources:
1. CCWD UWMP, 2010; GCSD UWMP, 2010; TUD UWMP, 2010.
2. GCSD does not have any water supply projections for the year 2035, because the contract with SFPUC ends in 2034, therefore it was assumed that the supply for 2030 is equal to the supply for 2035.
3. UPA did not provide supply projections. It was assumed that demand is supply is equal to demand.
4. Rural water supply within the Region is predominantly served by local groundwater wells. Groundwater quantity is variable within the Region, therefore no estimate of water supply is provided here.

2.9.1.5 Recycled Water

The Central Valley Regional Water Quality Control Board (CVRWQCB) regulates wastewater discharges from publicly operated treatment works (POTW) in the Region. The stringent discharge requirements have been established for many agencies to comply with the federal Clean Water Act and the Central Valley Basin Plan. As a result, land application of treated wastewater is strongly encouraged before discharges to surface water bodies are allowed. For these reasons, many of the agencies responsible for wastewater disposal in the Region have upgraded treatment processes, disposal infrastructure, and storage, or continue to seek improvements to upgrade their facilities to increase recycled water production and use. There is currently about 1,000 AFY in CCWD, 350 AFY in Angels Camp, and 1,850 AFY in TUD for a total of about 3,200 AFY of secondary or tertiary quality recycled water used in the Region. Applications currently include mostly agricultural, landscape irrigation, and golf course irrigation systems. Agencies such as TUD, Angels Camp, and CCWD continue to search for ways to expand and enhance their existing recycled water systems.

Recycled Water Use - TUD

2.9.2 Water Demands

Water use in the T-S Region includes local municipal uses for residential, some industrial and commercial enterprises in addition to agricultural use, hydropower generation, the maintenance of minimum flow releases to meet downstream ecosystem needs, and major water exports by senior water rights holders. This section provides a summary of each of these demand categories.

2.9.2.1 Municipal and Agricultural Water Demands

In-Region water demands include predominantly municipal and agricultural uses. Water demand projections were derived from information provided by the various water agencies participating in development of this plan. Historic and projected water demands were taken from UWMPs and other current water planning documents wherever possible. Water demand projections for the three urban water suppliers, TUD, CCWD, and GCSD, include implementation of water use efficiency measures to comply with the statewide mandate for 20% per capita water use reduction by 2020 (Water Conservation Act of 2009). The specific municipal per capita water use targets presented in Table 2-15 were determined by each agency and are discussed in detail in each respective UWMP. Each urban water supplier has developed specific water conservation plans that must be implemented by 2020 in order to achieve the water use efficiency targets.

Table 2-15: 20x2020 Per Capita Water Use Targets

Urban Water Supplier	Baseline GPCD*	2015 Target GPCD	2020 Compliance Target GPCD
TUD	187	176	165
CCWD	215	194	172
GCSD	N/A**	N/A	N/A

* GPCD = Gallons per capita per day
** GCSD did not calculate a baseline or target per capita use in its UWMP.

In addition to these larger water purveyors, there are various small mutual water companies and private water systems that provide water within the T-S Region that were not captured within the local planning documents and thus cannot be broken into different water use categories, these are shown as rural water use in Table 2-16. Rural water usage was estimated using data from the 2010 U.S. Census to first approximate the population that resides outside of CCWD, GCSD, UPA, and TUD's service areas. Growth rates and per capita water demands were then assigned to the estimated population in each county based on the Calaveras County General Plan for rural populations in Calaveras County and the 2010 TUD UWMP for rural populations located within Tuolumne County and Alpine County.

Water demands were divided into domestic, groundwater recharge, agricultural use, recycled water, water loss and other water uses, and wholesale demands. Table 2-16 provides a summary of projected water demands based on these water use categories for the major water agencies within the T-S Region. Rural water use is presented as a separate category to represent water use by the population not included in these agencies. This includes various small mutual water companies and private water systems located throughout the Region.

Table 2-16: Projected Water Demand Summary, AFY

Water Use Category	2010	2015	2020	2025	2030	2035
Domestic[1]	10,647	14,230	16,308	18,889	21,052	22,803
Groundwater Recharge	0	1,500	1,500	2,500	3,500	4,500
Agricultural	2,641	9,721	17,810	25,911	33,271	41,393
Recycled[2]	3,209	3,566	3,907	4,254	4,626	5,102
Water loss and other water uses[3]	6,591	7,873	8,659	9,540	10,522	11,094
Wholesale	709	1,014	1,072	1,132	1,185	1,241
Rural Water Use[4]	5,214	5,512	5,827	6,160	6,512	6,885
Total[1]	**29,010**	**43,416**	**55,083**	**68,386**	**80,668**	**93,017**

Source: CCWD, GCSD, TUD 2010 UWMP; UPA projections provided by UPA
1. GCSD: Assumed 4.5% growth between 2030 and 2035
2. GCSD: Assumed a 5 year 4.5% growth rate
3. GCSD: Assumed 14% Water Loss/Other Water Uses
4. See Table 2-2 for population growth rate assumptions by County

Currently, the largest demand within the T-S Region is for domestic (residential, commercial, and industrial uses) as shown in Table 2-16. Projections for 2035 show a large increase in agricultural water use within the T-S Region. A majority of this growth is projected in the Copper Cove/Copperopolis/Salt Springs area located in southwestern Calaveras County, where CCWD projected potential future agricultural connections representing nearly 10,000 acres of new agriculture. Additionally, Calaveras County anticipates implementing groundwater recharge in this area in the future. Some agricultural growth is also projected in the Ebbetts Pass area of CCWD along the Highway 4 corridor. Vineyards are one land use where a new demand has been identified. (CCWD, 2011)

Currently the greatest demand within the Region is in the TUD service area, with approximately 15,000 AFY of water use. Future projections for CCWD however, project greater water use than TUD, with an increase from 4,400 to 54,000 AFY by 2035 (see Table 2-17). A majority of this water use is projected for agricultural development in the Copper Cove/Copperopolis/Salt Springs area. Current water use in areas outside of the major water purveyors is estimated to be approximately 15% of the total water use within the T-S Region.

Table 2-17: Projected Water Demand by Agency, AFY

Agency	2010	2015	2020	2025	2030	2035
CCWD	4,484	14,897	24,179	34,800	44,159	54,248
GCSD[1]	1,038	1,090	1,140	1,193	1,244	1,300
UPA	2,761	2,998	3,278	3,641	4,011	4,510
TUD	15,513	18,920	20,659	22,592	24,741	26,074
Tuolumne County-Other[2]	4,313	4,551	4,802	5,067	5,346	5,641
Calaveras County-Other[3,4]	876	935	997	1,064	1,135	1,211
Alpine County-Other[5]	25	27	28	30	31	33
Total	**29,010**	**43,416**	**55,083**	**68,386**	**80,668**	**93,017**

Source: CCWD, GCSD, TUD 2010 UWMP; UPA projections provided by UPA
1. Assumed 4.5% growth between 2030 and 2035
2. Assumed a growth rate of 1.08% per year and a gpcd of 187 based on TUD 2010 UWMP
3. Assumed a growth rate of 1.3% per year based on 2030 General Plan Update Housing Element
4. Assumed a gpcd of 215 based on CCWD 2010 UWMP
5. Assumed a growth rate of 1.08% per year and a gpcd of 187 based on TUD 2010 UWMP

2.9.2.2 Non-Consumptive Demands – Hydropower Generation

Hydropower generation is one of the essential products in the T-S Region that have resulted from harnessing the natural energy potential of the Upper Stanislaus and Tuolumne rivers. Hydroelectric power generation facilities are a significant user of water in the T-S Region. However, hydroelectric generation is also “non-consumptive”, in that water used is generally returned to the natural water system downstream of the power production facilities.

With the significant number of reservoirs and diversions in the T-S Region, it is essential to maintain minimum flow releases from the reservoirs to support aquatic species both in the watershed as well as downstream in the San Joaquin River and the Sacramento-San Joaquin Delta. FERC hydropower licenses for the projects on the Upper Tuolumne and Stanislaus rivers include requirements for maintaining minimum in-stream flows to provide protection for downstream fisheries and other aquatic species. Conditions including temperature, turbidity, and minimum flow often must be satisfied to ensure the releases are protective of the affected ecosystems.

Flows released from the O’Shaughnessy Dam at Hetch Hetchy Reservoir to the downstream Tuolumne River must meet the flow requirements outlined in the Raker Act, which was the 1913 state legislation that allowed the City of San Francisco to construct the dam and hydropower facilities.

The FERC licenses for Lake Don Pedro stipulate environmental in-stream flow requirements. The TID and MID are currently in the process of FERC relicensing for Don Pedro Dam which is set to expire in 2016. This process will reassess the required environmental in-stream flows and describe a required flow release schedule for the Don Pedro Dam.

New Melones is a federal project and does not require a FERC license, but currently operates under an Interim Plan of Operations (IPO), which prescribes minimum flow releases. Reclamation is in the process of completing a Revised Plan of Operation (RPO) for New Melones Dam. This outlines how USBR will maintain regulated flows while meeting export water needs.

2.9.2.3 Water Exports from the Region

Water exports for consumptive uses outside the Region comprise approximately 98% of the overall water deliveries from the Stanislaus and Tuolumne rivers on an average annual basis. The actual exports that occur each year can vary significantly based on a number of factors including water year conditions, conjunctive water use operations, and climactic conditions. The water storage and supply

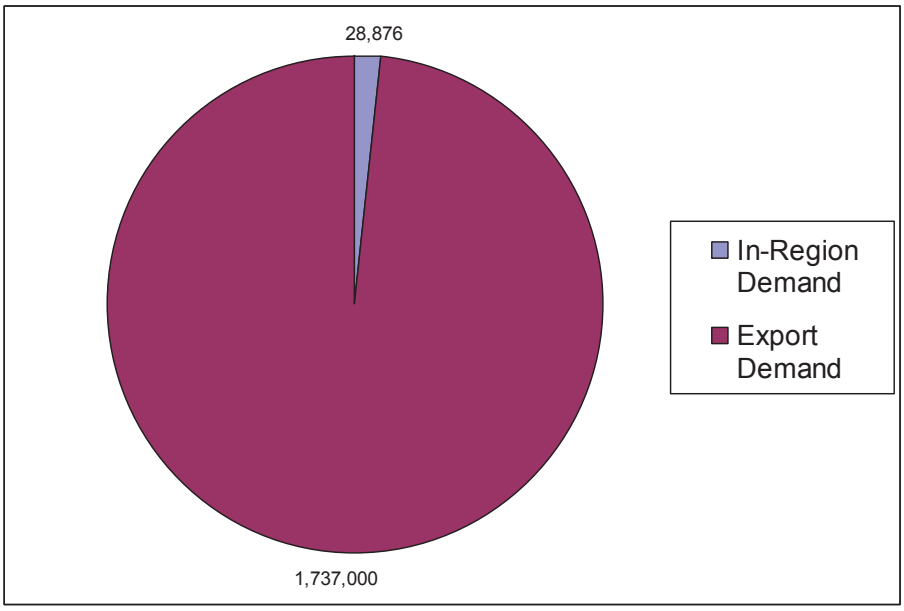


Figure 2-18: Water Demand (AFY)

agreements can be very complex. For example, on the Stanislaus River, Oakdale Irrigation District and South San Joaquin Irrigation District have settlement agreements which entitle them up to the first 600,000 AF of inflow to New Melones Reservoir. Stockton East Water District and Central San Joaquin Water Conservation District contracted with the Reclamation in 1985 to receive up to 75,000 and 80,000 AFY, respectively, of New Melones water under the Central Valley Project. Likewise, MID and TID have senior water rights on the Tuolumne River and jointly own and operate Don Pedro Reservoir. SFPUC also has significant senior water rights and diverts water into the Hetch Hetchy aqueduct under the provisions of the Raker Act for use by customers in the San Francisco Bay Area. Figure 2-18 shows in-Region as compared to out-of-Region demands, and Table 2-18 provides a summary of typical, average year exports by agency.

Table 2-18: Summary of Water Exports

River/Agency	Primary Water Use	Average Water Exports (AFY)
Stanislaus River		
OID	Agricultural and Municipal	300,000
SSJID	Agricultural and Municipal	300,000
Reclamation	Varies	****
Subtotal, Stanislaus River		**600,000**
Tuolumne River		
MID	Agricultural and Municipal	310,000
TID	Agricultural and Municipal	575,000
SFPUC	Municipal	252,000
Subtotal, Tuolumne River		**1,137,000**
Total Average Water Exports from the T-S Region		**1,737,000**

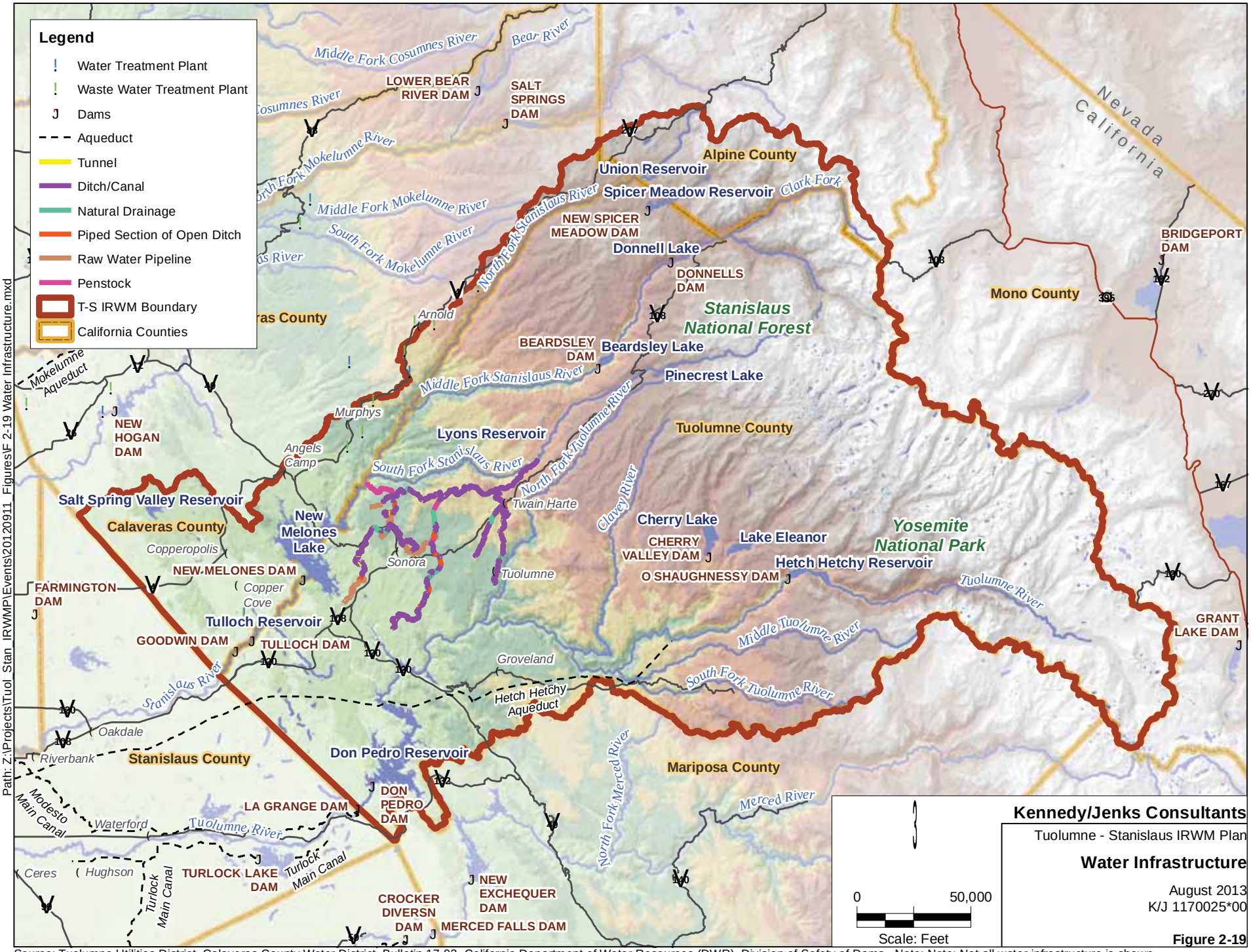
Source: OID Water Resources Plan; SFPUC 2010 UWMP; www.mid.com

**** Reclamation has a range of operational parameters for New Melones Lake including a 450,000 AF flood control reservation; 300,000 AF minimum pool for power generation and recreation; and instream flow requirements that vary from 300 – 500 cubic feet per second to maintain fall-run Chinook salmon spawning.

2.10 Water Infrastructure

2.10.1 Surface Water Infrastructure

Surface water originating from the Sierra Nevada mountain range is the primary source of water supply for the T-S Region, and a key regional export for water users outside the Region. The abundant surface water supply, combined with the natural elevation changes in the mountainous region have also resulted in the Region being ideal for hydroelectric power generation facilities. For these reasons, many upstream storage reservoirs have been constructed that provide water storage for municipal and industrial supply, flood protection, and renewable hydroelectric power generation. Water from these storage reservoirs is primarily conveyed to end users and water treatment facilities within the Region and downstream via an extensive network of ditches (unlined earth and gunite lined), flumes, canals, and pipelines. Some of these conveyances were constructed in the late 1800s and early 1900s and have historic significance. Figure 2-19 depicts the major water storage, surface water conveyance, and hydroelectric infrastructure in the T-S Region.



Source: Tuolumne Utilities District, Calaveras County Water District, Bulletin 17-93, California Department of Water Resources (DWR), Division of Safety of Dams. Note: Note: Not all water infrastructure is shown.

Water storage reservoirs located within the Stanislaus and Tuolumne River watersheds provide over 5.5 MAF of total storage as summarized in Table 2-19 below.

Table 2-19: Surface Water Storage Reservoirs

River	Reservoir	Storage Capacity (AF)	Owner	Primary Uses
North Fork Stanislaus	Lake Alpine	4,120	NCPA	Regulate flow for Downstream Power Generation
	Union Reservoir	3,130	NCPA	Regulate flow for Downstream Power Generation
	Utica Reservoir	2,330	NCPA	Regulate flow for Downstream Power Generation
	New Spicer Meadows Reservoir	189,000	NCPA (operated); CCWD (owned)	Regulate flow for Downstream Power Generation
	Hunters Reservoir	250	UPA	Municipal Use (CCWD, UPA); Power Generation (at Murphys)
	McKays Point Reservoir	N/A	NCPA	Power Generation
Middle Fork Stanislaus	Relief Reservoir	15,500	Tri-Dam	Power Generation
	Donnell Lake	64,300	Tri-Dam	Power Generation
	Beardsley Lake	97,800	Tri-Dam	Power Generation
South Fork Stanislaus	Pinecrest Reservoir	18,310	PG&E	Municipal Use (TUD); Power Generation; Recreation
	Lyons Reservoir	6,220	PG&E	Municipal Use (TUD); Power Generation
Stanislaus	New Melones Lake	2,420,000	Reclamation	Municipal-Agricultural Use/Flood Control / Power Generation/Recreation
	Tulloch Reservoir	67,000	Tri-Dam	Municipal Use (CCWD)/Power Generation
Tuolumne River	Lake Lloyd (Cherry Lake)	273,300	SFPUC	In Stream Flows/ Power Generation
	Lake Eleanor	27,000	SFPUC	In Stream Flows/ Power Generation
	Hetch Hetchy	360,000	SFPUC	Municipal Use for SFPUC and GCSD/Power Generation
	Don Pedro Reservoir	2,030,000	TID/MID	Agricultural Use/Flood Control/Power Generation/Recreation
Total Storage		5,577,960		

Sources: http://www.ncpahydro.com/about.htm; Draft Environmental Impact Statement for Hydropower Licenses-Stanislaus River Projects; 2010 TUD UWMP; 2010 SFPUC UWMP; http://tid.com/water/projects/don-pedro-reservoir

Table 2-20 provides a summary of the hydropower projects including power generating capacity in megawatts (MW), and licensing dates.

Table 2-20: Hydropower Generation Projects

Docket Number	Project Name	Licensee	Waterway	Issue Date	Expiration Date	Authorized Capacity (MW)
2975	Sand Bar	Tri Dam	Stanislaus-Middle Fork	09/08/83	08/31/33	162.0
2130	Spring Gap-Stanislaus	PG&E	Stanislaus	04/24/09	03/31/47	90.8
2409	North Fork Stanislaus River	CCWD	Stanislaus-North Fork	02/08/82	01/31/32	258.7
1061	Phoenix	PG&E	Stanislaus-South Fork	09/30/92	08/31/22	1.8
2005	Beardsley/Donnells	OID/SSJD	Stanislaus-Middle Fork	01/30/06	12/31/46	82.5
2067	Tulloch	OID/SSJD	Stanislaus	02/16/06	12/31/46	24.1
2699	Angels	UPA	Angels Creek	09/03/03	08/31/33	1.4
2019	Utica	UPA	Silver Creek	09/03/03	08/31/33	4.5
11197	Collierville & Spicer Meadow T. L.	NCPA	Stanislaus-North Fork	02/12/92	01/31/32	0.0
2781	New Melones T.L.	PG&E	New Melones Reservoir	09/18/78	08/31/28	300.0
2299	New Don Pedro	TID	Tuolumne	03/10/64	04/30/16	168.0
11563	Upper Utica	NCPA	Silver Creek	09/03/03	08/31/33	0.0

Sources: Ferc eLibrary Issued Licenses; http://www.usbr.gov/projects/Powerplant.jsp?fac_Name=New+Melones+Powerplant (New Melones Capacity)

The majority of the surface water transmission infrastructure within the Region is owned and operated by TUD, CCWD, UPA, or PG&E. Much of the ditch systems constructed as part of the gold rush and mining operations in the 19th century are still in use today, delivering water to mines, ranches, farms, lumber mills, individual landowners, and drinking water treatment plants. The TUD owns and operates the most extensive system in the Region, with over 56 miles of canals and ditches that thread their way from high elevation to low, between forest, rural, urban, commercial and agricultural settings, and could be considered a cultural landscape. The canal and ditch system may provide a variety of social, economic and environmental benefits for Tuolumne County as a whole. Among these are gravity-fed water, fire protection, wetlands, recreation, trails, living history, wildlife habitat, connectivity and migratory corridors, aesthetics, and community identity. However, many of these ditches/flumes provide a single source of water supply to their customers and are vulnerable to outages from fire, storm-related landslides and fallen trees, and other natural disasters.

2.10.2 Groundwater Infrastructure

As described previously, groundwater supply in the T-S Region is largely considered unreliable, but still provides as much as 30% of the water supply in Tuolumne County, and historically has been a significant water supply in southern Calaveras County. Groundwater wells constructed in fractured bedrock and metamorphic formations are owned and operated by private landowners, small public water systems (systems with less than 200 connections), and larger water utilities. For example, TUD maintains 26 wells, some of which are used to supply make-up water to replace reduced surface water availability during droughts and ditch outages.

Groundwater is the only water supply source for many of the small water systems in the T-S Region. The majority of the small water systems within Tuolumne County that are regulated by the County's Environmental Health Division rely exclusively on individual small capacity wells. A large portion of these small water systems are also disadvantaged communities, and are currently unable to afford needed infrastructure investments to procure a more reliable and long-term water source.

Groundwater has historically been a primary supply source in the Salt Springs Valley area of Calaveras County for agricultural uses, however due to overdraft and poor water quality conditions (including high salinity and nitrate concentrations), is no longer considered a reliable source of water for future users. The municipal use of groundwater in the Region has been delisted by the RWQCB as one of the beneficial uses.

2.10.3 Wastewater and Recycled Water Infrastructure

Wastewater collection and treatment throughout the T-S Region includes both sewered areas with wastewater treatment plants (WWTPs) operated by municipalities, and areas with onsite septic systems. Sewage collection systems, WWTPs, and onsite septic systems each present distinct water quality and resources management challenges.

There are a total of 12 wastewater collection and treatment systems within the T-S Region, including 5 systems owned and operated by CCWD, as well as systems owned and operated by TUD, Twain Harte CSD, Jamestown Sanitary District, Murphy's Sanitary District, Angels Camp, and GCSD, as summarized in Table 2-21 below. Each of these agencies is committed to managing their collection, treatment, and disposal systems in a manner that is protective of the environment and meets Clean Water Act requirements. Some sewered areas, such as CCWD's Copper Cove/Copperopolis system and GCSD's system are located in very close proximity to surface water bodies. CCWD's Copper Cove/Copperopolis system, which serves over 1,700 connections, is located adjacent to Tulloch Reservoir, and in many cases is higher in elevation than the reservoir itself. For this reason, this area is particularly susceptible to contaminating Tulloch Reservoir if an unintended sanitary sewer overflow occurs.

TUD Wastewater Treatment Facility

Table 2-21: Wastewater Collection and Treatment Systems

Treatment System (owner)	Capacity (gpd)	Number of Connections	Treatment Level	Disposal Method
CCWD – Copper Cove	230,000 (secondary) 950,000 (tertiary)	1,741	Secondary and Tertiary	Irrigation for a golf course and spray fields
CCWD – Indian Rock Vineyards	6,000	20	Secondary	Leach fields
CCWD – Vallecito	65,000	254	Secondary	Spray fields
CCWD – Forest Meadows	190,000	604	Secondary	On-site leach fields, golf course irrigation, and discharge to the Stanislaus River
CCWD - Arnold	170,000	457	Secondary	Spray irrigation and subsurface disposal beds
TUD	2,600,000	9,000	Secondary	Storage at Quartz Reservoir and agricultural irrigation
Angels Camp	600,000	1,569	Tertiary	Irrigation for a golf course and pasture
Tuolumne Sanitary District	360,000	850	N/A	Spray evaporation ponds
Jamestown Sanitary District	280,000	1,250	Secondary	Storage at Quartz Reservoir and agricultural irrigation
GCSD	250,000	1,500	Secondary	Spray fields, evaporation ponds, irrigation for golf course
Murphy's Sanitary District	185,000	783	Secondary	Drip Irrigation
Twain Harte CSD	N/A	1,500	Primary	Send to Regional TUD Wastewater Treatment Facility

Source: 2007 TUD MSR, 2011 Calaveras MSR, 2007 Foothill Watershed Assessment, 2007 GCSD MSR, 2007 Twain Harte CSD MSR

GCSD operates a wastewater treatment plant that serves approximately 1,500 customers with a capacity of 250,000 gpd. The plant consists of primary and secondary treatment and disposes of its effluent by storing it in two storage ponds then sending it either to the Pine Mountain Lake Golf Course or to 14 acres of spray fields. GCSD's sewer system consists of 16 lift stations, 7 miles of force main and 35 miles of gravity lines.

Quartz Reservoir - Storage for Secondary Treated Wastewater Effluent is used for recycled water by TUD.

The largest wastewater system is TUD's Regional WWTP, which receives flow from both the TUD and Twain Harte CSD wastewater collection systems and has a design capacity of 2.6 million gallons per day (MGD). The Regional WWTP is a secondary level WWTP that utilizes screening, grit removal, primary clarification, trickling filtration, secondary clarification, effluent ponds, and disinfection. The secondary treated wastewater is comingled with secondary treated wastewater from Jamestown Sanitary District, and reused for agricultural applications. Occasionally, treated wastewater is discharged to Woods Creek during wet weather conditions

when there is insufficient remaining capacity in the wastewater storage reservoir, Quartz Reservoir.

Individual, onsite septic systems are also very common within the T-S Region, as only a portion of the residents with community water service connections also have wastewater connections. Failed leaking onsite wastewater treatment systems are believed to be causing surface water and groundwater contamination issues.

2.10.4 Water Treatment and Distribution Infrastructure

Water treatment is required for all drinking water supplies from surface water in the Region, with the exception of GCSD, which obtains water from SFPUC's Hetch-Hetchy water system and has obtained a filtration avoidance clause in their water permit. GCSD and the other water agencies that utilize surface water, including CCWD, TUD, Angels Camp, UPUD, and Lake Don Pedro CSD, operate facilities that are compliant with the Safe Drinking Water Act and California drinking water standards codified under the Title 22 California Code of Regulations and regulated by the California Department of Public Health (CDPH). Due to the highly variable topography in the Region, it was originally not seen as practical to create large, interconnected distribution systems. For this reason, there are a significant number of water treatment plants, storage tanks and reservoirs, and satellite distribution systems relative to the population in the Region, as summarized below. This vast, aging infrastructure requires significant effort to maintain in reliable condition and keep it compliant with evolving drinking water quality regulations. A number of municipal groundwater wells also have wellhead treatment systems, primarily for iron and manganese.

- TUD – From Lyons Reservoir, water is conveyed through a series of open ditches, flumes and reservoirs prior to reaching its 14 surface WTPs. The WTPs range in capacity from 50 gpm (Brentwood) to 2,800 gpm (Sonora). TUD also maintains more than 80 treated water storage tanks and reservoirs.

- GCSD – From SFPUC's mountain tunnel, water is injected with chlorine and pumped into a 16,500 gallon chlorine contact tank where virus inactivation is achieved. The water is then injected with ammonia as it enters the clearwells. The ammonia combines with the chlorine to form chloramines. As the water is pumped out into the distribution system it undergoes Ultraviolet disinfection, and is also injected with lime to increase the pH.

- CCWD – The Ebbetts Pass/Hwy 4 system receives water from the North Fork Stanislaus River through the Collierville Tunnel prior to conveyance to the Hunters Lake Water Treatment Plant with a capacity of 4 mgd. The distribution system contains 17 storage tanks. The Copper Cove/Copperopolis system receives water from the North Fork Stanislaus River through Tulloch Reservoir prior to conveyance to a 4.0 mgd water treatment plant. The distribution system contains one clear well and four storage tanks.

- Angels Camp – The City of Angels Camp receives water from the North Fork Stanislaus River through the Collierville Tunnel, Hunter's Reservoir, then via the UPA canal/flume system to Angels Creek/Angels Ditch and then into the 90 acre-feet Ross Reservoir, which feeds the Angel's Water Treatment Plant. The distribution system contains a 2.5 million gallon treated water tank and 32 miles of distribution pipeline.

- Others – Lake Don Pedro CSD uses local groundwater although the Lake Don Pedro CSD is adjacent to New Don Pedro Reservoir. The Lake Don Pedro CSD does not have

water rights or contracts for water from the lake but has arrangements for emergency supply from Lake McClure on the Merced River to the south.

2.11 Water Quality

There are many tools, whether regulatory, voluntary, or incentive based, currently available for preventing pollution. The USEPA, SWRCB, and Regional Water Quality Control Boards (RWQCBs) have permitting, enforcement, remediation, monitoring, and watershed-based programs to prevent pollution. Pollution can enter a water body from point sources like WWTPs and/or other industries that directly discharge to the river and from nonpoint sources over a broad area, such as runoff from a city and/or agricultural farmland or grazing areas located adjacent to stretches of the river reach. Some nonpoint source contaminants are naturally occurring in local rocks and soil, such as heavy metals, (arsenic, chromium, selenium). Preventing pollution from most point sources relies on a combination of source control and treatment, while preventing nonpoint source pollution generally involves the use of best management practices (BMPs), efficient water management practices, and source control. Nonpoint source pollution is not typically associated with discrete conveyances.

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. SDWA applies to every public water system in the United States. SDWA authorizes the USEPA to set national health based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap and drinking water standards are based on health risk balanced by economic factors. Amendments in 1996 greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. Under the SDWA, technical and financial aid is available for certain source water protection activities. In California, the California Department of Public Health regulates drinking water in community water systems.

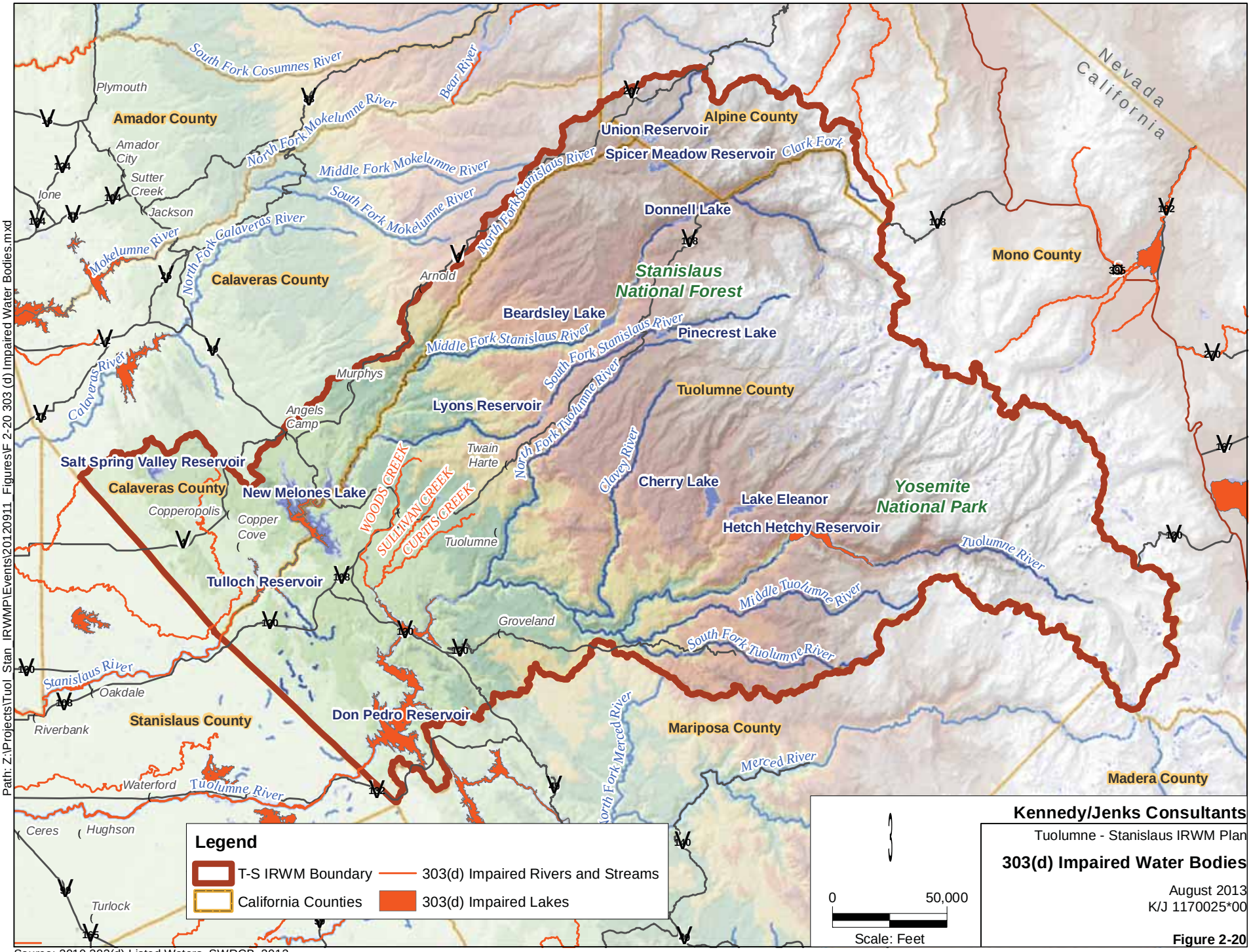
The Federal Clean Water Act (CWA) contains two strategies for managing water quality including: (1) a technology-based approach that envisions requirements to maintain a minimum level of pollutant management using the best available technology; and (2) a water quality based approach that relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Oftentimes, limits to water quality are based on the sensitivity of the ecosystem in the receiving water to contaminants, often at trace levels well below drinking water standards. Section 303(d) of the CWA bridges these two strategies. Section 303(d) requires that the states make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the USEPA administrator deems they are appropriate) the states are required to determine all the sources of the pollutants that caused the water to be listed, including contributions from point sources and non-point sources. Impaired water bodies within the T-S Region are listed in Table 2-22 and shown on Figure 2-20. This table identifies *E. coli* and mercury as the two major pollutants identified within the Region.

Table 2-22: Impaired Water Bodies

Water Body	Watershed	Affected Area	Unit	Pollutant	Final Listing Decision
Upper Tuolumne River					
Curtis Creek (Tuolumne County)	Upper Tuolumne River	12	Miles	*Escherichia coli (E. coli)*	List on 303(d) list (TMDL required list)
Don Pedro Lake	Upper Tuolumne River	11,056	Acres	Mercury	Do Not Delist from 303(d) list (TMDL required list)
Hetch Hetchy Reservoir	Upper Tuolumne River	1,840	Acres	Mercury	List on 303(d) list (TMDL required list)
Sullivan Creek (from Phoenix Reservoir to Don Pedro Lake, Tuolumne County)	Upper Tuolumne River	11	Miles	*Escherichia coli (E. coli)*	List on 303(d) list (TMDL required list)
Woods Creek (Tuolumne County)	Upper Tuolumne River	15	Miles	*Escherichia coli (E. coli)*	List on 303(d) list (TMDL required list)
Upper Stanislaus River					
New Melones Reservoir	Upper Stanislaus River	1,654	Acres	Mercury	List on 303(d) list (TMDL required list)
Tulloch Reservoir	Upper Stanislaus River	992	Acres	Mercury	List on 303(d) list (TMDL required list)
Rock Creek-French Camp Slough					
Littlejohns Creek	Rock Creek-French Camp Slough	68	Miles	*Escherichia coli (E. coli)*/ Unknown Toxicity	List on 303(d) list (TMDL required list)

1. Data based on combined 2010 303(d) Data.

The federal CWA, as well as the State Porter-Cologne Water Quality Control Act, requires water quality control plans to establish water quality standards, which address beneficial uses of water sources. The CVRWQCB has established and adopted the Water Quality Control Plan for the Sacramento/San Joaquin (Basin Plan). The Basin Plan describes designated beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Beneficial uses, together with their corresponding water quality objectives, meet federal regulatory criteria for water quality standards. Hence, the Basin Plan serves as regulatory references for meeting both state and federal requirements for surface and groundwater water quality control in the Region.



Source: 2010 303(d) Listed Waters, SWRCB, 2012.

2.11.1 Surface Water Quality

Surface water quality in the T-S Region is generally considered very good and compatible with most intended beneficial uses. For example, most of the water from the Tuolumne River is usable for human consumption with disinfection alone, although SDWA regulations require more stringent treatment. Water quality based on environmental standards for fishes and other aquatic life is also good, although 303(d) impaired water bodies exist within the Region for seven (7) water bodies, with contamination of *E. coli* or mercury.

The majority of the surface water quality issues identified within the Region can be linked back to current or historical land use practices. Historical mining within the area largely affected the landscape and water quality within the Region. Gold mining within the Region has been linked to the 303(d) listing of four (4) of its water bodies for mercury contamination, spanning both the Stanislaus and Tuolumne River Watersheds.

Cattle grazing is a possible contributor to pathogens in surface water. (Photo courtesy of Tuolumne County Farm Bureau)

Septic systems, livestock grazing and water based recreation activities have been associated with increased contamination of pathogens such as *E. coli*. The four (4) 303(d) listed waterbodies within the Region for *E. coli* contamination. This contamination has led to the need for upgrades in some of the drinking water treatment plants to increase the removal of *Cryptosporidium*, *Giardia lamblia* and *E. coli*, which may not be effectively removed using conventional treatment methods. Contamination of these waters from both manmade and natural sources occurs either in the source water or during transport through supply systems.

Additional water quality concerns limited to specific drinking diversion points have resulted in production of disinfection byproducts (DBPs) including halo-acetic acids and total trihalomethanes, which have been detected above the maximum allowable contaminant level within the treated water from the Stanislaus River Watershed at the Murphy's Water Treatment Plant (WTP). DBP formation is usually linked to elevated organic carbon concentrations in the source water. Overall, water quality is good with generally low temperature readings, dissolved oxygen (DO) readings around 7.0 mg/L or greater, low concentrations of nutrients such as nitrate and phosphate and metals at undetectable levels. No persistently present constituents have been identified in the surface water requiring additional treatment processes, with the exception of *Cryptosporidium*, *Giardia lamblia* and *E. coli,* which has been detected through Long Term 2 Enhanced Surface Water Treatment Rule (LT2) sampling. TUD is currently evaluating treatment options and is planning to upgrade treatment at three (3) existing water treatment plants including Columbia WTP, Monte Grande WTP and Ponderosa WTP to treat these microorganisms and to address the LT2 requirements.

Table 2-23: Surface Water Quality Constituents of Concern by Use

Constituent	End Use			
	Drinking Water	Irrigation	Environmental	Recreation
Bacteriological contamination (including *E. coli*, *cryptosporidium*, *giardia*)	*			
E. coli	X			X
Mercury			X	
DBP Precursors	*			

X = Constituent on 303(d) list water quality regulations
* = Constituent identified by local stakeholders/local documents as source of impairment

2.11.2 Groundwater Quality

Groundwater within the Region generally is obtained from fractured bedrock formations. These basins are susceptible to contamination from surface and thus have variable water quality. Despite this, groundwater is still extensively used throughout the Region. Constituents naturally present that require treatment are primarily iron and manganese. The EPA Secondary Maximum Contaminant Limit (SMCL) for iron is 0.3 mg/L and the SMCL for manganese is 0.05 mg/L. These limits are not required treatment standards, but recommended standards for drinking water aesthetics. TUD has a number of wells with high iron and manganese that are treated. Other constituents such as perchloroethylene, low pH and freon have required treatment at one or more wells within the T-S Region. Perchloroethylene has been historically used in dry cleaning agents and freon has been used in refrigerants, propellants and solvents.

Other sources of groundwater contamination are improperly placed and maintained septic systems as well as leaking underground storage tanks (LUSTs). Many septic systems were installed prior to the requirement of a soil investigation and health study to demonstrate long term feasibility of the septic system prior to its installation; thus, the areas of most concern are generally associated with older residences where septic systems were installed prior to the passing of these regulations. Septic system contamination leads to bacteriological contamination within groundwater wells that can become problematic for domestic use of local groundwater. LUSTs are an issue throughout the United States due to their presence at nearly every gas station as well as in other locations. A report conducted in 1999, described 46 sites within Tuolumne County where groundwater contamination has been attributed to these leaking LUSTs. As of 2013, the SWRCB's GeoTracker database identifies about 50 sites that are actively being monitored and/or are undergoing investigation/clean up.

In Calaveras County, salt water bearing wells have been identified in western portion of the county, primarily around the vicinity of Copperopolis. (Calaveras County Environmental Health Department, 2004)

There are very small portions of DWR-defined Bulletin 118 groundwater basins in the Region. A small portion of the Eastern San Joaquin River Subbasin (Groundwater Basin Number 5-22.01) is located within the most western portion of Calaveras County located within the Region Boundary. An even smaller area of the Modesto Subbasin (Groundwater Basin Number 5-22.02) is located within the most western portion of Tuolumne County. Both are part of the larger San Joaquin Valley Basin. The San Joaquin Valley Basin has been historically overdrafted leading to poor water quality with issues such as high TDS. Because the areas

within the Region are so small, little pumping from these basins occurs within the Region and data on these basins does not exist. As described earlier, CCWD overlies a portion of the Eastern San Joaquin River Subbasin and has begun to develop a groundwater study to help manage the use of this water within their District.

2.11.3 Water from Storage

Water from storage can have variable water quality dependent on contaminant sources from non-point sources along the storage reservoir as well as the influent water quality. Most storage reservoirs within the T-S Region, such as Hetch Hetchy Reservoir, are considered to have pristine water quality, based on potable use standards. Hetch Hetchy Reservoir does not require filtration for potable use. However, Phoenix Lake, used as a water source for TUD, has been subject to variable water quality. Water quality within the lake is declining due to contamination, siltation and invasive exotic aquatic vegetation. Taste and odor complaints at downstream distribution systems to Phoenix Lake often attribute their water quality issues to the lake.

Phoenix Lake – South Shore
(Photo courtesy of TUD)

Additionally, four (4) reservoirs in the Region have regulatory limits for mercury. The levels present in these reservoirs do not require treatment for potable use, but are considered a water quality for fish and other aquatic species. These reservoirs are Hetch Hetchy, Don Pedro, New Melones, and Tulloch Reservoirs.

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Section 3: Relation to Local Water and Land Use Planning

Water resources and land use planning in the Tuolumne-Stanislaus (T-S) Region are inherently connected between the uses of land (i.e., for rural residences, forestry, agricultural, and other activities) and the ways in which water is conveyed and used (i.e., for both consumptive and non-consumptive uses). Land use changes require proper planning and collaboration to protect water resources including water quality and the availability and reliability of supply for urban, agricultural, and ecosystem benefits. Collaboration between water managers and land use managers can help mitigate land use decisions that could become detrimental to water resources. Historical events such as mining, water storage, and hydroelectric generation projects in the Region have significantly altered the natural flow of the water systems. These changes to the water systems have provided considerable human benefit, but in some cases have also resulted in adverse environmental consequences. Better coordination can help to properly manage and utilize these resources. More recently, through the Integrated Regional Water Management (IRWM) process, land and water management organizations in the Region have taken steps forward to better collaborate regarding regional water management issues. Recognizing this important linkage, this section describes the relationships and interactions between local water planning, local land use planning, and regional planning efforts fostered by the Regional Water Management Group (RWMG). This section identifies some of those points of collaboration and highlights opportunities for improved communication and action in the future.

It is broadly understood that water resources can be better protected, managed, and restored when water managers provide early input to, and ongoing coordination with, entities responsible for making land use decisions and implementing land use changes. Although many land use planning documents set appropriate goals related to water resources management, active implementation of land use practices that benefit water resources may require more interaction and collaboration between water managers, land use planners, and the elected officials that set policies. Numerous plans and studies related to water resources and land use management in the T-S Region have been reviewed to support the development of this IRWM Plan. The T-S IRWM Plan contains information from local planning efforts that have occurred throughout the Region, and is consistent with and supports locally-led planning and implementation of integrated water management. Appendix C provides additional details about the planning documents used in development of the T-S IRWM Plan.

3.1 Relation to Local Water Planning

The T-S IRWM Plan in no way replaces or supersedes local planning, but is intended to incorporate and strengthen local planning efforts and results. This section contains a description of how the T-S IRWM Plan incorporates its water management planning and implementation activities with local resource management planning activities.

3.1.1 Local Water Supply Planning

As discussed in Section 1, the T-S Planning Grant Committee (PGC) includes many organizations that have local water quality, water supply and flood management responsibilities. For instance, Tuolumne Utilities District (TUD) provides water either directly or indirectly to most of the developed areas of Tuolumne County, including treatment and distribution of potable water directly to customers, delivery of raw water to smaller community water systems and

agricultural customers. TUD also provides wastewater collection and treatment and watershed management services within Tuolumne County. Other member agencies such as Calaveras County Water District, City of Angels Camp, Twain Harte Community Services District and Groveland Community Services District (GCSD) provide similar functions for their respective service areas.

Urban water management planning is an important focus area and source of information to this IRWM Plan. The California Water Code requires cities and water agencies that deliver more than 3,000 acre-feet per year of water or have more than 3,000 connections to prepare Urban Water Management Plans (UWMPs) every 5 years. UWMPs are required to include 20 year water demand forecasts and water conservation programs intended to meet statewide goals to reduce per capita urban water use 20% by the year 2020. The demand forecasts and conservation planning efforts of the cities and water agencies throughout the Region that are required to prepare UWMPs have been incorporated into this Plan.

Even though there are many areas in the Region not required to prepare UWMPs, there are many other ways in which the members of the RWMG support local water planning and implement water management activities consistent with this IRWM Plan. Examples of local planning efforts cities and other community services districts within the T-S Region undertake with respect to water include: water supply planning and conservation, water treatment and distribution, stormwater and wastewater management, and water quality protection. A list of local water-related planning documents and their update frequency is included in Appendix C. It is anticipated that updates to local water planning documents will be reviewed and considered for inclusion in the IRWM Plan during the required 5-year IRWM Plan review cycles.

Downtown Sonora provides an example of an urban setting.

Although agricultural water demand is a relatively small proportion of the total current water demand in the Region (approximately 9% in 2010), the UWMP projections indicate that in the future, agricultural water use could become a much larger proportion of water use in the Region (nearly 45% by 2035). Agricultural water management planning is a newly-regulated water resource management tool that is being implemented and overseen by DWR. Senate Bill SBx7-7 requires agricultural water suppliers that provide water to 25,000 irrigated acres or more to measure volumes of water delivered to customers, adopt pricing structures that are based on quantity delivered, implement Efficient Water Management Practices, and prepare Agricultural Water Management Plans. No water suppliers in the T-S Region currently deliver large enough quantities of agricultural water to trigger SBx7-7 requirements, however as agricultural development occurs, it is recommended the Region consider support of policies consistent with these agricultural water management practices.

Other stakeholders including tribes, resource conservation districts, federal agencies, and non-governmental organizations develop, support, and implement water management activities in areas such as water quality improvement, ecosystem management and restoration, and

watershed management. It is the hope that IRWM collaboration will continue to provide a forum for synergies and commonalities to be identified between the various planning efforts to provide for improved information sharing, and potentially identify areas in which water resources can be shared to enhance supply reliability.

3.1.2 Incorporation of Water Planning

The T-S IRWM Plan incorporates elements of local water resource management planning documents, including Groundwater Management Plans (GWMPs), UWMP, water master plans, watershed and forestry management plans, emergency response plans, and General Plans. Many water plans focus on improving natural resources in the T-S Region. These are just a small sample of the dozens of water resources planning documents that serve as the foundation of the T-S IRWM Plan by providing the basis for understanding the water supply and demand conditions, water quality, and water-related infrastructure in the Region. Therefore, local water planning serves the basis for the development of the water-related subsections in the Region Description (Section 2) and Resource Management Strategies (Section 6). The water management documents used in preparation of the IRWM Plan are listed in Appendix C.

The water management needs, challenges, and conflicts identified and addressed in the T-S IRWM Plan (see Section 4) were developed through careful consideration of local water planning activities and stakeholder input. Objectives and measureable planning targets were then developed to address the water-related issues. Many of the IRWM Plan Objectives focus discreetly on the relationship between local water planning needs. For example, *Objective A. Improve water supply infrastructure within DAC and urban areas that have declining water quantity/quality or other water system reliability issues (e.g., fire flow, contamination, etc.)* is intended to provide opportunities to build upon and enhance local planning efforts underway to address water system issues. In many cases, disadvantaged communities lack the necessary funding to pay for the needed planning, and this objective shows the regional commitment to addressing this problem. *Objective E. Improve the condition and ecosystem function of meadows* demonstrates the Region's intent to reach into the upper watershed in considering planning efforts that will benefit the Region's source waters. One of the outcomes of the many PGC meetings during plan development was the finding that there was not enough information to understand the condition and priority of degraded meadows throughout the Region. The PGC concluded that a focused water planning study of meadows would provide a means to move forward. There are many other examples of objectives presented in Section 5 demonstrating the Region's commitment to local water planning as a fundamental tool needed to enhance water resource and watershed management.

Resource Management Strategies (Section 6), and Project Review and Prioritization (Section 7) for the T-S IRWM Plan were subsequently developed from the Challenges, Opportunities and Objectives. Furthermore, the coordination discussion in the Plan Implementation Framework (Section 9) has been developed to address how local water management issues and potential climate change adaptation strategies could be better coordinated at a regional level. In this way, local water planning is woven through the T-S IRWM Plan in a multi-layered approach.

Management tools and criteria relevant to water management in local plans are often also applicable at the regional water management level. For example, the 20 x 2020 Water Conservation Plan dictates reducing statewide per capita urban water use by 20% by the year 2020. Although this is an urban water use goal that has been addressed by urban water suppliers in the UWMP process, it is relevant to the IRWM planning process because urban water use and conservation impact the entire region, and regional water demands and

population projections were estimated considering the UWMP projections. Likewise, improvements to efficiency of water conveyance systems such as ditches and canals is an important regional objective, but will include consideration of criteria such as the historical significance of the conveyance network and potential registration in the National Registry of Historic Places as documented in TUD's Ditch Sustainability Project report. The preceding are just two examples of the many ways in which the limits, levels, management tools and criteria developed in local planning are relevant to the T-S IRWM Plan.

3.1.3 Climate Change

Climate change has a significant potential to increase the variability of seasonal runoff and affect water supply and quality, among other factors. Climate Action Plans (CAPs) are generally aimed at climate change mitigation, or reducing greenhouse gas emissions to reduce climate change as a result of human activities. Climate change adaptation may also be included in a CAP, but is often included in other local planning efforts such as general plans and regional transportation plans. The extent of planning for climate change varies widely across the T-S Region. Alpine County has developed a CAP. Calaveras County has included climate change adaptation in its General Plan and Regional Transportation Plan policies and implementation measures. The Tuolumne County Regional Blueprint process has prepared a Greenhouse Gas (GHG) Study including a reduction plan as a means to reduce the impact of GHG emissions and climate change. Yosemite National Park has also developed an Action Plan as part of the National Park Service and Environmental Protection Agency's Climate Friendly Parks initiative.

Climate action adaptation and mitigation strategies identified in local planning documents have been considered and incorporated into the T-S IRWM Plan, such as in the completion and prioritization of the Climate Change vulnerability checklist. Anticipated climate change challenges and Regional vulnerabilities are summarized in Section 4 and are then carried forward in development of the IRWM Plan Goals and Objectives (Section 5).

3.2 Relation to Local Land Use Planning

Land use decisions and planning often have a direct influence on water management actions. Even with state policies that attempt to link land use decisions and water management decisions, such as Senate Bill 221 (SB 221) and Senate Bill 610 (SB 610) requiring Water Supply Assessments (WSAs) for certain developments collaboration among land use managers and water managers often remains a challenge. This particularly is the case in a region like the Tuolumne-Stanislaus, in which urban development is limited and often does not meet the minimum threshold to trigger SB 221/SB 610 WSAs. This section considers the current land use management structure, characterizes the current relationship between land use planners and water managers, and identifies additional opportunities for collaboration between the RWMG and land use planners.

3.2.1 Land Use Management Agencies

There are numerous entities responsible for land management in the T-S Region. Cities are the regulatory agencies for land use planning in incorporated communities and counties are the regulating agencies for land use planning in unincorporated areas. Public lands in the T-S Region are managed by the National Park Service, Stanislaus National Forest, US Bureau of Land Management, US Bureau of Reclamation (Reclamation), and State of California. Cities

make up a very small portion of land use in the Region, less than 9% of total land is allocated as urban, commercial or industrial areas in the local general plans (includes existing and planned areas). These plans allocate 20% of the Region as agricultural areas, which includes timber land as well as areas that are not currently being used for active agricultural production. The remaining 70% of unincorporated lands are managed by the counties, federal agencies, and state agencies. Maintenance of native/open space, forests, and preservation of rural and natural watershed characteristics are important to the Region, which reflects the 1.2 million acres of native land uses (nearly 71% of total land in the Region). Changes to urban and agricultural land use can have an impact on water use in the Region, as discussed in Section 2, Region Description.

Land use and water supply planning within the T-S Region are typically managed by separate agencies. For instance, TUD is the water supplier to many communities along the Highway 108 corridor while the land use agencies with jurisdiction in the TUD service area include Tuolumne County and the City of Sonora. While collaboration between water and land use managers is not intrinsically built into the regional management structure, several steps have been made over the years to improve collaboration including activities such as the California Environmental Quality Act (CEQA) document review and commitments to provide water service during land use decision-making.

3.2.2 Agricultural Land Use and the Williamson Act

The agricultural and ranching sectors in the Region have benefited widely from participation in the Williamson Act, which enables local governments to enter into restrictive contracts with private landowners of agricultural lands to preserve agriculture in exchange for reduced taxes. It is a non-mandated state program administered by counties and cities to preserve agricultural land and discourage the premature conversion of agricultural land to urban uses. As of 2010, approximately 120,000 acres in Tuolumne County and 140,000 acres in Calaveras County (data for the entire county) are covered under Williamson Act contracts. Alpine County has not executed any Williamson Act contracts (source: California Land Conservation [Williamson] Act Status Report 2010, California Department of Conservation).

Ranchlands in T-S Region

Until recently, the state offered financial support of the Williamson Act by providing subvention payments to county governments to help offset county property tax losses. Recent state budget cuts have eliminated state funding for the Williamson Act, resulting in the need for county governments to either fund the program at the county level or non-renew Williamson Act contracts. However, Calaveras and Tuolumne counties were among those which put up some of their own funds to keep the program running, indicating an ongoing commitment to preserving agricultural resources.

3.2.3 Land Use and Water Resources Planning Collaboration

As discussed in Section 2, Region Description, most land use planning efforts in the T-S Region are focused on residential and commercial/retail developments, and forest management. Urban development within the Region may occur by infill of existing incorporated communities, expansion of city boundaries by annexation of unincorporated county lands, or development/expansion of unincorporated communities, such as the expansion of the Copperopolis community in Calaveras County. Currently, coordination between land use planners and water managers primarily occurs during the entitlement phase of an urban development project, including zoning decisions, water and sewer availability, and stormwater management to understand the impacts of urbanization when building permits are issued. There are also means for communication between water and land planning managers in the Stanislaus National Forest and Yosemite National Park areas as part of broader planning efforts on federal lands.

Urban water management planning and general planning are required documents that could provide for improved future collaboration between land use planning and water management planning in the Region. State legislation has been enacted to address the gap between land use planning and water resource management. In 2001, two water supply planning bills, SB 221 and SB 610, were enacted that require greater coordination and more extensive data to be shared between water suppliers and local land use agencies for large development projects and plans:

- SB 221 requires projects which include tentative tract maps for over 500 dwelling units to obtain verification from the water system operator that will supply the project with water, that it has a sufficient water supply to serve the proposed project and all other existing and planned future uses, including agricultural and industrial uses, in its area over a 20-year period, even in multiple dry years. SB 221 is intended as a “fail safe” mechanism to ensure that collaboration on finding the needed water supplies to serve a new large subdivision occurs before construction begins.

- SB 610, codified as Water Code sections 10910 and 10911, requires the public water system that may supply water to a proposed residential development project of more than 500 dwelling units or more than a ten percent increase in equivalent residential service connections (or a development project with similar water use), to prepare a water supply assessment (WSA) for use by the lead planning agency in its compliance with CEQA. Such a WSA is performed in conjunction with the land use approval process associated with the project and must include an evaluation of the sufficiency of the water supplies available to the water supplier to meet existing and anticipated future demands.

It should be noted that WSAs, which are often based on UWMPs, are only performed for development that meets certain size criteria or minimum 10 percent increase in service connections. There is therefore not an assured process in place for understanding and addressing the cumulative impact of multiple smaller developments that do not require WSAs. As growth in the T-S Region continues and development projects are proposed, the preparation of WSAs or written verifications may become increasingly common if large developments are proposed. In the absence of large developments, land use planning entities should require confirmation of water supply, wastewater, treatment, and stormwater infrastructure sufficiency by utilities for all projects including an assessment of cumulative need for water by a range of small projects. Municipal Service Reviews prepared by the Local Agency Formation Commission (LAFCO) can provide insight into the cumulative needs of smaller developments.

Water resources play an important role in the land use decisions that are made under the guidance of general plans. Water resources is typically not an 'element' of a general plan, but is discussed within the context of the general plan required 'elements'; land use, circulation, housing, conservation, open space, noise, and safety. Therefore, general plan development, implementation and updates could provide a forum for coordination and collaboration between land use planning agencies and water managers. However, a challenge for land use planning is that general plan updates are not always prepared on a consistent basis and can take a long time to complete.

There are often opportunities during the development of public documents for water managers to provide input to planning managers such as: attendance at public meetings, commenting at planning commission or Board of Supervisors meetings, CEQA participation, and others. Examples of existing collaboration occurring between water management and land use planning varies throughout the Region is summarized below, as each county and major land manager has different water management strategies in relation to land use planning requirements:

- Alpine County – The portion of Alpine County that lies within the T-S Region has a very small population and is nearly entirely within the Stanislaus National Forest. Land use planning is managed by the US Forest Service and no land use changes are anticipated in this area. The primary focus of collaboration between land use planning and water supply planning in this area is related to water quality, watershed protection, and resource management. Furthermore, most of the water that originates in this section of Alpine County is used outside the county or is exported for use outside the Region.

- Calaveras County – The Calaveras County General Plan (adopted 1996, update in progress) includes requirements for public water supply to be available or constructed to support certain types of development (generally dense, urban-type development). These policies trigger coordination between land use managers and water suppliers when development is under consideration for approval (Policies II-1, II-8A, II-9B, II-12A, II-12B, II-17A). However, there are no formalized guidelines for collaboration between land use planning and long-range water supply planning. Calaveras County is currently completing a comprehensive update to its General Plan, which will include an optional Water Resources Element. The County is providing General Plan updates on its website and encouraging public participation in the update process.

- Tuolumne County – The Tuolumne County General Plan (Adopted 1996, update in Progress) includes general guidelines for collaboration between land use planners and water managers. Tuolumne County is committed to protecting water quality and water resources through implementation of its General Plan, which provides general direction for establishing and maintaining safe water supplies during further development of the County, protects the quality of existing water supplies, and defines the relationship between land use development patterns described on the General Plan land use diagrams and water distribution facilities. Collaboration is generally focused on water supply infrastructure as it relates to water demands connected to development. For example:

    - The county provides land use data from the General Plan and development proposals under consideration to water managers so that Water Master Plans are developed consistent with county planning documents.

- The county reviews Water Master Plans to consider any land use implications within the Water Master Plan and water agencies are given the opportunity to review proposed development projects prior to project approval (Tuolumne County General Plan, Policies 7.F.a, 7.F.b, 7.F.c).

- Coordination between land use managers and water suppliers is also required for most urban development, as public water supply is required for any development within areas of urban land use designation.

- Urbanization (i.e. higher density housing) is required to be served by and/or located in areas where public water and sewer services are available or can be developed (Policies 1.E.7, 1.F.10, 4.L.3). When private water and sewer disposal systems are used to serve industrial and non-urban development, the General Plan requires approval by the County Environmental Health Division, indicating a commitment to protecting water supplies and water quality (Policies 1.F.11, 1.G.8).

However, there are no formalized guidelines for collaboration that addresses land use planning as it is related to long-range water supply.

- City of Sonora – The City of Sonora General Plan includes a water resources section, which was developed with input from and collaboration with TUD and includes detailed water demand estimates to match its development plans. New development in the city receive service commitments for water based on timed agreements established on a "first come, first serve" basis. Additionally, new development in the City of Sonora is slated to occur in areas that have access to public water supply from TUD, which results in collaboration between the City planning department and the water utility.

- City of Angels Camp – The City of Angels Camp 2020 General Plan includes a conservation section for management of natural resources, and was developed through numerous General Plan Committee and Planning Commission meetings. The general plan development included feedback from Calaveras County and the CA Department of Transportation.

- Public Lands – approximately 1.2 million acres of land, or almost 70% of the total area in the T-S Region, are managed by federal and state agencies. Each agency has a unique set of land use and resource management directives and objectives, but all are interested in balancing water resources management with land use objectives. Stanislaus National Forest goals, objectives and management practices include protection and improvement of water quality and watershed conditions through implementation of the Stanislaus National Forest Plan – Forest Plan Direction, the Tuolumne Wild and Scenic River Management Plan and the Forest Service Manual. Currently, there is limited comprehensive coordination between these public land use managers and the RWMG or local water managers, as no formalized forums for collaboration are in place. Stanislaus National Forest staff have been consistent attendees and contributors to the T-S IRWM Plan while other agencies are not represented. This is an area in which the T-S IRWM Plan focuses on improving collaboration between land use management and water resources planning.

Some areas of potential improvement regarding the relationship between land use planning and water resources planning within the Region are related to:

- The IRWM process provides a collaborative forum between land use management agencies and water suppliers that focuses on developing a common understanding of regional water supply and growth capacity. However, specific, local land use decisions are often not based on the broader regional water supply context. Conversely, water agencies may not have an understanding of long-term development plans, which hinders their ability to ensure a reliable and sustainable supply.

- When updating general plans, land use planners may wish to consider implementing policies that consider water resources, such as conservation and supply reliability in all future and drought conditions before approving new development and take into account long-term water infrastructure planning and water utility capacity when reviewing new development.

- Improved coordination between Forest managers, County representatives, and water managers. There is currently a dialogue between managers of the Stanislaus National Forest and Tuolumne County Board of Supervisors. Likewise, Tuolumne County Board of Supervisors periodically meets with TUD. The Stanislaus National Forest Leadership team has also recently met with TUD, Hetch Hetchy, and Utica Power Authority to better understand water needs. Continued coordination between all of these entities may provide a vehicle to better understand the interrelationship between water resources, forest, land use, economic, and urban objectives.

- Land use planning documents (general plans, community plans, etc.) and water management planning documents (UWMPs) can be developed and updated collaboratively to be consistent with respect to population and population projections.

The RWMG and land use managers are considering ways in which to improve collaboration on a variety of topics and areas of focus, such as flood plain management, flood control planning, groundwater management, treatment and conveyance facilities, stormwater management, water conservation efforts, watershed management, recreational area management, land use changes, general plan updates, water supply for emergency planning, and habitat management. The RWMG's resolve to support water resources stewardship in the T-S Region is demonstrated with Objective N, which states: *"Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed function."*

Much of the collaboration and coordination in the past occurred through the development and implementation of formal documents, such as general plans, groundwater management plans, flood insurance studies, watershed assessments, watershed sanitary surveys, and stormwater management programs. However, there is limited formal consultation between planning agencies and the public and water interests during the preparation of these documents and when entitlement decisions about land use are under consideration by land use managers. Stormwater management in more urbanized areas has recently attracted particular attention, especially as it relates to water quality improvements. Regulations require preparation and implementation of stormwater management plans by cities and counties with emphasis on implementation of low impact development and pollution prevention measures. The T-S IRWM Plan provides an opportunity to educate and improve collaboration in these areas in a regional forum.

The RWMG is encouraged to consult and collaborate with land use managers in the planning and development of projects that address water resources-related objectives. Section 9, Plan Implementation Framework, provides additional discussion about opportunities for improved collaboration going forward as projects are developed and implemented.

Section 4: Major Water-Related Needs, Challenges, and Conflicts

4.1 Introduction

This section presents the broad perspective of the major water-related needs, challenges and conflicts that should be addressed in the Region in some manner over the 20-year planning horizon. The number and breadth of items highlighted in this section is quite large; however it is the Region's desire to identify a comprehensive range of topics that could be addressed by this first IRWM Plan. The topics were derived through multiple interactions with the Region's stakeholders; issues were drawn from the Regional Acceptance Process (RAP) application, the IRWM questionnaire responses submitted by stakeholders in December 2010 through early 2011, and subsequent discussions at the IRWM Plan development stakeholder meetings on 21 September 2011 and 19 October 2011.

The needs/challenges and conflicts have been categorized around the broad Resource Management Strategy (RMS) topic areas (refer to Section 6 for a detailed description of Resource Management Strategies) to provide a framework for understanding the actions that the Region may employ to make progress on these important headings. The key issues, needs, challenges, and priorities for the Tuolumne-Stanislaus (T-S) Region with respect to water resource management identified by the Region's stakeholders include the following, which are discussed in greater detail below:

- Efficient Use and Distribution of Water
- Reliable and Affordable Water Supply
- Meeting Water Quality
- Resource Stewardship and Ecosystem Needs
- Stormwater Capacity
- Climate Change

The water resource related needs, challenges and conflicts serve as the foundational baseline for much of the T-S IRWM Plan. The needs, challenges and conflicts were used to develop the IRWM Plan objectives described in Section 5. The IRWM Plan objectives were then used in conjunction with project selection criteria to develop and prioritize RMS, and programs, projects, and/or actions that will address the water needs/challenges and conflicts within the T-S Region.

4.2 Efficient Use and Distribution of Water Needs

4.2.1 Water Use Efficiency Measures

Limited surface water and groundwater supplies in some portions of the Region, coupled with recent California regulatory mandates have created a growing need to increase the Region's municipal (residential and commercial) water use efficiency (WUE). Implementation of water use efficiency measures throughout the Region has historically been difficult due to the relatively low

marginal cost of most water sources, coupled with the disadvantaged community status for most of the communities served in this Region. In short, water conservation does cost local dollars to implement and local agency funding is severely constrained.

Three of the water agencies within the Region (Tuolumne Utilities District [TUD], Calaveras County Water District [CCWD], and Groveland Community Services District [GCSD]) are large enough to be required to prepare Urban Water Management Plans, which now require establishment of per capita water use reduction targets (2015) and objectives (2020). Water reduction targets and objectives are achieved by implementation of WUE measures that support meeting the statewide goals of reducing per capita water use statewide by 20% by 2020. While there are a few examples of successful conservation programs and they are broadly viewed as beneficial, these local water agencies, smaller water purveyors, and individual domestic users anticipate financial challenges with implementing programs because of the high program costs as compared to the relatively low marginal cost of water and demonstrated voter resistance to increasing water rates in some areas of the Region.

4.2.2 Water Reuse

The T-S Region uses recycled water for both agricultural production and golf course irrigation at select wastewater treatment plants. This important resource provides a direct means to reuse water supplies in a meaningful way and there is still an interest in developing future water reuse projects throughout the Region to increase water efficiency. When treated to the appropriate Title 22 standards, water reuse programs can provide water for a number of applications including agriculture, recreation (golf courses, parks), green belts, and even dual-plumbing of private residences. A few examples of existing water reuse programs include TUD, which currently serves agricultural uses with its recycled water and projects future expansion of supplies for that sector; the City of Angels Camp, GCSD, TUD and CCWD provide recycled water for spray-field and golf course irrigation; and Murphy's Sanitary District provides treated wastewater for vineyard irrigation. Some of the challenges associated with recycled water use include obtaining the necessary capital to invest in the treatment and recycled water distribution systems, regulatory compliance, and finding a viable market for recycled water customers in areas where alternative sources of supply are readily available.

Recycled Water Use - TUD

4.2.3 Renewable Energy

Renewable energy sources will become an increasingly important component of many energy suppliers' portfolios, especially as climate change influences the reliability of various supplies. Water agencies' location in the Foothill and Sierra region of California affords considerable elevation changes and opportunities for hydropower generation. These hydropower improvements would reduce carbon footprints and greenhouse gas emissions, but must be balanced with competing beneficial use requirements and costs.

Other renewable energy options that T-S regional stakeholders may consider implementing include wind or solar power. Renewable sources can help offset electricity demands and reduce

greenhouse gas emissions for water agencies for services such as water pumping, water treatment, and operation of administrative facilities. However, the availability of lower cost First Preference Public Power in both Calaveras and Tuolumne counties makes some renewable energy projects not very cost effective at this time.

4.3 Reliable and Affordable Water Supply

Water supply reliability needs within the Region is a complex issue that varies throughout the Region, but overall there is a need to develop reliable and affordable water supplies to support existing customers as well as accommodate future land use development and population growth. Many of the residents within the T-S Region are supplied by one of the larger agencies such as TUD, GCSD and CCWD. TUD and GCSD are reliant upon water supplied contractually from senior water right holders. Most of the surface water supplies are also linked to hydropower generation projects, which many times have specific in-stream flow and/or reservoir recreational level requirements which can, at times, limit water available for municipal supply. There is also a significant component of the population, estimated at up to 25,000 people, that is served by individual domestic groundwater wells, which in some cases are subject to water quality and reliability issues. The cost of groundwater pumping is also of concern due to the lack of accommodation of baseline power supply within Pacific Gas and Electric energy rates.

Future growth within the Region must be balanced with the Region's ability to provide sustainable, affordable water to supply for this growth. Water supplies are needed to provide for agricultural production, drinking water, ecosystems and other needs, such as storage to maintain lake levels for recreation and hydropower generation. Although the Region in general is situated in abundant watersheds with significant annual runoff production and snowpack, water rights within the Region are predominantly held by senior water rights holders located outside of the T-S Region. Below is a summary of many of the issues within the Region affecting supply of reliable and affordable water to the population within the T-S Region:

4.3.1 Reliable and Affordable Water Supply

The 2010 Urban Water Management Plans (UWMPs) for TUD, GCSD, and CCWD provide estimated municipal/agricultural demands through 2035 for existing and planned land uses, accounting for approximately 80% of the Region's population. 2010 demands are about 22,000 acre-feet per year (AFY) and 2035 municipal/agricultural projections are 82,000 AFY. The UWMPs indicate that urban water supplies are expected to be reliable, even in multiple-dry year drought conditions. It should be noted that future consumptive demand projections depend on significant expansion of agriculture in the Region (predominantly in Calaveras County) that has some level of uncertainty of occurrence.

PG&E Hydroelectric Facility

Although these highly productive watersheds are capable of meeting current and future consumptive demands on an annual basis, reliability of the available supplies is constrained by a number of factors including management of water resources for multiple uses which contributes to seasonal supply limitations. For example, reservoir storage that is managed for hydropower generation and recreation has a different release schedule or other requirements that can influence water availability for municipal uses. Minimum target storage levels are in place for regional reservoirs, including Lyons and Pinecrest reservoirs, and the SWRCB recently established a higher mandatory minimum lake level at Pinecrest Reservoir under the Clean Water Act Section 401 Water Quality Certification associated with the Pacific Gas and Electric Company's Federal Energy Regulatory Commission (FERC) hydropower project licenses. Stakeholders have expressed concern over the impacts of this mandatory minimum lake level, which is feared to potentially result in late season shortages and reduced water supply reliability for TUD water system customers. Other factors that contribute to supply reliability include outages from fire, tree falls and landslides on the ditch system, which are often single sources of supply for several of the agencies.

Other areas in the Region that are less dependent on agency supplied water are also in need of increased water supply reliability. Some areas in the Region, particularly in disadvantaged communities, are supplied by unreliable groundwater sources or have small water systems in need of repair and improvement. The T-S Region overlays a fractured bedrock groundwater source, which tends to offer uncertain reliability and water quality characteristics; it is possible for a well to "run dry" at almost any time, particularly during extended dry periods.

The competing non-consumptive uses for the surface water supply to meet multiple beneficial uses, and future in-Region consumptive demands may require additional sources, reoperation of existing sources, and/or infrastructure to store and deliver supplies reliably. Infrastructure requirements may be for both the raw water system, as noted earlier, but also for treated water distribution and storage in order to supply necessary fire flow water demands.

Climate change in these predominately snow-fed watersheds could have significant impacts on the timing and magnitude of runoff, thereby leading to less predictable water supplies as well as complicating compliance with existing requirements for instream fisheries flows and recreational use. New sources of supply, storage, and other major projects could help meet competing needs for supply and mitigate decreased supply reliability, but will require significant capital investments, which will be difficult to afford by the Region's limited customer base and many disadvantaged communities. Therefore, an important consideration is the careful investment in supply reliability balanced with the need to preserve the continued affordability of water supplies.

Water reuse on the order of 3,200 AFY is utilized in the Region by many agencies, but there are opportunities to expand and increase reuse. Gray water and stormwater capture may also be potential options to increase local water supplies.

4.3.2 Water Exports and Senior Water Rights Holders

A significant quantity of water originates in the upper Tuolumne and Stanislaus River watersheds, but runoff is highly variable from year to year. The Tuolumne and Stanislaus River watersheds produce almost 3 million AFY of average unimpaired runoff, with a low of 0.5 million AFY (1977) and a high of 7.6 million AFY (1983). In addition, multiple reservoirs in the Region have a gross storage of over 6 million acre feet, most of which is used outside of the Region. Despite this abundance of water within the Region's boundaries, the availability of water for

domestic uses within the Region is highly limited by the existing water rights and contracts and may not be sufficient to meet future demands. Much of the water is held under senior water rights and is exported for use outside the Region, and/or stored and used for other purposes (such as hydropower generation), which may conflict with local domestic and agricultural needs. Senior water rights holders that operate within the Region include Tri-Dam (Oakdale Irrigation District and South San Joaquin Irrigation District), Reclamation, PG&E, CCWD, San Francisco Public Utilities Commission (SFPUC), Turlock Irrigation District (TID), and Modesto Irrigation District (MID).

Some water agencies (e.g., GCSD and TUD) rely on contracts with senior water rights holders such as SFPUC and PG&E, respectively, for their supply which could constrain expansion and efforts to increase supply reliability in the future. An additional issue that has been identified by stakeholders is the fact that senior water rights holders often do not always meaningfully communicate their water resources based plans and activities early on and up-front to agencies within the Region. This can create water supply and management issues for those agencies in the T-S Region as it impairs their ability to effectively plan and assess needs.

Currently, Lake Don Pedro Community Services District (LDPCSD), despite its location adjacent to the New Don Pedro Reservoir, does not have an adequate reliable water supply as it relies solely on groundwater (Binkley Associates, Inc., 2011).

4.3.3 Water Storage

There is currently inadequate water storage capacity for some agencies within the Region to ensure a reliable water supply for local uses in all water year types. Most of the existing surface storage is owned and operated by agencies outside the Region, including irrigation districts and the federal government. Local storage capacity on the South Fork Stanislaus River is limited to a few small reservoirs including Lyons Reservoir and Phoenix Lake. One option for local agencies to increase supply reliability could be the addition of satellite water storage to increase reliability of water supply during droughts or outages to raw water conveyance facilities.

Other water storage opportunities include consideration of conjunctive water use, reoperation of existing surface storage reservoirs, groundwater banking, as well as new satellite surface storage. Institutional arrangements/contracts to divert water from one of the major reservoirs, such as New Melones Reservoir or Lake Don Pedro have been investigated over the past several decades, but remain unresolved, particularly because the primary needs are in dry years when supplies are limited in both upstream and downstream portions of the watershed. Additionally, TUD has recently raised the idea of possibly raising Lyons Dam to increase the gross pool of storage. This would potentially improve supplies for the TUD system, but it is not clear at this time what the marginal costs of water from the reservoir would be, or if one or more partners would be needed to carry the project financially. In addition, inundating a segment of the South Fork Stanislaus River raises concerns for some stakeholders.

4.3.4 In-Stream Flows

Supply reliability is also influenced and often limited by government regulations aimed at protecting ecological resources. Regulations requiring in-stream flows through current FERC licenses are present for each hydropower project located within the Region. These in-stream flows are mandated to maintain ecosystem habitat needs including support of fisheries, especially downstream in the Delta. However, instream flow requirements may simultaneously conflict with local and export water demands. More stringent environmental regulations in the future could reduce water available for other beneficial uses in the Region and impact supply reliability. It is also not clear as to what the potential impacts may be from pending actions by the State Water Resources Control Board's update of the 2006 Bay-Delta Water Quality Control Plan, and influences related to the Bay Delta Habitat Conservation Plan or implementation of the Delta Stewardship Council's Delta Plan which sets new regulation and policy effective September 2013 with updated Delta flow objectives, compliance with reasonable and beneficial use requirements, and a focus on water quality parameters such as mercury, pesticides and herbicides.

Water Level Gage at Woods Creek

4.3.5 Ditch/Flume Water Quality and Reliability

Reliability issues also arise from the historic water supply system that continues to serve the Region. The T-S Region's raw water conveyance infrastructure is predominantly made up of earthen ditches, flumes and unlined canals which deliver a large proportion of local surface water supplies. Certain portions of this delivery system present a reliability concern, as the single, long, water source ditches/flumes are not protected from contamination nor is there parallel infrastructure. These facilities are therefore susceptible to interruption due to planned maintenance, landslides, snowslides, downed trees, wildfires and vandalism. The resulting outage potential and security risks increase the need for protection of existing ditches/flumes and additional storage, interties, redundant conduit(s) and/or supply sources. These risks are amplified due to the lack of satellite storage facilities in a number or areas served by the ditches. Thus, outages in the conveyance systems could leave some communities with either a few days, or even just a few hours of supply. Obviously, these are public safety concerns not only to the water agencies, but also the emergency services agencies.

Flume in T-S Region provides drinking water supply and hydroelectric generating capacity.

The historic raw water conveyance systems represent a link to the Region's communities Gold Rush heritage as well as a water resources management challenge in the 21st century. Some areas of the conveyance system are also subject to varying levels of water leaving the system, resulting from the unlined, open components of this conveyance system, and the length and the method in which open raw water conveyance systems are operated. All raw water conveyance systems have inefficiencies due to tail water flows, evaporation, weir design, theft and seepage. Portions of the CCWD conveyance system experience similar conditions. A complaint has been filed with the SWRCB alleging that one of the ditch system's conveyance inefficiencies constitutes waste and unreasonable use under Article X, Section 2 of the Constitution. The SWRCB has taken no action on the complaint. However, the water leaving the system creates some benefits such as groundwater recharge, and wildlife habitat. These systems some of which were constructed as early as the mid 19th century during the California Gold Rush, are costly to replace with piped systems. Furthermore, there is strong community support expressed for maintaining the systems due to their value as recreational use for hiking and fishing as well as their aesthetic and historic values. Both the TUD and Utica Power Authority conveyance systems have been found to be eligible for the National Register of Historic Places.

4.4 Meeting Water Quality Needs

4.4.1 Groundwater Quality and Supply

An important factor in increasing local water supply reliability is addressing issues related to the availability and quality of local groundwater resources. Some areas in the Region, particularly in disadvantaged communities use groundwater as a primary source of water. This dependence on local groundwater wells, however, is problematic due to the uncertainty of supplies. The Region does not have a well-defined basin, but rather, the majority of available groundwater is found in fractured rock at varying depths and is distributed throughout the Region. As a result, predicting the safe yield of such water sources is very difficult and data on existing supplies is largely unavailable. In addition to the uncertainty of the available yield, quality of the groundwater also varies from very good to poor depending upon highly localized factors. During significantly dry years and droughts, many wells within the Region have gone dry and had to either be deepened or relocated to maintain supply needs. Likewise, alluvial groundwater aquifer areas in the western portion of the Region in Calaveras County have been overdrafted and experience poor water quality due to high salinity and nitrate. Various non-point sources are also threats to groundwater quality, including failing or improperly constructed septic systems.

4.4.2 Land Use Conflicts

Land use management, existing and historic, has significant impacts on the availability and the quality of the water resources in the T-S Region. Water agencies in the Region have had limited success in improving coordination of land use planning with regard to new roads, storm drains, encroachment of surface water conveyance infrastructure on private property, and the associated liability of these facilities. Institutional constraints particularly inadequate staff funding, limit the ability to coordinate.

Water quality impairments are, in part, a result of land use management decisions, which are resulting in non-point source pollution and degradation of aquatic systems through stressors, such as mercury, sedimentation and bacterial contamination. Land use planning practices that,

historically, have not incorporated low impact development measures can also contribute to water quality problems, exacerbating stormwater impacts, such as erosion and sedimentation.

A concern among local stakeholders also includes the lack of coordination between land use planning entities and water agencies in order to better plan growth according to actual water availability and location of water supplies. The need for improved effectiveness in land use management and improved coordination with land use planning and water resource management is further detailed below.

4.4.3 Non-point Sources of Contamination

Non-point sources of pollution are thought to be impacting surface and groundwater water quality and can affect many uses including drinking water quality, recreation (e.g., closed swimming holes), and aquatic life. Non-point sources in the Region include various activities, such as: failing septic systems, pesticide/herbicide/fertilizer use, sediment discharge, oils and greases, cattle grazing and agriculture, forest use, recreation, urban runoff and historic mining activities.

Additional issues are summarized below.

4.4.3.1 Risk Due to Septic Tank and Groundwater Development Locations

Contamination from septic tanks is a large concern in the Region and is related to aging systems as well as systems that are approved for newer land use projects.

There is generally a lack of information on existing septic tanks and the extent of impacts from failing systems. However, some studies indicate large problems. The Tuolumne County 1999 Groundwater Protection Report discusses an inventory of 497 problematic septic systems within the primary study area (which is generally the populated foothill area of the T-S Region). There are more than 7,500 septic systems in Tuolumne County, so it is likely that there are more problematic systems (2007 Foothill Watershed Assessment). There is a need to identify the locations and severity of potential impacts through more extensive evaluations in order to effectively address these problems.

A major concern is also the historic practice whereby some septic tanks and groundwater wells were installed in close proximity where the soil, slope and other conditions were not adequate to accommodate use of septic disposal systems, resulting in the possibility of cross contamination, creating unneeded public health risks and potential water quality impacts. New policies have greatly improved the decision-making in land use planning for new systems, however the evaluation and remedy of existing installations remains a significant challenge to controlling nonpoint source pollution from these systems.

4.4.3.2 Erosion and Sedimentation

Erosion and sedimentation of streams and lakes contributes to negative impacts to downstream water quality and riparian ecosystems and can also result in higher drinking water treatment costs.

Erosion and sedimentation in the Region result from, among other sources, roadways. Some public and private roads used for recreation, off highway vehicle use, forest management, logging, general construction and other activities in the IRWM watersheds are unpaved and

discharge sediment during the wet months into streams/rivers and reservoirs/lakes to the detriment of water quality and ecosystem health. Studies have been and are being conducted related to this issue, including a road study by the Central Sierra Environmental Resource Center and a road inventory to be conducted by the U.S. Forest Service (USFS), which has management responsibility for almost 50 percent of the T-S Region. This issue has also been discussed in the Tuolumne County Water Quality Plan for the lower foothill elevations of the T-S Region, much of which is privately owned, may require further attention to avoid sedimentation impacts to nearby aquatic systems.

Lumber Facility near Sonora

Development practices that excessively remove vegetation from foothill or middle elevation project sites and change the natural hydrology can result in unintended sediment discharges into receiving waters as well. Improved development and storm water management planning can help to mitigate some of these impacts if they are expected to occur.

High levels of turbidity and sedimentation in streams and lakes may have detrimental effects to those ecosystems and requires targeted efforts to reduce impacts and control sources. These efforts, like many others mentioned will require enhanced coordination with land use management agencies throughout the Region.

4.4.3.3 Mining and Agricultural Practices

Current and past land use practices such as mining and agriculture are also thought to be contributing to downstream water quality impacts. There are currently ten active mines and numerous historic mines throughout the Upper Stanislaus River Watershed (Source: Figure 5-8/ Table 106, Watershed Sanitary Survey) which are large contributors to mercury contamination. Various water-bodies within the Region are included on the Clean Water Act (CWA) 303(d) list for water quality impairment by mercury, resulting from resource extraction (mining), and include Don Pedro and Hetch Hetchy Reservoirs in the Upper Tuolumne River Watershed, and New Melones Reservoir and Tulloch Reservoirs in the Upper Stanislaus River Watershed.

Improper cattle grazing may be a contributor to bacterial contamination of local water resources resulting from the release of pathogens from animal manure. While identification of sources still requires additional study, monitoring efforts and reports document related contamination. The Tuolumne County Resources Conservation District manages the volunteer Stream Team sampling in the Upper Tuolumne and Upper Stanislaus watersheds. Sampling in 2008 and 2009 identified elevated *E. coli* levels in many of the streams in Tuolumne County. The highest *E. coli* detections were observed in Woods Creek at Rawhide Road and Peppermint Creek at Pulpit Rock Road (2008-2009 Tuolumne County Stream Team WQ Report). It is not clear if these

levels of contamination were due specifically to cattle grazing or to contamination from septic systems.

The Central Valley Regional Water Quality Control Board (RWQCB) has identified Curtis Creek (12 mi.), Sullivan Creek (11 mi.), and Woods Creek (15 mi.) in the Upper Tuolumne River Watershed as impaired by *E. coli* contamination. Sources of the contamination are listed as "unknown". Additional investigation into the sources and severity will provide necessary information for the Region to take meaningful steps towards addressing these important issues.

4.4.3.4 Pesticides

Agricultural practices that may contaminate water resources also include use of pesticides. Pesticide drift from agricultural lands in the Central Valley has been identified as one source for pollutants entering high elevation lakes and streams in the Region. Adequate assessment to pinpoint specific pesticides and the level of risk is currently lacking or unfunded. Pesticides have been found to impact local ecosystems, including resulting in amphibian declines. Field studies conducted as part of a 2007 study by Carlos Davidson and Roland Knapp showed impacts of pesticide drift on Mountain Yellow-legged frogs, a special status species.

4.4.4 Basin Plan and Clean Water Act Water Quality Objectives

As previously mentioned, various pollutant sources are contributing to degraded water quality and water body impairments that have been identified on the CWA 303(d) list. Meeting Basin Plan and other CWA water quality objectives for wastewater reuse and discharges to land and/or surface water is also a regional challenge. Agencies employing land application under Waste Discharge Requirements administered by the Central Valley RWQCB must provide adequate storage, beneficial use in land applications, and comply with other regulatory requirements such as the groundwater anti-degradation policy.

Current surface water discharge permits require compliance with copper and zinc effluent discharge limitations, which are difficult to achieve without significant wastewater treatment plant process improvements. Infrastructure improvements and system enhancements may be necessary to ensure that wastewater treatment plant effluent meet discharge requirements.

4.4.5 Safe Drinking Water Act Compliance

Agencies in the Region have difficulty complying with the Safe Drinking Water Act (SDWA) at multiple small surface water treatment plants, particularly for *cryptosporidium*, *giardia*, *E. coli*, and turbidity. Managing sources of pollution will facilitate compliance with these regulations and increase the reliability and safety of water supplies for users in the Region. In areas where pollutant source control is not effective (or cost-efficient), water treatment plant process upgrades may be necessary. Consolidation of the multiple satellite water treatment plants into larger regional facilities or consolidation of smaller agencies are options that may provide for greater control and assurance of treated water quality.

4.5 Resource Stewardship and Ecosystem Needs

4.5.1 Land Use Effect on Meadow and Riparian Condition

The health of the Region's ecosystems, including meadows and riparian systems, is an important factor in the quality and availability of water resources in the T-S Region. Some past and current land uses have negatively affected High Sierra meadows and riparian areas and some meadows in the Region are found to be in poor condition. Degradation of meadows causes a loss of groundwater storage capacity, flood flow attenuation and increased erosion. Resulting impacts on aquatic systems include increases in summer stream temperatures, loss of fisheries/riparian habitat and increased sediment loads. An ongoing survey conducted by the USFS in the Groveland and Mi-Wok Districts of the Stanislaus National Forest evaluated 16 meadows in the T-S Region, of these 12 have found to be in some form of degraded (low to moderate) function as of 2009.

Bell Meadow (Photo courtesy of CSERC)

Meadow restoration projects could provide numerous water resources related benefits including optimization of subsurface storage, improvement of baseflow in streams and improvement of riparian habitat conditions for local aquatic and terrestrial wildlife.

4.5.2 Forestry Management

Forestry management plans have identified the need to reduce fuel loads, fire hazards, and sediment loads as part of an overall strategy to maintain resilient forests. Additionally, the existing species composition and density of vegetation on the National Forest lands may be causing excessive losses from evapotranspiration and sublimation as noted in research jointly carried out by the Sierra Nevada Research Institute (U.C. Merced) in cooperation with U.C. Berkeley and Environmental Defense.

Fire risk is increased due to excessive fuel loads (brush and trees) associated with unnaturally dense vegetation in some areas of the Region's forest, resulting in risk to public safety, water supply, water quality and ecosystem impacts. Fire events also contribute to increased erosion and various related effects. These impacts could be mitigated by improved forestry and vegetation management.

Appropriate forestry management to thin overstocked, dense stands of trees can also result in some level of increased water available for downslope receiving waters. In recent years, a lack of funding resources has limited the amount of forest treatments. These ongoing treatments are needed to both reduce damaging wildfires and improve watershed management.

4.5.3 Protection for Special Aquatic Features

Stakeholders have identified the need for improved protection for special aquatic features such as springs, seeps, vernal pools, fens, bogs, riparian areas and marshes to maintain ecosystem function. Preservation of these important features is an important function of the T-S IRWM Plan.

4.5.4 Threat to Native Fish and Amphibian Populations

Many native fish and amphibian populations within the Region are at risk or in decline from diverse threats and impacts. Critical habitat restoration or species protection strategies depend in part on adequate aquatic surveys and recovery plans. Enhancement projects such as restoration and rehabilitation efforts to benefit at-risk native fish and amphibian populations can also result in multiple other benefits for aquatic systems that are directly connected to these species. In particular, there are many opportunities to restore native fish and amphibian populations on vast acreages of public lands in the Region.

4.6 Stormwater System Capacity

Due to the elevation variation and existence of multiple upper watershed reservoirs, severe flooding has not historically been a major concern to the stakeholders within the T-S Region. However, management and containment of localized flooding of creeks and tributaries, particularly in urban areas such as Sonora, and along some local roadways has been a challenge and many stormwater conveyance systems within the Region are in need of improvements to reduce the potential for catastrophic flooding.

Tuolumne County Public Works has identified areas of Sullivan, Sonora, Mormon, Woods and Curtis Creeks to be problematic. Some more rural areas with county or ranch roads have low water fords which flood and prevent access at times. Localized flooding also exists within the Sonora Creek watershed where flooding has occurred within the City of Sonora's downtown area and Sonora High School in the recent past (2006).

4.7 Potential Climate Change Impacts

This section provides a discussion of the projected climate change impacts in the Region as well as a summary of the key vulnerabilities of the Region to climate change. The complete Climate Change Vulnerability Checklist is found in Appendix D.

4.7.1 Projected Climate Change Impacts

Climate change has the potential to have significant impacts on the T-S Region. The State of California (CalAdapt.org) and others are continuing to study how climate change has the potential to impact water and other resources in the western states. Cal-Adapt.org has used four general circulation models (GCM) of climate with two emissions scenarios for each model to project 15 parameters for the state of California. Projections from this model indicate that temperatures for the T-S Region will increase by 3.5 to 8 degrees Fahrenheit over the next 90 years based on a lower and medium-high emissions scenario, respectively. The projected increases to temperature will likely result in a higher portion of rain over snow in the winter and earlier melting of the snowpack. Changes to the snowpack levels in the Region could have a large effect not only on the Region, but also on those downstream users that depend on the

watershed for their water source. Additionally, increased temperatures could lead to decreased hydropower production and water quality, and an increased wildfire risk.

4.7.2 Summary of Climate Change Vulnerability Checklist

The Climate Change Vulnerability Checklist encompasses seven major topic areas that include:

- Water Demand
- Water Supply
- Water Quality
- Sea Level Rise
- Flooding
- Ecosystem and Habitat Vulnerability
- Hydropower

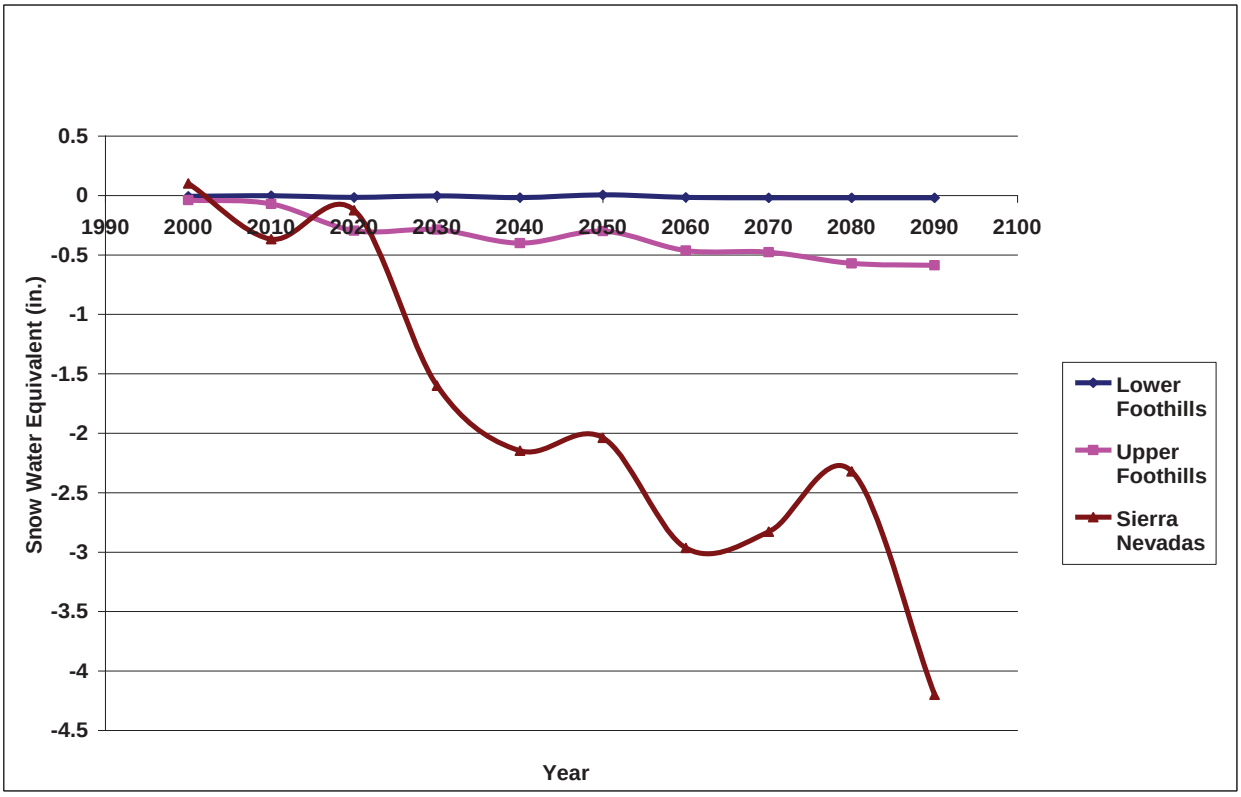
All of these areas are likely to be of concern for the Region excluding sea level rise and flooding. The region's foothill location is a higher elevation than would be affected by sea level rise. Changes in flow regimes due to climate change may affect flooding for areas downstream of the major rim dams in the San Joaquin Valley, but is not anticipated to be a regional challenge in the steeply sloped, mountainous Tuolumne-Stanislaus Region. The completed checklist can be found in Appendix D, while a summary of these topic areas follows.

4.7.2.1 Water Demand

Demand in the Region varies by season for two major reasons: (1) increase in agricultural production in the summer and (2) increase in summer tourism. Agricultural use within the Region accounts for approximately 10% of the total water use. Additionally, the Region has a significant tourism industry, which contributes to a higher summertime domestic water use. To mitigate water shortages during drought years, TUD and CCWD have developed Water Shortage Contingency plans to reduce water use during periods of drought or other water shortages. If agriculture becomes a larger industry within the Region, especially if it is focused on the growth of permanent crops, this would harden the water demand reducing the ability of agencies to reduce their water demands during dry years. Likewise, the tourism industry is an important part of the T-S Region's economy and measures should be taken to ensure supplies are available to meet peak summertime tourist-related demands. Overall, it is possible that water demands may increase as a result of climate change due to higher temperatures and prolonged droughts.

4.7.2.2 Water Supply

The Tuolumne and Stanislaus Rivers are the primary source of water within the Region and provide significant water supplies for M&I and agricultural users throughout California. These rivers are fed primarily by snowmelt. The carryover storage and available water supply from the major reservoirs could be affected by changing snowfall and snowmelt patterns as well as (noted earlier) coniferous forest species composition and density. Figure 4-1 shows the projected change in average snow water equivalent based on the high emissions scenario projections (CalAdapt.org). Although a direct correlation between snow water equivalent and how it will affect the watershed is not available, a continued decrease in snow production, or poor forest conditions within the watershed could alter the reliability of water supply within the Region.



Source: Caladapt.org, 2012

Figure 4-1: Average Projected Change in Snow Water Equivalent with Climate Change

The Region relies on both surface water and groundwater for agricultural and M&I water supplies. Approximately 65% of the Region relies on surface water for its supplies; however, it is estimated that approximately 20,000-25,000 persons rely on local groundwater wells for their water source. These wells may be subject to decreasing reliability related to the extent and duration of longer drought periods within the Region that may occur due to climate change. TUD anticipates that groundwater availability may be reduced by as much as 50% during a dry year; however, there is limited data available to quantify the sustainable groundwater supplies and therefore to assess the resiliency of these supplies after drought events.

4.7.2.3 Water Quality

Increased threat of wildfire and resultant threat to water quality from sediment runoff of the burned landscape containing mercury and nutrients, are a significant climate change vulnerability in the Region, although current water quality monitoring may not be sufficiently complete to identify trends. Water quality of the reservoirs in the upper watershed that are directly located in forested areas and where erosion from peak runoff is enhanced by mountainous topography will likely be impacted the greatest by wildfires. Additional potential impacts may include increased algal blooms (already a recurring issue at Phoenix Lake) and increased bacterial activity in waterways.

4.7.2.4 Flooding

Localized flooding and large scale flood protection are potential climate change vulnerabilities. Local flood control facilities have historically provided adequate levels of flood protection, although there are areas of localized flooding, particularly around the City of Sonora area exacerbated by a combination of urbanization increasing peak flows and undersized conveyance facilities. Floods are also managed through floodplain acquisition in the Region. The two largest reservoirs in the Region, New Melones and Don Pedro Reservoirs were constructed in part to provide flood protection for the flat, low-lying urban and agricultural areas in the San Joaquin Valley below the Region that would see significant peak flood flows from the Tuolumne and Stanislaus Rivers. The DWR Division of Safety of Dams inspects dams on an annual basis to ensure dam safety. However, many dams in the Region were originally constructed several decades ago, some are over a century old, and these facilities are aging.

4.7.2.5 Ecosystem and Habitat Vulnerability

The Region contains a portion of the California Sierra Nevada Mountains, which have been identified by the Endangered Species Coalition as one of the top 10 habitats vulnerable to climate change. Studies show that ecosystems at high elevations are greatly impacted by climate change effects. Species that have been identified to be particularly sensitive to temperature changes resulting from climate change include the American Pika, native amphibians and the alpine chipmunk, which is endemic to the Sierra Nevada and found throughout Yosemite National Park.

4.7.2.6 Hydropower

There are 12 hydroelectric facility licenses within the Region, with capacities ranging from 1.4 to 300 megawatts. These facilities are a major source of power for the Region and users in the Central Valley. Since the Region is highly affected by changes in snowpack and resulting changes in flow regimes, hydropower production will be affected by climate change requiring changes to the timing and availability of water releases through changes in water storage operations. Changes in these water releases could impact the overall reliability of hydropower in the Region and availability of municipal supplies that are associated with hydropower storage facilities.

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Section 5: Plan Objectives

5.1 Introduction

The objectives presented in this section represent the foundational intent of this Plan to improve water resources management throughout the Region over the planning horizon of the next 20 years. Formulating meaningful and relevant goals and objectives for the Tuolumne-Stanislaus (T-S) Region required more collaboration and collective interaction amongst the Planning Grant Committee (PGC) and Plan stakeholders than any other section in this Plan. Defining objectives and the related measurable planning targets, took place over a 9-month period beginning in November 2011 with discussion occurring with the PGC and Plan Review Committee over five meetings. The draft objectives were circulated for review and comment to the stakeholders five times to allow for thorough consideration and refinement for what ultimately sets the direction of the Plan.

5.2 Key Terms

People familiar with the broad discipline of planning recognize that different agencies and organizations may use similar terms in slightly different ways in their processes. The following set of terms were established and used during the Integrated Regional Water Management (IRWM) Plan preparation process:

- Plan Objective
- Measurable Planning Target (MPT)

The Plan Objectives establish the foundational guiding principles and benchmarks that the PGC has agreed should be completed over the course of Plan implementation. The term Plan Objective is used to mean the purpose or goals that the Region intends to progress towards attaining. Plan Objectives are not always fully completed, but rather present the long-term ambitions of the Region to improve water resources management in a number of specific areas. The term Measurable Planning Targets is used to mean a specific and tangible outcome of a Plan Objective that is intended to be achieved by or during a designated time. Each Plan Objective may have one or more Measurable Planning Target. The Measurable Planning Targets are the building blocks and “checkpoints” that will be used by the Region to confirm progress towards achieving each Plan Objective.

Collectively, the Plan Objectives and associated Measurable Planning Targets were developed using the “SMART” criteria, meaning that each objective should be **S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime-based. When crafted properly, SMART planning targets help to promote actions that lead to measurable results. Objectives and measurable planning targets written using the SMART format are designed to allow people to measure and track progress toward improving integrated water management within the Region over time.

Some of the Measurable Planning Targets are quantifiable, while others are qualifiable. Quantifiable MPTs have specific defined targets, such as a certain volume of water saved per year. Qualifiable MPTs are less specific, and might measure progress by tracking the number of meetings held, or attendance. Quantifiable MPTs have been developed wherever possible; in some cases, initial qualifiable MPTs have been formulated to inform and better define quantifiable MPTs that will be completed later during Plan implementation. In this way, some of the MPTs are designed to collect fundamental information that is needed to fully understand and

complete the overall Plan Objective. For example, Objective A, which seeks to improve water supply infrastructure for disadvantaged community (DAC) and urban areas, has an initial MPT A.I to screen and evaluate systems where improvements are needed.

The Plan Objectives were intended to focus areas throughout the plan horizon, while specific dates for completion were assigned to the MPTs to be achieved during the 20-year planning period. It is expected that the Plan Objectives and MPTs will be reviewed and potentially revised over time to reflect the benefits of increased coordination by Plan stakeholders.

5.3 Objectives and Measurable Planning Targets Development Process

The Plan Objectives and measurable planning targets were developed using an iterative and collaborative approach that included three phases:

- Identify the major water-related needs and challenges within the Region
- Propose draft Plan Objectives that address the major water-related needs and challenges, discuss, review and refine
- Propose draft MPTs that will demonstrate progress towards achieving Plan Objectives, discuss, review and refine

The first step in developing Plan Objectives was to identify the water-related needs and challenges that people believed to be important in the Region today. The needs and challenges were compiled from the Regional Acceptance Process application, an IRWM questionnaire completed by stakeholders, as well as discussions at IRWM Plan meetings in September and October 2011. Once the Stakeholder Group had identified a representative list of needs and challenges that should be addressed by the Plan (see Section 4 – Major Water-related Needs, Challenges and Opportunities), Plan Objectives were proposed by the Consultant Team, organized by Resource Management Strategies (see Section 6). The associated statewide priorities and program preferences from the IRWM guidelines were also identified for each Plan Objective to ensure that the Plan implementation would achieve a broad spectrum of statewide, as well as regional interests.

Initial Measurable Planning Targets, which quantify how objectives are to be measured, were developed and refined through discussion with stakeholders and the PGC during several meetings in early 2012. In total, 60 MPTs were identified for the 14 Plan Objectives, each of which are described in the section that follows. It should also be noted that there is potential for some overlap between certain objectives because of the integrated nature of the needs and challenges; however, they were developed to be as specific and stand-alone as practical.

5.4 Plan Objectives and Measurable Planning Targets

Objective A. Improve water supply infrastructure within DAC and urban areas that have declining water quantity/quality or other water system reliability issues (e.g., fire flow, contamination, etc.).

This objective is based from the challenge that there are communities within the Region, including those that are disadvantaged and/or dependent upon on unreliable groundwater sources that do not have access to adequate water supply of appropriate

quality or quantity. In addition, it was identified that there are significant water system infrastructure investment needs to address aging infrastructure and correct severe capacity and reliability situations such as systems that do not currently provide adequate fire flow supply. Since there are many small, disconnected water systems throughout this foothill and mountainous region, there are many systems that will require improvements over the plan horizon. Therefore, the associated MPTs were developed to prioritize and implement specific actions that would address this IRWM Plan objective.

Measurable Planning Targets

MPT A.I. Determination of which water distribution systems including those in DACs have water supply deficiencies (e.g., adequate fire flow, storage, contamination, end of their useful life, etc.) and evaluation of options to remedy the issues (such as providing alternative source[s] of supply or additional treatment) by 2016.

MPT A.II. Improvement of water supply and/or distribution in four DAC and/or urban communities within the planning horizon.

MPT A.III. Evaluate fire protection storage/conveyance at all community water systems by 2020 and make improvements to at least 10 systems by 2035.

Objective B. Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs from the negative impacts of stormwater, urban runoff, nonpoint source pollutants, and nuisance water.

This objective is based from the challenge that water quality contamination occurs throughout the waters of the Region including in groundwater, surface water, conveyance systems (such as canals, ditches, and pipelines), and storage. The associated MPTs focus on addressing the potential sources of water quality degradation such as roads, stormwater runoff, failing septic systems, and wastewater collection systems, and identify specific actions that could be implemented that would address this IRWM Plan objective.

Measurable Planning Targets

MPT B.I. Reduction of erosion from roads at five high priority hydrologically-connected segments every five years.

MPT B.II. Evaluation of the impact of stormwater, runoff, and onsite wastewater treatment systems on raw water conveyance and/or storage by 2015.

MPT B.III. Inventory, development and phased implementation of a roadside drainage and erosion management program for existing roads. Identify funding source and develop grant application to prepare prioritized road inventory in non-Federal lands by 2018. Coordinated Federal/Local Best Management Practices (BMPs) shall be developed by 2019 and implemented within the planning horizon with maintenance of high priority Federal/Local roads by 2025.

MPT B.IV. Evaluate and identify appropriate stormwater BMPs for application throughout the Region by 2017.

MPT B.V. Reduce sanitary sewer collection system inflow and infiltration rates to 25,000 gallons/day/mile by 2022.

MPT B.VI. Confirmation and monitoring of sources of bacterial and other toxic contamination (such as mercury) and development of plans to reduce contaminants. Monitoring to occur at least annually and plan development to occur by 2019.

MPT B.VII. Identification and monitoring of areas where failing (i.e. regularly failing and problematic) septic systems are contaminating surface water and/or groundwater by 2018.

MPT B.VIII. Identify and prioritize areas for extension of collection system and providing wastewater treatment to areas that are currently failing Onsite Waste Treatment Systems (OWTS) by 2020.

MPT B.IX. Correction of five areas where failing septic systems or other wastewater facilities are significantly contaminating surface water and/or groundwater by 2025, including implementation of prioritized extensions/corrections within planning horizon.

MPT B.X. Compliance with the finalized version of the currently proposed Statewide Septic Systems Policy for OWTS systems, particularly those adjacent to (i.e., within the floodplain of) 303(d) listed water bodies for coliform within 10 years of adopted policy.

MPT B.XI. Reduce pollutant loading on water bodies.

Objective C. Improve infrastructure to meet wastewater discharge/disposal requirements and deliver drinking water that meets drinking water standards and customer expectations.

This objective is based from the challenge that wastewater collection, treatment and disposal, as well as drinking water treatment, and distribution must meet both regulatory requirements and customer expectations. In addition, local water/wastewater agencies recognize that aging infrastructure requiring improvements exists within the Region. The associated Measurable Planning Targets focus on the activities that could be implemented that would address this IRWM Plan Objective. This objective shares some commonality with Objective A.

Measurable Planning Targets

MPT C.I. All wastewater treatment plant discharges comply with National Pollutant Discharge Elimination System/Waste Discharge Requirements (NPDES/WDR) permits by 2025. Reduction of treated effluent discharges to surface waters, where cost-effective, is the desired goal within planning horizon.

MPT C.II. Evaluation of Sanitary Sewer Overflows, occurrences and causes, impacts, and costs associated with system upgrades to reduce frequency should occur every five years with first evaluation due by 2017.

MPT C.III. Annual wastewater collection system preventable spill events per mile are reduced by a minimum of 20% over 2012 levels by 2022.

MPT C.IV. Evaluate and develop, if appropriate, recommendations to increase conversion of septic systems to sanitary sewer collection system extensions by 2020.

MPT C.V. All drinking water meets Title 22 primary and iron and manganese secondary standards by 2020.

Objective D. Improve watershed health in support of increased water yield and ecosystem function.

This objective is based on the recognition that improvements to the watershed particularly associated with forest management practices (e.g., fuel management for fire risk reduction, forest thinning, etc.) can result in long-term benefits not only to potential improved water supply yield, but also to ecosystem value. Catastrophic wildfires in unmanaged forests are understood to result in increased erosion and sediment loading from runoff from the burned landscape, with resulting water quality and ecosystem impacts. The associated MPTs focus on the activities such as fuel load reduction that improve watershed health to address this IRWM Plan objective.

Measurable Planning Targets

MPT D.I. Determine acres requiring fuel management in the Region by 2019 and establish fuels management program by 2020 so that fuel load is reduced by 30% from a 2012 baseline within the planning horizon to reduce fire risk.

MPT D.II. Increase annual average acres of forest thinned on both US Forest Service and private forest lands by at least 20% over 2012 levels by 2020.

MPT D.III. Identify prime areas for improved water yield, water quality protection, and/or ecosystem function by 2019 and implement five projects within the planning horizon.

Objective E. Improve the condition and ecosystem function of meadows.

This objective is based on the recognition that many high Sierra meadows, when restored, can provide significant benefits not only to improve ecosystem function, but also increase water supply yield. The impacts of meadow degradation from eroded banks, headcuts, depressed water tables, encroaching conifers, non-native vegetation, off-highway vehicle travel and heavy grazing uses can be mitigated so that the natural water retention, habitat, and Native American cultural values of the meadows are restored. As there are several organizations in the Region working on meadows, the

associated MPTs focuses on inventory and coordination to address this IRWM Plan objective.

Measurable Planning Targets

MPT E.I. Summarize, synthesize, and prioritize available meadow information and identify high priority meadows by 2015.

MPT E.II. Restoration of ecosystem function to two meadows per year beginning in 2014 and continuing within the planning horizon.

Objective F. Assist in the protection and recovery of sensitive special status, threatened, culturally sensitive, and endangered native aquatic and other water dependent species in the Region.

This objective is based on the challenge that there are over 50 special status (threatened, endangered or otherwise imperiled) aquatic or riparian plant, fish, amphibian, reptile, or invertebrate species in the Region. Additionally, some portions of the various rivers are either designated as National Wild and Scenic Rivers or State Wild and Heritage Trout Waters. Preservation and restoration of special status species populations is critical, as is protection of unique habitat corridors through the national and state designations of the various waterways. As there are several organizations in the Region working on species and habitat issues, the associated MPTs focus on inventory and coordination to provide as complete Regional coverage as possible to address this IRWM Plan objective.

Measurable Planning Targets

MPT F.I. Evaluation of opportunities for coordination in the ongoing protection of natural systems on a biannual basis with first evaluation due 2015.

MPT F.II. Coordination with state, federal, and tribal governments; non-governmental organizations to identify sites with at-risk species where threats can be corrected or reduced with coordination meetings on an annual basis.

MPT F.III. Implementation of corrective projects at five sites within the planning horizon.

MPT F.IV. Maintain the continued presence of species such as Yosemite Toad, Foothill Yellow-Legged Frog, Sierra Nevada Yellow-Legged Frog, and habitat for the California Red-Legged Frog as evaluated through bi-annual reporting with first evaluation due 2015.

MPT F.V. Maintain the continued presence of hardhead, Chinook salmon, and steelhead in the Stanislaus River as evaluated through biannual reporting with first evaluation due 2015.

Objective G. **Identify, preserve, and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; reduce invasive species.**

This objective is based on the challenge that sensitive wetlands, vernal pools, and native riparian habitats are highly vulnerable, especially to the impacts of invasive species, grazing, forestry and other human activities. As there are several organizations in the Region working on habitat restoration, the associated MPTs focus on inventory and collaboration activities to provide as complete Regional coverage as possible to address this IRWM Plan objective.

Measurable Planning Targets

MPT G.I. Completion of an inventory and prioritization of areas of riparian plant habitat by 2017.

MPT G.II. Restoration of four acres of riparian habitat by 2018.

MPT G.III. No net loss of wetland habitat as measured by inventory and follow-up inventories every five years to be reported in 2020, 2025, 2030, and 2035.

MPT G.IV. Inventory and locate invasive infestation species by 2020.

MPT G.V. Reduction in invasive infestation such as himalayan blackberry, bull thistle, mullein, and star thistle by two acres/year of riparian habitat, wetlands, and vernal pools starting in 2016.

Objective H. **Reduce the risk of localized flooding in urban areas.**

This objective is based on the challenge that localized flooding occurs in some more urbanized areas such as Jamestown and the City of Sonora, as well as on some rural roads, where flooding could flow into raw water conveyances for drinking water. In addition, the flood and water quality benefits of low impact development measures are recognized. The associated MPTs contains a range of activities to better understand and address the challenges to meet this IRWM Plan objective.

Measurable Planning Targets

MPT H.I. Identification of a funding source and development of a grant application to identify substandard drainage structures and implement improvements needed to reduce risk of structural or capacity failure by 2019.

MPT H.II. Evaluation of feasibility of permeable surfaces and other innovative projects in new or existing impervious areas to attenuate flood events in up to three locations by 2018 and implementation within the planning horizon.

MPT H.III. Coordinate IRWM with Local Hazard Mitigation Plan updates to improve regional flood management by addressing preparedness, response, and

post flood actions throughout the planning horizon to be reported on a five-year basis with the first report due 2020.

MPT H.IV. Coordinate with County/local jurisdiction to identify where existing drainages are conveyed into raw water systems and/or recommend ordinance prohibiting development downstream of raw water conveyance spill locations by 2015. Coordinate with MPT H.I. above to implement improvements.

Objective I. Increase renewable energy production for water management.

This objective is based on the opportunity that significant elevation changes in the various water systems that convey water from the higher elevation mountains towards the lower elevation foothills and other renewable energy sources exist that could be used to generate additional energy resources in the Region. There are already numerous hydroelectric facilities throughout the Region's two major rivers: the Tuolumne and Stanislaus, and this objective seeks to expand those opportunities by harnessing the potential from existing infrastructure systems. The associated MPTs focuses on screening and evaluation of these opportunities and implementation of cost-effective projects to meet this IRWM Plan objective.

Measurable Planning Targets

MPT I.I. Evaluation of wind, solar, biomass, or, hydroelectric opportunities for increased energy production by 2018.

MPT I.II. Implementation of two locally cost-effective renewable energy projects by 2022.

Objective J. Improve energy efficiency of water and wastewater system infrastructure.

This objective is derived from the challenge that the significant elevation changes in the Region require significant pumping within water and wastewater systems that could be improved from an energy-efficiency perspective. The associated MPTs focuses on evaluation of these opportunities and implementation of projects to meet this IRWM Plan objective.

Measurable Planning Targets

MPT J.I. Completion of a baseline water infrastructure (e.g., pumps, motors, water treatment plants, pipelines) energy efficiency and greenhouse gas (GHG) emissions study by 2017.

MPT J.II. Upgrade infrastructure to address energy efficiency and GHG emissions by 2035.

Objective K. Improve efficiency and reliability of man-made water conveyance systems.

This objective is derived from the challenge that the many man-made water conveyance systems throughout the Region have historic open-channel segments such as ditches, canals, and flumes that could operate more efficiently and also provide ecologic benefits. Many of these channels are also highly vulnerable to outages from landslides, tree falling, and fire that can affect the reliability of potable supply to many municipal customers. The associated Measurable Planning Targets focuses on identification of critical areas for efficiency and reliability and monitoring enhancements, and implementation of projects to meet this IRWM Plan objective.

Measurable Planning Targets

MPT K.I. Assess and evaluate the operational and infrastructure challenges as well as the beneficial uses of raw water conveyance systems and identify areas for improved efficiency and reliability by 2018.

MPT K.II. Improve interagency collaboration by holding annual meeting with action plan for implementation.

MPT K.III. Identification and completion of six high priority capital improvement projects (i.e., ditch lining, controls, diversions, storage, etc.) to raw water conveyance systems, where needed, by 2025.

MPT K.IV. Continue and improve flow monitoring and analyze flow data annually to identify operational and maintenance improvements by 2018.

Objective L. Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users.

This objective is derived from the challenge that the water use efficiency improvements can also be made by municipal and agricultural water users to meet statewide targets to retain eligibility for future grant opportunities. The associated MPTs focuses on meeting targets and interagency collaboration for implementation of WUE projects to meet this IRWM Plan objective.

Measurable Planning Targets

MPT L.I. Meeting water use efficiency gallons per capita per day (GPCD) targets identified in Urban Water Management Plans (UWMPs) by 2020.

MPT L.II. Increase of regional water reuse where locally cost-effective as necessary to meet GPCD targets in compliance with Senate Bill X7-7 by 2020.

MPT L.III. Improve interagency collaboration to cost-effectively deliver WUE programs by conducting annual coordination meetings by September 30 of each year starting in 2014.

Objective M. **Develop sufficient reliable and affordable water supplies to meet regional demands of existing and projected water supply needs under a multi-year drought now and into the future.**

This objective is derived from the challenge that while the Region is the source of a large quantity of water, drought, including regulatory drought, and climate change have and will limit local water supply availability in certain conditions. In conjunction with aggressive water conservation and increased user efficiencies, increased water supply reliability measures, such as additional storage or multiple sources of supply can provide protection against potential water supply shortfalls. The associated MPTs focuses on a range of activities to improve water supply reliability through consideration of storage, new supply sources, improved conjunctive management of supplies, and facility reoperation to meet this IRWM Plan objective.

Measurable Planning Targets

MPT M.I. Identify supply sources vulnerable to contamination, climate change, and/or interruption from human or nature-caused effects by 2016.

MPT M.II. Evaluate the potential opportunities and challenges presented by new storage facilities that may improve the reliability of existing supplies and projected water supply needs by 2018.

MPT M.III. Identify potential conjunctive use projects that may improve in-region supply reliability by 2018.

MPT M.IV. Develop diversified water supply portfolios during planning horizon.

MPT M.V. Evaluate potential to re-operate existing facilities to increase supply availability and reliability by 2018.

MPT M.VI. Evaluate ability and opportunities for multi-agency water supply facilities and interties by 2018.

Objective N. **Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions.**

This objective is derived from the challenge that improved integration of land use and natural resource planning will help improve watershed protection. The associated MPTs focuses on providing water resource managers with opportunities for increased review and input into land use and natural resources planning at the local, Tribal, regional, and federal level to meet this IRWM Plan objective.

Measurable Planning Targets

MPT N.I. Evaluate, draft, and propose recommended integrated land use and natural resources planning standards that measurably improve degraded water quality, forest functions, watershed reliability for beneficial uses, biodiversity and reduce flood and wildfire risk and damage potential by 2019.

MPT N.II. Identify outputs to better determine the values of Ecosystem Services of Watersheds by 2016 and monitor and report on select outputs annually.

MPT N.III. Work collaboratively to incorporate supported tribal watershed values into regional land use and natural resources planning efforts by identifying suggested planning targets by 2017. Conduct biannual reviews with Tribal representatives to confirm this activity is on track.

MPT N.IV. Support jurisdictional agencies to develop and improve implementation of stormwater best management practices by conducting annual coordination meetings by September 30 of each year starting in 2014.

MPT N.V. Develop a process by 2017 which influences land use, regulatory, and resource management actions that take place outside the Region that may limit access to watershed resources within the Region.

5.5 Objective Summary and Prioritization

A limited objectives prioritization process was completed, and resulted in the finding that each of the 14 objectives represents an important aspect of IRWM planning that warrants action. For this reason, only Medium and High priorities were assigned as it was decided that low priority objectives would garner minimal attention and would not be useful to the IRWM Plan. The following Table 5-1 provides a summary of the objectives (i.e., in the table the associated prioritization was assigned based on consultation with stakeholders).

Table 5-1: Plan Objectives Prioritization

	Plan Objective	Priority
A.	Improve water supply infrastructure within DAC and urban areas that have declining water quantity/quality or other water system reliability issues (e.g., fire flow, contamination, etc.).	High
B.	Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs from the negative impacts of stormwater, urban runoff, and nuisance water.	High
C.	Improve infrastructure to meet wastewater discharge/disposal requirements and deliver drinking water that meets drinking water standards and customer expectations.	High
D.	Improve watershed health in support of increased water yield and ecosystem function.	High
E.	Improve the condition and ecosystem function of meadows.	Medium
F.	Assist in the protection and recovery of sensitive special status, threatened, culturally sensitive, and endangered native aquatic and other water dependent species in the Region.	Medium
G.	Identify, preserve, and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; reduce invasive species.	Medium
H.	Reduce the risk of localized flooding in urban areas.	Medium
I.	Increase renewable energy production for water management.	Medium
J.	Improve energy efficiency of water and wastewater system infrastructure.	Medium
K.	Improve efficiency and reliability of human-made water conveyance systems.	High

Plan Objective	Priority
L. Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users.	Medium
M. Develop sufficient reliable and affordable water supplies to meet regional demands of existing and projected water supply needs under a multi-year drought now and into the future.	High
N. Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions.	High

5.6 Climate Change Vulnerability Prioritization and Adaptations

5.6.1 Prioritized Climate Change Vulnerabilities

As described in Section 4.7.2, Appendix D contains the Climate Change Vulnerability Checklist, which addresses a broad range of climate change vulnerabilities in the T-S Region. The climate change vulnerabilities align well with the IRWM Plan objectives and have been prioritized in accordance with the plan objective priorities. Table 5-2 below identifies the climate change vulnerability topic, its priority and the associated IRWM Plan objectives (Note that not all objectives are included).

Table 5-2: Climate Change Vulnerability Prioritization

Climate Change Vulnerability Topic/Area	Associated IRWM Plan Objectives	Relative Priority
Water Supply	A. Improve water supply infrastructure within DAC and urban areas that have declining water quantity/quality or other water system reliability issues. K. Improve efficiency and reliability of human-made water conveyance systems. M. Develop sufficient reliable and affordable water supplies to meet needs under a multi-year drought.	High
Water Quality	B. Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs from the negative impacts of stormwater, urban runoff, and nuisance water.	High
Flooding	H. Reduce the risk of localized flooding in urban areas. N. Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions.	Medium - High

Climate Change Vulnerability Topic/Area	Associated IRWM Plan Objectives	Relative Priority
Ecosystem and Habitat Vulnerability	D. Improve watershed health in support of increased water yield and ecosystem function. E. Improve the condition and ecosystem function of meadows. F. Assist in the protection and recovery of sensitive special status, threatened, culturally sensitive, and endangered native aquatic and other water dependent species in the Region. G. Identify, preserve, and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; reduce invasive species. N. Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions.	Medium - High
Hydropower	I. Increase renewable energy production for water management. M. Develop sufficient reliable and affordable water supplies to meet needs under a multi-year drought.	Medium - High
Water Demand	E. Improve the condition and ecosystem function of meadows. L. Increase current and future water use efficiency.	Medium
Sea Level Rise	None (no coastal areas in Region).	n/a

5.6.2 Climate Change Adaptation Strategies

The T-S IRWM Plan objectives and MPTs contain a number of considerations that will facilitate the Region's preparedness and ability to adapt to climate change in the future. The objectives and/or MPTs shown in Table 5-3 below are each associated with adaptation to the following climate change factors:

- Changes in the amount, intensity, timing, quality and variability of runoff and recharge.
- Reducing emissions which includes consideration of the energy embedded in water use, and ultimately reducing GHG emissions. This factor includes consideration of strategies adopted by the California Air Resources Control Board (CARB) in its AB 32 Scoping Plan, where practical; and using renewable energy.
- Neither carbon sequestration, nor Sea Level Rise, are climate change adaptation considerations applicable within the T-S IRWM Region.

Table 5-3: Potential Climate Change Adaptation Strategies

Summary of Objective/Measurable Planning Target		Climate Change Adaptation Strategy		
		Description	Adaptation to changes in runoff and recharge	Reducing Emissions
B.IV.	Appropriate stormwater BMPs	BMPs, such as low impact development, can reduce flooding potential associated with stormwater peak intensities.	X	
D.III.	Identify prime watershed areas for improved water yield and implement restoration project	Improvement of watershed yield in forests (such as enhanced snowpack) will improve base flows to meet critical ecological and other water supply needs, especially during dry periods.	X	
E.	Improve condition and ecosystem function of meadows	Improvement of water yield in meadows can improve base flows to meet critical ecological and other water supply needs especially during dry periods.	X	
G.V.	Reduce invasive infestation	Many invasives consume significant water which, when removed, can make additional supply available to meet ecological and water supply needs during dry periods.	X	
H.II.	Evaluate and implement permeable surfaces to attenuate flood events	Permeable pavements can reduce flooding potential associated with stormwater peaks.	X	
I.	Increase renewable energy production for water management	The Region already produces significant hydroelectric power; meeting this objective increases renewable energy production from the Region.		X
J.	Improve energy efficiency of water and wastewater system infrastructure	Incremental improvements to energy efficiency, not only reduces emissions, but also reduces cost of operations.		X
K.	Improve efficiency of water conveyance systems	Improving efficiency of water conveyance can make additional water supply available, as gravity systems energy consumption is not applicable.	X	
L.	Increase current and future WUE by municipal and agricultural end users	Reducing water use will facilitate improving local water supply reliability.	X	X
M.	Develop sufficient reliable water supplies to meet needs under a multi-year drought	Several MPT are included in this objective to improve supply availability and reliability.	X	

Section 6: Resource Management Strategies

6.1 Introduction

The objectives and measurable planning targets presented in Section 5 for the Tuolumne-Stanislaus (T-S) IRWM Plan describe a range of areas in which regional stakeholders intend to improve water-related conditions in the Region over the plan horizon. The broad categorical actions required to achieve the goals and objectives mostly align with the Resource Management Strategies (RMS) identified in the California Water Plan Update 2009 which are to be considered for applicability in an Integrated Regional Water Management (IRWM) Plan. A RMS is a project, program, or policy that helps local agencies and governments manage their water and related resources. This section introduces the 32 RMS from the California Water Plan and identifies those selected for inclusion in the T-S IRWM Plan. The projects, programs, and actions described in Section 7 are then derived from the selected RMS.

6.2 Resource Management Strategy Summary

The California Water Plan (CWP) Update 2009 groups its RMS into six management outcomes, for which a number of Resource Management Strategies can be applied. In addition, the CWP includes “other” resource management strategies that can potentially contribute to various management outcomes, but which are largely still under development. Table 6-1 provides a summary of the Outcomes and RMS. RMS that are asterisked are not applicable to the T-S Region at this time.

Table 6-1: Resource Management Strategies

CWP Management Outcome	Resource Management Strategies
Reduce Water Demand	Agricultural Water Use Efficiency Urban Water Use Efficiency
Improve Operational Efficiency and Transfers	Conveyance – Delta* Conveyance – Regional/local System Reoperation Water Transfers
Increase Water Supply	Conjunctive Management & Groundwater Storage Desalination* Precipitation Enhancement* Recycled Municipal Water Surface Storage – CALFED* Surface Storage – Regional/local
Improve Water Quality	Drinking Water Treatment and Distribution Groundwater Remediation/Aquifer Remediation* Matching Quality to Use Pollution Prevention Salt and Salinity Management* Urban Runoff Management
Improve Flood Management	Flood Risk Management

CWP Management Outcome	Resource Management Strategies
Practice Resources Stewardship	Agricultural Lands Stewardship Economic Incentives (Loans, Grants and Water Pricing) Ecosystem Restoration Forest Management Land Use Planning and Management Recharge Area Protection Water-Dependent Recreation Watershed Management
Various Outcomes	Crop Idling for Water Transfers* Irrigated Land Retirement Waterbag Transport/Storage Technology * Dewvaporation or Atmospheric Pressure Desalination* (CWP – Other Strategy) Fog Collection * Rainfed agriculture*

* RMS not applicable to T-S IRWMP.

6.3 RMS Applicable to the Region

RMS that are applicable to implementation of the T-S IRWM Plan are those which align with the major water related challenges and opportunities summarized in Section 4 and contribute to achieving the Plan goals and objectives that are discussed in Section 5. For each Plan objective, the RMS that could assist in meeting the objective identified and their applicability to the Region are discussed below:

6.3.1 Reduce Water Demand

6.3.1.1 Agricultural Water Use Efficiency

The agricultural water use efficiency strategy involves measures that reduce the amount of water used for agricultural irrigation while maintaining agricultural productivity. This strategy includes improvements in irrigation technology and water management practices that result in direct improvements in water use efficiency as well as education and training efforts that lead to improved water management.

This strategy aligns with the IRWM Objective L to “Increase current and future water use efficiency by both municipal and agricultural end users” and is particularly applicable as agricultural water demands are projected to increase in the Region. Ways in which the agricultural water use efficiency strategy could be employed in the Region include both supplier side and on-farm improvements and range from practices such as irrigation audits to identify ways to promote efficient water use, pricing or other incentive strategies, lining or piping of ditches and canals, and implementation of improved irrigation systems. The constraining factors for this strategy include local fiscal assets, trade-offs in resource values related to conveyance systems, and water pricing, which could restrict or eliminate some agricultural production.

6.3.1.2 Urban Water Use Efficiency

The urban water use efficiency strategy addresses indoor and outdoor residential, commercial, industrial and institutional water uses. This strategy is a key component of the Water Conservation Act of 2009 (Senate Bill x7-7 (SBx7-7)) which requires all urban water suppliers (more than 3,000 connections or supply more than 3,000 acre-feet per year) to increase water use efficiency in an effort to meet the statewide goal of achieving a 20% reduction in per capita

water use by 2020. This strategy includes improvements in technology or water management that lower water use or increase beneficial uses from existing water quantities. This strategy also includes educational programs and other measures that result in the adoption of technological improvements or behavioral changes that reduce water demand.

This strategy aligns with the IRWM Objective L to "Increase current and future water use efficiency by both municipal and agricultural end users," which includes specific planning targets to meet per capita efficiency targets identified within the Region. For Urban Water Suppliers within the Region, compliance with SBx7-7 will be required as part of urban water management planning. Smaller water suppliers will likely coordinate their efforts to improve water use efficiency, as feasible, as they are under no specific requirements at this time. Individual users of groundwater may benefit from implementing water use efficiency measures to extend the yield of their supplies.

6.3.2 Improve Operational Efficiency and Transfers

6.3.2.1 Delta Conveyance

Delta conveyance refers to the movement of water within the network of streams, sloughs and channels of the Sacramento-San Joaquin Delta and movement of water out of the Delta through constructed water conveyance systems.

This RMS is not applicable to the T-S Region because entities in the Region do not use Delta conveyance to obtain water supply. There are entities within the Region that divert water to meet local beneficial uses from the Stanislaus and Tuolumne Rivers, which are tributaries to the Delta but these have no significant influence upon Delta conveyance. The consumptive water demands of the T-S Region are minor in comparison to the productivity of the watersheds, to total inflows to the Delta from the Sacramento River watershed and the amount of water annually exported out of the Delta. In addition, water flowing through the Delta is managed to meet water quality standards and stream flow in the Delta. This Region's watersheds are important for the life-cycle of several species of native fish, for recreation, and other uses.

6.3.2.2 Regional/Local Conveyance

Regional/local conveyance refers to the use of both natural waterways and built infrastructure to move water to areas where it is needed or to move water away from areas to protect existing resources. The regional/local conveyance strategy covers the distribution and conveyance of local sources of water and imported water for the purposes of improving water supply, water quality, recreation, habitat, and flood management.

This RMS is particularly relevant to the Region, as water needs and challenges include reliability and efficiency issues relating to existing conveyance infrastructure. The existing gravity flow raw water conveyances are often single sources of drinking water for several communities and are vulnerable to failure from natural disasters such as wildfire, landslides, and falling trees.

Water Conveyance – Utica Power Authority

In addition, system efficiency issues in the raw water conveyance systems in the Region are a challenge due to the historic (Gold Rush) era nature of the systems as well as other factors. Specifically the inherent system efficiencies of older raw water conveyance systems may support wetlands, groundwater recharge, riparian areas and aesthetic values. Additionally these systems are used recreationally for fishing, hiking and link historic communities. Both the Utica and Tuolumne Systems are of National Historic significance. Therefore efficiency improvements need to balance environmental needs. Other water distribution systems, some of which may be aging, may also require evaluation and detection of deficiencies.

This strategy directly aligns with several IRWM Objectives, including those that aim to “Improve efficiency and reliability of man-made water conveyance systems”, “Improve water supply infrastructure within DAC and urban areas”, as well as the objective aiming to “reduce contamination in raw water conveyance systems” (Objectives K, A, and B, respectively). In addition, Objective I has been established focusing on “improved energy efficiency in the water and wastewater system infrastructure”, which also directly relates to this strategy.

6.3.2.3 System Reoperation

System reoperation involves changes to the existing operation of water systems to address existing problems, to increase water supply reliability or to adapt to future changes. The system reoperation strategy includes reoperation of surface water storage facilities, groundwater sourced water systems and associated conveyance infrastructure. These resources may be related to the Conjunctive Management and Groundwater Storage RMS depending upon location. In the T-S Region, the reoperation of existing surface storage reservoirs is currently under consideration as an opportunity for developing sufficient reliable and affordable water supplies now and into the future. Given the nature of the water systems in the Region and their water rights this may involve altering the amount of water used for hydroelectric power production (Objectives I and M). This may in turn require the change in water rights from non-consumptive to consumptive rights depending upon the specific system considered for reoperation.

6.3.2.4 Water Transfers

Water transfers are voluntary exchanges of water or water rights among water users. A water transfer can be a change in point of diversion, place of use or type of use. Water transfers typically occur using one of the following: a) transfer of water from reservoirs that would otherwise have been carried over to the following year; b) use of groundwater instead of surface water deliveries and transfer of the surface water rights; c) transfer of previously banked groundwater; d) reduction of existing consumptive use; and e) transfer of the resulting water savings, and reduction of water losses and transfer of the recovered water.

In the T-S Region, water movement transactions primarily involve the long-standing export of in-Region water for agricultural and municipal uses outside of the Region. Although water transfers, in the sense of exchanges, have not recently been actively pursued by entities in the T-S Region, they could be a tool to help achieve the objective of developing water supplies to meet Regional demands (Objective M).

6.3.3 Increase Water Supply

Objective M of the IRWM Plan specifically addresses this CWP Management Outcome and states: “Develop sufficient reliable and affordable water supplies to meet regional demands of existing and projected water supply needs under a multi-year drought now and into the future”. The individual RMS for this outcome are discussed in detail as follows.

6.3.3.1 Conjunctive Management and Groundwater Storage

Conjunctive management is the coordinated use of surface water and groundwater to maximize the water available to a region. The conjunctive management and groundwater storage strategy involves recharge of groundwater basins when excess surface water is available. The T-S Region does not fully encompass a defined groundwater basin, but overlies a small portion of the Eastern San Joaquin Groundwater Subbasin in Calaveras County. While the majority of groundwater supplies are located within small, fractured rock structures of unknown capacity, recent work at high altitude meadows with underlying sand and gravel aquifers indicates that restoration of meadows may provide access to an underutilized groundwater resource that provides summertime base flows for downstream habitat enhancements. Objectives D and E specifically target this need. Since most of the aquifers in the majority of the Region are small, conjunctive use in the T-S Region is not currently a major method of water management. In efforts to increase supply reliability, IRWM Objective M is to develop sufficient reliable and affordable water supplies to meet Regional demands, which may involve potential conjunctive use projects such including meadow restoration.

6.3.3.2 Desalination

Desalination refers to treatment processes that remove salts from water to achieve salinity concentrations that are acceptable for municipal and agricultural uses. The desalination strategy covers treatment of seawater, brackish water and wastewater. Very little to no groundwater that is currently used in the Region is impacted by high salinity. The variability of Regional groundwater quality, in addition to the relatively small quantity and uncertainty of groundwater availability, and lack of saline water to desalinate makes this RMS a less preferred option for enhancing Regional supplies. Brine disposal poses an additional impediment to implementing this strategy in the Region. As a result, this RMS is not being considered by the Region for implementation at this time.

6.3.3.3 Recycled Municipal Water

Water recycling is the treatment and reuse of wastewater. The recycled municipal water strategy applies specifically to the application of municipal treated wastewater with the intention of putting the water to a beneficial use that would not occur through discharge of the wastewater. As described in the Region Description, Section 2, recycled water is currently being produced and used throughout the Region primarily for agricultural, landscape, and golf course irrigation. Agencies in the Region continue to search for ways to expand recycled municipal water production and use.

6.3.3.4 Regional/Local Surface Storage

Surface storage consists of the collection and storage of water within on-stream or off-stream reservoirs for later release. This strategy includes the use of surface storage for water supply as well as flood management. The numerous surface storage reservoirs and natural lake storage existing in the T-S Region provide over 5.5 MAF of total storage, which are operated, within the Region, primarily for hydroelectric power production. Storage capacity for local consumptive use

is limited to a few small reservoirs, including a portion of Lyons Reservoir, Phoenix Lake, and Spicer Meadows Reservoir. The largest water supply reservoirs in the Region, the Reclamation New Melones Reservoir and New Don Pedro Reservoir do not provide water supply for the T-S Region. To meet local demands and reliability, the need has been identified for additional satellite water storage, reoperation of existing surface storage reservoirs, surface storage enlargement (New Lyon's Reservoir) and other potential opportunities will be evaluated in order to reliably meet regional demands.

6.3.4 Improve Water Quality

Objectives B and C of the IRWM Plan specifically address this CWP Management Outcome. These objectives states:

> B: "Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs from the negative impacts of stormwater, urban runoff, and nuisance water."
>
> C: "Improve infrastructure to meet wastewater discharge/disposal requirements and deliver drinking water that meets drinking water standards and customer expectations."

The individual RMS for this outcome are discussed in detail as follows.

6.3.4.1 Drinking Water Treatment and Distribution

The drinking water treatment and distribution strategy is focused on ensuring that water provided for human consumption is safe for drinking. Drinking water treatment includes processes that treat, blend or condition water to meet potable standards, and drinking water distribution includes the storage, pumping and delivery of potable water to customers. This strategy includes measures within the treatment processes and distribution system that are necessary to produce and maintain safe drinking quality. Various issues identified within the Region are related to this RMS, including water quality impacts from non-point sources resulting in bacterial contamination and turbidity, as well as unexpected outages on raw water conveyance systems and within treatment and distribution systems.

Rosecco Recycled Water Storage Reservoir
Provides Water for Crop Irrigation

Delivering drinking water that meets water quality standards and improving infrastructure in order to do so is a high priority in the Region. This may include improvements to the unprotected ditch and flume system. Objective A specifically targets water supply and reliability for DAC and urban areas. Managing sources of pollution is also seen as an important means for facilitating compliance with water quality regulations and increasing the reliability and safety for drinking water users in the Region.

6.3.4.2 Groundwater and Aquifer Remediation

Groundwater and aquifer remediation is the improvement of groundwater quality to meet intended beneficial uses. Groundwater impairment may be the result of naturally occurring constituents or anthropogenic contamination. The groundwater and aquifer remediation strategy includes both passive techniques which allow for in-situ degradation or dispersion of contaminants and active treatment which remove the contaminants through chemical, biological or physical processes. This RMS is not being considered by the Region for implementation at this time. The main threat to groundwater quality in the Region includes various non-point sources, such as dispersed septic systems and naturally occurring materials within the hard formations. Actions currently considered for addressing existing contamination and minimizing future contamination groundwater are primarily focused on identifying, evaluating and monitoring impacts.

6.3.4.3 Matching Water Quality to Use

The strategy of matching water quality to use aims to optimize water resources by directing higher quality sources of water to end uses that require that higher quality, such as drinking water or certain industrial processes, and using sources of water with lower quality in applications where the lower quality is adequate. This strategy reduces the treatment costs associated with water supply. As a result of stringent discharge requirements of the Central Valley Regional Water Quality Control Board, many agencies have upgraded or continue to seek funding to upgrade wastewater treatment processes in order to produce recycled water for various allowable applications in the Region. These agencies continue to seek opportunities for further improving treatment processes and expanding recycled water use, which will contribute to reducing demands of potable water for non-potable uses.

6.3.4.4 Pollution Prevention

The pollution prevention strategy addresses both point sources, such as wastewater treatment plants, and non-point sources, such as most municipal stormwater discharges, road erosion, agricultural runoff and unauthorized land uses. This strategy includes efforts to identify sources of pollutant load, reduce pollution causing activities and capture pollutants before they enter waterways. Various water quality concerns have been identified that are impacting surface and groundwater resources in the Region. As a result, several objectives directly related to this RMS have been identified, including Objectives B and C noted in the introduction as well as Objective D: improving watershed health and Objective E related to the condition and ecosystem function of meadows. Actions to meet these objectives will include identifying, evaluating and monitoring impacts in order to prevent continued pollution, and implementing targeted measures, such as an erosion management program, stormwater Best Management Practices (BMPs) and a fuels management program.

6.3.4.5 Salt and Salinity Management

Salt and salinity management requires an understanding of how salts enter a region and how they are diluted and displaced within the region, as such this strategy includes studies necessary to improve the understanding of regional salt loading and the extent and magnitude of a region's salt problems. It also includes steps that reduce salt inputs and sequester or dispose of salts.

Currently, salt and salinity management is not an issue in the T-S Region, however, the projected expansion in agriculture in the northwestern portion of the Region in addition to expansion in the production and use of recycled water in the Region may require more targeted

salt and salinity management in the future. The objectives of improving watershed health and reducing contamination, which may involve water quality monitoring, can contribute to an improved understanding of salt loading in the Region.

6.3.4.6 Urban Runoff Management

The urban runoff management strategy involves the capture, conveyance and treatment of stormwater and dry weather runoff for purposes of improving flood management, water quality and/or water supply. The T-S Region has recognized urban runoff (including roads in less urbanized areas of the Region) as contributors to water quality concerns and includes targets for improved urban runoff management within in its objective to reduce contamination. Urban runoff management will include the evaluation of runoff on conveyance and storage, implementation of roadside erosion management and identification of appropriate stormwater BMPs. Additionally, IRWM Objective H focuses on reducing the risk of localized flooding in urban areas and includes consideration of projects, such as permeable surfaces in impervious areas, to reduce flood related runoff issues.

6.3.5 Practice Resources Stewardship

6.3.5.1 Agricultural Lands Stewardship

The agricultural lands stewardship strategy includes measures that promote the continued use of agricultural lands and the protection of natural resources through the maintenance of agricultural lands. Erosion control measures are an example of agricultural land stewardship practices that support the viability of croplands while offering water resource and water quality benefits. Other agricultural land stewardship practices such as wetlands restoration and the use of agricultural lands for non-structural flood management preserve the open space characteristics of agricultural lands that can offer greater water resources and environmental benefits. While agricultural land use makes up a fairly small proportion of land uses in the Region, agricultural lands stewardship aligns with several IRWM Objectives, including Objective B to reduce contamination, Objective D to improve watershed health, identify, preserve, and promote the regeneration and restoration of wetlands, Objective H to reduce flooding, and Objective N improve integrated land use planning and natural resource planning.

6.3.5.2 Economic Incentives

Economic incentives is the use of financial tools such as grants, loans, rebates and water pricing to influence water management. Financial assistance incentives in the form of grants, loans and rebates can be used to promote implementation of projects that improve water management and protect water resources. Water rate incentives can be used to promote more efficient use of water. Meeting T-S IRWM objectives to implement the IRWM Plan will require identifying funding sources, developing loan/grant applications, and other financing activities.

6.3.5.3 Ecosystem Restoration

Ecosystem restoration addresses natural landscapes and biological communities that have been modified by past activities. The ecosystem restoration strategy aims to increase the diversity of native species and biological communities and the abundance and connectivity of habitats, particularly in aquatic, riparian and floodplain ecosystems. This strategy includes protection and recovery of at-risk species, wetlands restoration and construction, floodplain reconnection and invasive species removal. This RMS aligns with IRWM Objectives F which is focused on the protection and recovery of sensitive and special status species, as well as

Objectives D and E relating to the improvement of Regional ecosystems, habitats and meadows.

6.3.5.4 Forest Management

The forest management strategy focuses on forest management activities that are designed to improve the availability and quality of water for downstream users, on both publicly and privately owned forest lands as part of a broader effort to maintain a sustainable, resilient forest ecosystem. This RMS is particularly relevant to the Region as forest lands, in private and federal ownership, comprise the majority of its land base. Identified forest management needs include reduction in fuel loads, fire hazards, proper management of hydrologically-connected road segments, and sediment loads. Fire is an integral part of maintaining a resilient forest. A natural fire regime helps to reduce fuels and destructive fire potential, which protects local communities and landscapes, recycles nutrients into the soil, and creates fertile seed beds for plants and tree seedlings (USDA, 2013).

Forested Lands in T-S Region

Various objectives relate to this RMS, such as Objectives D and E to improve watershed health, which involves fuel management programs, and ecosystem preservation and restoration, Objective B to reduce contamination, which involves erosion management programs that may occur along forest roads, and Objective N to improve integrated land use and natural resource planning.

6.3.5.5 Land Use Planning and Management

The land use planning and management strategy incorporates the availability of water supplies, water quality requirements and flooding and drainage considerations into land use decisions. Improved coordination of land use and water planning has been identified as a need in the Region and is specifically addressed by Objective N to improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions. Additional objectives align with this strategy, including Objective B focused on reducing contamination and Objective H to reduce local flood risks.

6.3.5.6 Recharge Areas Protection

The recharge areas protection strategy includes the protection and enhancement of aquifer recharge areas. The strategy includes methods such as low impact development and land conservation to ensure areas suitable for recharge remain accessible. It also includes measures to protect groundwater recharge areas from contamination. Although there are limited large groundwater basins in the T-S Region, this strategy is relevant from a general perspective. This strategy is closely related to various other strategies considered and implemented in the Region including Pollution Prevention, Urban Runoff Management, and Land Use Planning and Management. As such, this strategy also aligns with several IRWM objectives, including B, C, D, E and N that are mentioned above.

6.3.5.7 Water-Dependent Recreation

The water-dependent recreation strategy includes recreational activities that are dependent on water, including fishing, swimming, waterfowl hunting and birding, boating, canoeing, and kayaking, as well as activities that do not require water, but are enhanced by water, including wildlife viewing, picnicking, camping, and hiking, biking, and riding on trails. The Stanislaus and Tuolumne River systems and associated reservoirs and lakes provide abundant opportunities for water-dependent recreation in the Region, which also contributes to the local economies. All efforts employed to improve watershed health, improve water quality and protect and restore aquatic ecosystems (Objectives B, D, E, F and G) contribute to enhancing these opportunities. Additionally, recreational use associated with the raw water conveyance systems (Objective A) was previously noted.

6.3.5.8 Watershed Management

The watershed management strategy uses watershed boundaries as the basis for managing natural resources. Watershed management is the process of creating and implementing plans, programs, projects, and activities to restore, sustain, and enhance watershed functions. The T-S Region includes three watersheds and the IRWM Planning process has established and enhanced relationships that contribute to improving management of the T-S Region watersheds. While all objectives and efforts to effectively manage water resources in the Region implement this strategy, Objective D specifically includes improving watershed health in support of increased water yield and ecosystem function.

6.3.6 Improve Flood Management

6.3.6.1 Flood Risk Management

The flood risk management strategy involves both structural and non-structural measures to manage flood flows and programs that improve flood preparedness, response and recovery. Structural approaches to flood management include dams and reservoirs, levees, channel modifications and diversions. Non-structural measures focus on land use management such as floodplain restoration and development policies. As there are limited areas in the T-S Region that flood, flood risk management is not a high priority in the Region. However, various strategies implemented in the Region, such as watershed management, are closely related and various IRWM objectives directly align with this strategy. Objective H reducing the risk of localized flooding in urban areas and flood risk management also aligns with Objective N to improve integrated land use and natural resource planning. Efforts to be targeted in this strategy include, among other things, implementation of low impact development projects and coordination of IRWM with the Local Hazard Mitigation Plan.

6.3.7 Other Strategies

6.3.7.1 Crop Idling for Water Transfers

The crop idling for water transfers strategy is a specific water transfer strategy in which irrigated lands are removed from production or dry farmed in order to make water available for transfer. At present, agricultural water demand is limited in the T-S Region and agricultural water demand and use is managed on a farm-level. While no formal programs for crop idling exist, individual farmers, particularly those who received surface water, make choices on plantings and/or crop idling depending on the available water supply. Permanent crops such as wine grapes are becoming more prevalent in the Region and pose a challenge to crop idling on a year to year basis. If agricultural water demand increases significantly for non-permanent crops

and this program became more formalized, water resulting from crop idling could be transferred and provide a means of improving water supply reliability.

6.3.7.2 Irrigated Land Retirement

The irrigated land retirement strategy permanently removes farmland from irrigated agriculture. This strategy is not being considered at this time. It is used in other parts of the State to make water available for transfer or to solve drainage-related problems. Similar to crop-idling, individual farmers may seasonally or annually retire land from irrigation based on available water supply which could reduce water demand and improve water supply reliability. Since the T-S Region stakeholders have expressed interest in maintaining agricultural resources, other RMS are under consideration, such as an increase in the use of recycled water for crop irrigation.

6.3.7.3 Rainfed Agriculture

Rainfed agriculture relies solely on rainfall to provide all crop consumptive water use. In California where little precipitation occurs during the spring and summer growing seasons, the use of the rainfed agriculture strategy is very limited. Implementation of rainfed agriculture would require matching cropping patterns to precipitation patterns likely resulting in single cropping, most likely of low value products like hay. Rainfed agriculture (also known as dry farming) is currently a common practice throughout the T-S Region for thousands of acres of cattle grazing rangeland. However, that is more of an ongoing, historic rangeland management action rather than a specific management action anticipated in the Region. Although this practice exists, no specific objectives have been identified that align with this RMS.

6.3.7.4 Waterbag Transport/Storage Technology

The waterbag transport/storage technology strategy takes water from coastal areas with unallocated freshwater supplies, stores water in inflatable bladders and delivers the water to another coastal area. This technology currently has limited capacity for strategically addressing long-term regional water planning needs and may still require further research and development before full-scale implementation in the coastal areas of California. Due to the fact that the T-S Region is not located in a coastal location to take advantage of use of this technology, this technology is not applicable.

6.3.7.5 Dewvaporation or Atmospheric Pressure Desalination

Dewvaporation is a technology for desalinating brackish water. This technology is not being considered in the T-S Region resulting from the uncertainty of the technology as it is currently still under development and the fact that brackish water desalination is not currently being considered for augmenting water supplies in the Region, as mentioned above in Section 6.3.3.2.

6.3.7.6 Fog Collection

Fog collection is a type of precipitation enhancement, which has not yet been implemented as a management technique in California and may still require further research and development. This technology is not being considered in the T-S Region due to the inland location and climatic conditions of the Region that are not conducive to significant fog development and the limited water benefits this technology produces.

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Section 7: Project Selection and Prioritization

This section describes the project solicitation, development, and review process that was used to select and prioritize projects for inclusion in the Tuolumne-Stanislaus (T-S) IRWM Plan. The project review and prioritization process was designed to identify those projects, programs, and actions that contribute towards achievement of the T-S Integrated Regional Water Management (IRWM) Plan Objectives and associated Measurable Planning Targets as described in Section 5. It is envisioned that a similar process to that described in the following sections will be used for including additional projects in the Plan in the future.

7.1 Project Solicitation and Integration Process

The project solicitation process began with a discussion of how potential project submittals would be evaluated and considered for inclusion into the IRWM Plan. The Planning Grant Committee (PGC) decided that all potential projects, programs, or actions would be submitted using a Project Information Form. A draft list of project selection criteria and scoring rubrics was discussed and made available for comment as part of the draft Project Information Form. The potential project selection criteria were chosen to facilitate project comparison, review, selection, and prioritization. The next step of the process was to receive, evaluate, and review of all project submittals, after which the PGC proposed a list of projects to include in the IRWM Plan and recommended a prioritization for each project chosen for inclusion. The final step of the process was to discuss the recommendations made by the PGC with participants at a Stakeholder Input Meeting to formally accept the projects into the Plan.

Following agreement on the process, the PGC distributed a Project Information Form template (see Appendix E for a blank form example) to all stakeholders and issued a “Call for Projects” at the September 19, 2012 Stakeholder Meeting. The Call for Projects and Project Information Form was also posted to the IRWM Plan website and e-mailed to the stakeholder distribution list. Stakeholders were provided approximately one month to identify projects for potential inclusion in the IRWM Plan and complete and submit forms to the T-S PGC.

Project forms were submitted via e-mail. Stakeholders were invited to submit any projects, programs, and action ideas they thought could help contribute to fulfilling the Plan Objectives irrespective of the project’s current funding, level of development, or readiness to proceed. The PGC wanted to identify both projects and programs that were implementable and “ready to proceed”, and also identify other ideas that have not yet been developed into mature project proposals. This approach was intended to provide a mechanism for stakeholders to share information and identify opportunities to integrate projects and more effectively fulfill the IRWM Plan.

The PGC received 29 project submittals during the first Call for Projects. During the November 28, 2012 stakeholder meeting, each project proponent presented their project to the meeting attendees. The purpose of the project presentations was to provide a better understanding of the projects, identify projects which have potential for integration and determine if there are gaps in meeting the Plan Objectives.

7.2 Project Scoring, Selection and Prioritization Process

As introduced above, the process to decide which projects to include in the Plan and how to prioritize them relied on evaluation of the project selection criteria, technical judgment about the relevancy of the submitted projects, and Stakeholder discussions. The projects, programs and management actions submitted by the stakeholders were compiled, reviewed, and scored by the Technical Review Committee (TRC) based on the information provided by the project proponents. No efforts were made to verify the information submitted by each project proponent. The TRC consisted of ten individual stakeholders from various agencies throughout the Region; representing a broad spectrum of water management interests as listed below.

- Agriculture
- Disadvantaged Community
- Environmental
- Forest Service
- Land Use
- Large Water District
- Small Water District
- Sewer District
- RCD
- Tribe

7.2.1 Project Scoring

This scoring process was conducted after submittal of Project Information Sheets by each project proponent. The technical TRC reviewed each submitted project and provided a score based on the criteria detailed below. An aggregate score was then compiled based on the reviewer's scores. It should be noted the technical reviewers were not allowed to score any projects that were from their own agency. The aggregate "total criteria score" for each project provided a useful tool for understanding the status and attributes of the overall set of projects under consideration (i.e., a means of comparing apples to oranges).

The screening process applied 65 unique factors to score each project. The individual criteria used to evaluate each project are described below in Table 7-1. These factors were grouped into the following categories:

- Part 1 – Project Eligibility (Pass/Fail)
- Part 2 – IRWM Plan Objectives (56 points possible)
- Parts 3 and 4 – IRWM Program Preferences and Statewide Priorities (54 points possible)
- Part 5 – Mandatory Selection Components (Integration, Readiness to Proceed, and Relative Strength of the Project) (48 points possible)

The total criteria score (the average of all individual TRC scores) was then used to evaluate and compare the potential projects. As described above, the total criteria scores were never intended to be the basis for the final decisions about inclusion or prioritization, but were used as one indicator of how the projects compared to each other. Discussions within the TRC following scoring were used to develop agreement on the relative scoring of the 29 projects.

The maximum possible total criteria score for a project was 158. The highest score assigned to a submitted project was 93 and the average of all project scores was 64. The total criteria score for all 29 projects is provided in Appendix E. The scores did not consider whether a potential project may be eligible to receive Proposition 84 or 1E grant funds.

The results of the TRC work were presented to the PGC and the broader stakeholder group.

7.2.2 Project Selection Process

The PGC then reviewed all submitted projects to determine if they were consistent with the Plan objectives. The PGC concluded that all of the submitted projects were consistent with the Plan objectives. Based on these considerations, the PGC recommended that all 29 submitted projects be included in the IRWM Plan. Upon discussion at November 2012 Stakeholder Input Meeting, the Stakeholder Group supported the PGC recommendation. It should be noted that this current project list is simply a "snapshot" of the projects included in the Plan. It is fully expected that projects will be added, modified, and removed from the Plan in a much more dynamic process going forward. Appendix E includes a brief synopsis of the projects included in the Plan along with the project scoring sorts and other supporting materials. Each Project Information Form can be found on the T-S IRWM Plans Data Management System, located at: http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/.

7.2.3 Future Updates to the Project List

The RWMG plans to provide opportunities for regional stakeholders to propose changes to the project list annually. New projects may be added, scored, and prioritized in accordance with the project submittal process. Projects may also be removed at the request of a project proponent, or once the project has been completed. The RWMG may choose to use the same project submittal, review, and selection process used to develop this Plan, or may modify the process before inviting potential revisions. The RWMG can hold a "Call for Projects" and update the IRWM Plan Project list at any time. Revision of the project list does not require that the entire IRWMP be revised and re-adopted, rather the updated project list can be amended to the existing plan.

In any case, future project solicitations for the T-S IRWM Plan will include a request to identify the means in which projects will improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects and improved regional coordination of local and regional water supply efforts *in accordance with the DWR November 2012 Guidelines and CWC §85021*.

Future updates to the project list will be included in Appendix E.

7.3 Summary of Projects Included in the Plan

The projects that were submitted by stakeholders under the Call for Projects demonstrate the breadth of activities needed for T-S to meet its water management objectives. These 29 projects were submitted by 15 different organizations and cover, to some extent, most of the IRWM Plan objectives. Several projects will help achieve multiple plan Objectives. Projects ranged from wastewater facility improvements to habitat restoration programs, water efficiency initiatives, flood management efforts, and water quality enhancement programs. The range of projects presented multiple opportunities for resource and project integration; integration screening should also be considered for future project solicitations. While the projects were unanimously accepted by the PGC for inclusion in the Plan, each PGC member may not support implementation of every individual project.

Table 7-1: Project Selection Criteria Factors

Part 1 – Eligibility Criteria. Project proponent has or will adopt the IRWM Plan **(Pass/Fail)**
Part 2 – IRWM Plan Objectives. Each plan objective was worth 0-4 points as described below: **(Total points possible = 56)**
▪ 0 point = Achieves an insignificant value/component of Objective ▪ 1 point = Achieves a minimum value/component of Objective ▪ 2 points = Achieves some values/components of Objective ▪ 3 points = Achieves most values/components of Objective ▪ 4 points = Completely meets values/components of Objective
Part 3 – IRWM Program Preferences. Each Program Preference was worth 0-2 points as described below: **(Total points possible = 14)**
▪ 0 point = Achieves an insignificant value/component of Program Preference ▪ 1 point = Achieves some value/component of Program Preference ▪ 2 points = Completely meets values/components of Program Preference
Part 4 – IRWM Program Statewide Priorities. Each statewide priority was worth 0-2 points as described below: **(Total points possible = 40)**
▪ 0 point = Achieves an insignificant value/component of Program Statewide Priority ▪ 1 point = Achieves some value/component of Program Statewide Priority ▪ 2 points = Completely meets values/components of Program Statewide Priority
Part 5 – Mandatory Selection Components
Integration. **(Total points possible = 11)**
▪ 0-5 points = Project Benefits – scoring based on relative level of project benefits described ▪ 0-3 points = Resource Management Strategies – 1 point for each RMS, 3 maximum. ▪ 0-3 points = Geographic area – scoring based on the relative beneficial zone of influence of the project

Table 7 1: Project Selection Criteria Factors (cont'd)

Readiness to Proceed. Scored each item as described below. Only Item 1 or 2 was to be checked not both. **(Total points possible = 24)**

Item 1

- 4 points = The project is a project under CEQA and a final Negative Declaration has been completed, or the project is not a project under CEQA, or is otherwise exempt from CEQA
- 4 points = The project is a project under CEQA and an Final Environmental Impact Report has been completed
- 3 points = This project is a project under CEQA and CEQA compliance is anticipated to be completed within 12 months
- 2 points = This project is a project under CEQA and CEQA compliance is anticipated to be completed within 13 to 36 months
- 1 point = This project is a project under CEQA and CEQA compliance is anticipated to be completed in 37 months or more
- 0 point = The project is a project under CEQA and no final environmental document has been completed

Item 2

- 4 points = The project is a project under NEPA and a final Finding of No Significant Impact has been completed, or the project is not a project under NEPA, or is otherwise exempt from NEPA
- 4 points = The project is a project under NEPA and an Final Environmental Impact Statement has been completed
- 3 points = This project is a project under NEPA and NEPA compliance is anticipated to be completed within 12 months
- 2 points = This project is a project under NEPA and NEPA compliance is anticipated to be completed within 13 to 36 months
- 1 point = This project is a project under NEPA and NEPA compliance is anticipated to be completed in 37 months or more
- 0 point = The project is a project under NEPA, but no final environmental document has been prepared

Table 7 1: Project Selection Criteria Factors (cont'd)

Item 3

- 4 points = All local, state and federal permitting requirements (if any) have been completed
- 3 points = All local, state and federal permitting requirements should be completed within 12 months
- 2 points = All local, state and federal permitting requirements should be completed within 13 to 36 months
- 1 point = All local, state and federal permitting requirements should be completed in 37 months or more

Item 4

- 2 points = The proponent has capacity within current staff and/or consultants or volunteers to carry out the project
- 1 point = The proponent will have to hire staff or retain consultants or secure volunteers to carry out the project

Item 5

- 4 points = Feasibility analysis for the project is complete
- 3 points = Feasibility analysis for the project will be complete within 12 months
- 2 points = Feasibility analysis for the project will be complete within 13 to 36 months
- 1 point = Feasibility analysis for the project will be complete in 37 months or more

Item 6

- 4 points = The project has all necessary engineering, designs, blueprints and work plans completed
- 3 points = The project will have all necessary engineering, designs, blueprints and work plans completed within 12 months
- 2 points = The project will have all necessary engineering, designs, blueprints and work plans completed within 13 to 36 months
- 1 point = The project will have all necessary engineering, designs, blueprints and work plans completed in 37 months or more

Table 7 1: Project Selection Criteria Factors (cont'd)

Item 7

- 4 points = necessary authority and approvals to implement the project are complete (such as landowner approval, approval by a governing board, license, right or fee)
- 3 points = necessary authority and approvals to implement the project will be completed within 12 months
- 2 points = necessary authority and approvals to implement the project will be completed within 13 to 36 months
- 1 point = necessary authority and approvals to implement the project will be completed in 37 months or more

Item 8

- 2 points = This project qualifies as a Disadvantaged Community project and the local match may be waived
- 2 points = The proponent has secured non-state funding and/or in-kind services that will qualify for and meet the required minimum local match
- 0 point = The proponent has no non-state funding and/or in-kind services that qualifies for the required local match

The projects included in the Plan as of initial adoption are summarized in Table 7-2. Figure 7-1 shows a map of the Region with project locations for all of the submitted projects by project proponent.

7.3.1 Prioritized and Sorted Project Lists

Scoring and ranking of projects is presented in several ways to provide multiple perspectives in which stakeholders can compare and weigh the relative benefits of various projects. All projects included in the IRWM Plan are important to meet the objectives of the Region. The RWMG will encourage and support actions that advance all of the projects, regardless of their score. The purpose of sorting the project list in different ways is to allow stakeholders to "drill" down into the project list, and possibly find collaboration opportunities between efforts, or ways to enhance the project in the future. The RWMG and stakeholder group participated in deciding the different ways to sort the project list. Projects were sorted according to the following groupings and are provided on the following pages.

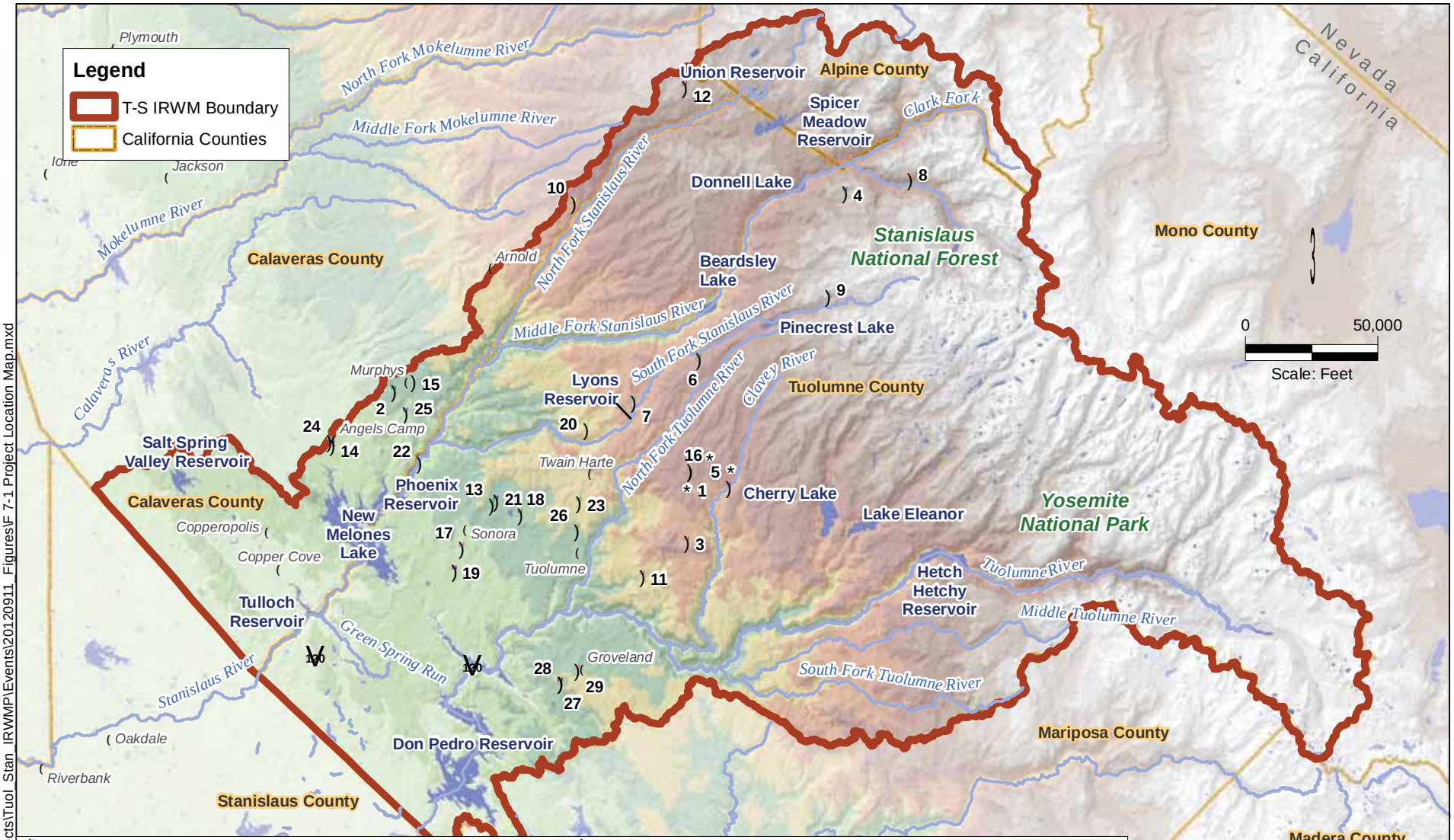
- Table 7-3: Average Total Criteria Score (average of the individual TRC Scores)
- Table 7-4: IRWM Program Preferences and Statewide Priorities (average score only)
- Table 7-5: Mandatory Selection Components (average score only)
- Table 7-6: Readiness to Proceed (average score only)

Table 7-2: Project Summary

Project No.	Project Name	Project Proponent(s)	Estimated Project Cost	Expected Start Date
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	$92,000	1/1/2013
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	$5,500,000	1/1/2013
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	$20,000	5/1/2014
4	Shell Meadow Restoration Project	Stanislaus National Forest	$47,625	8/1/2012
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	$264,731	3/1/2008
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	$303,745	4/1/2010
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	$18,500,000	12/1/2014
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	$2,638,495	9/1/2019
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	$1,937,556	8/1/2012
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	$470,304	7/15/2014
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	$948,800	5/9/2012
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	$90,000	5/1/2013
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	$1,200,000	3/1/2015
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	$1,000,000	6/1/2013
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	$872,000	12/1/2012
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	$242,375	1/1/2013
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	$250,000	1/1/2013
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	$20,000,000	3/1/2014
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	$23,900,000	3/1/2014
20	Section 4 Raw Water Storage	Tuolumne Utilities District	$8,000,000	3/1/2014

Table 7 2: Project Summary (cont'd)

Project No.	Project Name	Project Proponent(s)	Estimated Project Cost	Expected Start Date
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	$125,000	5/1/2013
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	$450,000	5/1/2013
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	$225,000	
24	Filter Backwash Water Settling Ponds and Recycling	City of Angels Camp	$1,200,000	6/1/2013
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	$978,500	1/1/2013
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	$109,500	5/1/2014
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	$672,000	9/1/2012
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	$1,232,000	9/1/2012
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	$1,369,000	9/1/2012



1-Water Quality Monitoring Enhancement Program, Tuolumne County Resource Conservation District
2-Wastewater Treatment Facilities Improvement Project, Murphys Sanitary District
3-Murphy Ranch Meadow Restoration, Tuolumne Band of Me-Wuk Indians
4-Shell Meadow Restoration Project, Stanislaus National Forest
5-Tuolumne-Stanislaus Meadow Protection & Restoration, Stanislaus National Forest
6-South Fork Stanislaus River watershed restoration - Lyons, Stanislaus National Forest
7-New Lyons Reservoir Planning/Environmental Compliance/Design and Permitting, Tuolumne Utilities District
8-Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project, Stanislaus National Forest
9-Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project (Version 2), Stanislaus National Forest
10-Prather-Medusa Stream Channel Restoration and Road Decommissioning, Stanislaus National Forest
11-Me-Wuk Complex Thinning/Murphy Ranch Area, US Forest Service/Stanislaus National Forest
12-Tamarack Springs Source Improvement Project, Tamarack Springs Mutual Water Company
13-Phoenix Bypass Ditch Pipeline, Tuolumne Utilities District
14-City of Angels Camp Secondary Water Supply, City of Angels Camp
15-Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd., Union Public Utility District
16-Small Acreage Land Stewardship Program, Tuolumne County Resource Conservation District
17-In-Home Water Conservation for the DAC, Amador Tuolumne Community Action Agency
18-Phoenix Lake Preservation and Restoration, Tuolumne Utilities District
19-West Ranch Recycled Water Reservoir, Tuolumne Utilities District
20-Section 4 Raw Water Storage, Tuolumne Utilities District
21-Meadow and Watershed Restoration/Foothill Horizons Outdoor School, Tuolumne River Trust
22-Watershed Outreach/Stewardship/and Water Efficiency Incentives, Tuolumne River Trust
23-Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor, Twain Harte CSD/Tuolumne Me-Wuk Tribal Council/TUD/Tuolumne Sanitary District
24-Filter Backwash Water Settling Ponds and Recycling Project, City of Angels Camp
25-Douglas Flat/Vallecito Storage Ponds, Calaveras County Water District
26-Tuolumne Rancheria Septic Abandonment Project, Tuolumne Me-Wuk Tribal Council
27-Big Oak Flat- Sewer LS #16 Reconstruction, Groveland Community Services District
28-Big Oak Flat-Water Distribution System Improvements, Groveland Community Services District
29-Groveland Townsite-Water Distribution System Improvements, Groveland Community Services District

Note: *Regional Projects

Kennedy/Jenks Consultants

Tuolumne - Stanislaus IRWM Plan

Project Location Map

August 2013
K/J 1170025*00

Figure 7-1

Path: Z:\Projects\Tuol_Stan_IRWMP\Events\20120911_Figures\F 7-1 Project Location Map.mxd

Table 7-3: Projects Sorted by Total Average Score

Project No.	Project Name *Maximum Points Possible*	Project Proponent(s)	Part 2- TS IRWM Objectives *56*	Part 3 + 4 - Prog. Pref. and Statewide Priorities *54*	Part 5 - Mandatory Selection Components *48*	Total Criteria Score *158*
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	**91**
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	**87**
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	**78**
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	**76**
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	**73**
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	**74**
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	**70**
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	31	**68**
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	**66**
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	**66**
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	**65**
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	**62**
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	**63**
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	**63**
11	M-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	**62**
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	**61**
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	**62**
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	**60**
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	**60**
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	**60**
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	**59**
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	**58**
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	**58**
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	15	12	30	**57**
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	**53**
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	**51**
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	**49**
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	9	8	28	**45**
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	**45**

Table 7-4: Projects Sorted by Program Preferences and Statewide Priorities Score

Project No.	Project Name	Project Proponent(s)	Part 2- TS IRWM Objectives	Part 3 + 4 - Prog. Pref. and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Criteria Score
	Maximum Points Possible		*56*	*54*	*48*	*158*
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	**33**	26	87
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	**22**	31	91
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	**21**	31	68
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	**21**	30	63
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	**20**	34	78
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	**18**	33	58
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	**18**	33	60
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	**18**	32	76
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	**17**	40	66
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	**16**	32	73
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	**15**	33	61
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	**15**	30	70
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	**15**	29	63
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	**14**	25	62
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	**13**	33	66
11	M-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	**13**	32	62
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	**13**	32	59
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	**13**	33	60
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	**13**	32	62
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	**13**	30	60
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	**13**	31	65
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	15	**12**	30	57
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	**12**	35	74
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	**11**	34	58
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	**11**	30	53
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	**10**	29	49
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	**9**	24	45
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	**8**	30	51
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	9	**8**	28	45

Table 7-5: Projects Sorted by Mandatory Selection Components Score

Project No.	Project Name	Project Proponent(s)	Part 2- TS IRWM Objectives	Part 3 + 4 - Prog. Pref. and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Criteria Score
	Maximum Points Possible		*56*	*54*	*48*	*158*
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	**40**	66
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	**35**	74
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	**34**	58
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	**34**	78
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	**33**	58
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	**33**	61
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	**33**	60
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	**33**	66
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	**33**	60
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	**32**	62
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	**32**	59
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	**32**	76
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	**32**	73
11	M-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	**32**	62
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	**31**	65
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	**31**	91
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	**31**	68
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	15	12	**30**	57
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	**30**	53
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	**30**	60
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	**30**	70
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	**30**	63
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	**30**	51
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	**29**	49
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	**29**	63
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	9	8	**28**	45
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	**26**	87
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	**25**	62
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	**24**	45

Table 7-6: Projects Sorted by Readiness to Proceed Score

Project No.	Project Name *Maximum Points Possible*	Project Proponent(s)	Part 2- TS IRWM Objectives *56*	Part 3 + 4 - Prog. Pref. and Statewide Priorities *54*	Part 5 - Mandatory Selection Components *48*	Total Criteria Score *158*	Readiness to Proceed *24*
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	66	**24**
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	58	**21**
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	61	**20**
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	49	**20**
11	M-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	62	**20**
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	65	**20**
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	51	**19**
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	66	**19**
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	58	**19**
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	60	**19**
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	59	**19**
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	76	**19**
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	62	**18**
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	78	**18**
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	73	**18**
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	63	**17**
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	74	**16**
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	15	12	30	57	**16**
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	63	**15**
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	31	68	**15**
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	60	**15**
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	53	**15**
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	9	8	28	45	**15**
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	60	**14**
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	91	**14**
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	45	**11**
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	62	**11**
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	70	**11**
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	87	**8**

7.3.2 Development of Future Projects to Achieve Plan Objectives

In addition to the projects or programs submitted, additional projects likely will be needed to fully satisfy all Plan objectives and the measureable planning targets (MPTs). Table 7-7 provides a list of the current 29 projects with the primary and/or secondary (if any) objectives, and MPTs the project will contribute to. The existing list of 29 projects addresses 8 of the 14 Objectives to varying degrees. However, Objectives F, G, H, I, J, N and many of the 60 MPTs do not have any linked primary projects. Future projects will be necessary for the Plan to address objectives/MPTs that were not covered by projects submitted during the Call for Projects. Project proponents have not yet been identified for all of these projects, and the details of the projects or programs will need to be developed further in the future. The types of projects and activities for the first several years of IRWM Plan implementation will likely include the following (alphanumeric in parentheses are the Objective and planning target associated with each activity):

- Annual Coordination Meetings to:
  - Identify sites with at-risk species (F.II) and meadow restoration opportunities (E.I)
  - Implement raw water conveyance improvements (K.II)
  - Develop and implement water use efficiency program (L.III)
  - Develop and implement stormwater Best Management Practices (N.IV)

- Biannual evaluation of:
  - Coordination of natural systems protection (F.I)
  - Reporting of special-status species (F.IV, F.V)

- Evaluation/Inventory of:
  - Water quality impacts on raw water conveyance/storage (B.II and H.IV)
  - Sanitary sewer overflows and costs (C.II)
  - Priority riparian plant habitat (G.I)
  - Invasive Species Management Plan (G.V)
  - Baseline study for energy efficiency and greenhouse gas emissions (J.I)

Future years of the IRWM Plan have other actions/projects associated with meeting IRWM Plan objectives and associated measurable planning targets.

Table 7-7: Projects Sorted by Objectives Met

Project No.	Project Name	Project Proponent(s)	Primary Objective	Secondary Objectives	Measurable Planning Target (s)
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	A	K	A.II; A.III, K.III
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	A	C	A.II; C.V
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	A	J,L,M	A.I;A.II; A.III; JII;LI;MI
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	A	J,L,M	A.I;A.II; A.III; JII;LI;MI
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	A	M	A.II; M.III; M.IV
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	B	D	B.I; B.III, D.III
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	B		B.I; B.III
16	Small Acreage Land Stewardship Program	Tuolumne County RCD	B	N	B.IV;B.VI
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	B		B.VII; B.VIII; B.IX
1	Water Quality Monitoring Enhancement Program	Tuolumne County RCD	B		B.VI
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	B	C, D, M, N	BII,BIII,BVI,CV, DIII, M.I
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	B		B.VII; B.VIII
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	C		C.II
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	C	B,L	C.I; L.II
24	Filter Backwash Water Settling Ponds and Recycling	City of Angels Camp	C	B	C.V
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	C	B, L	C.I; L.II
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	D		D.II
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	D	B,D,E,F,G	B.I; DIII, E.II; F.III; G.II
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	E	B, G	B.II; E.II; G.II
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	E	G	E.II; G.II
4	Shell Meadow Restoration Project	Stanislaus National Forest	E	F;G	E.II; F.III; G.II
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	E	G	E.II; G.II
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	E	G	E.II; G.II
	Objective F - No Projects Identified		F		
	Objective G - No Projects Identified		G		
	Objective H - No Projects Identified		H		
	Objective I - No Projects Identified		I		
	Objective J - No Projects Identified		J		
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	K	C,J,L, M	C.V; J.II, K.1; K.III; L.I; M.I
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	L		L.I
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	L		L.I
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	L	M	L..I; L.II;M.II
20	Section 4 Raw Water Storage	Tuolumne Utilities District	M		M.II
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	M	A,I	A.II; I.I; M.I; M.II
	Objective N - No Projects Identified		N		

Section 8: Impacts and Benefits

This section provides an overview of the impacts and benefits likely to be realized with implementation of the Tuolumne-Stanislaus (T-S) Integrated Regional Water Management (IRWM) Plan. The impacts and benefits discussed within this section are preliminary and high level due to the nature of the IRWM planning process; more rigorous impact and benefit evaluations usually occur through the project implementation process and are not available during the IRWM planning process. This impact and benefit analysis may be used as a benchmark throughout IRWM Plan implementation. As Plan performance is evaluated, the Regional Water Management Group (RWMG) might utilize this preliminary analysis to better understand if the potential benefits have been realized or if unanticipated impacts have occurred.

8.1 Benefits of Plan Implementation

8.1.1 Plan Benefits

The primary benefit of the T-S IRWM Plan is development of a framework supportive of collaborative regional planning; stakeholders have already begun seeing these benefits, even prior to adoption of the Plan. This IRWM Plan allows for Stakeholders in the community to implement a vision for watershed planning in the Region, and identify appropriate means to achieve this vision. Development of the IRWM Plan has created unique partnerships between local, State, Tribal and Federal entities that may not have happened otherwise. For example, the Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor project was established as a result of the IRWM Planning process and is being jointly sponsored by multiple local entities, with ongoing collaboration required to implement the project. The United States Forest Service, which is the largest land manager in the Region, has also been actively participating in the Plan development process and collaborating with local stakeholders.

The T-S IRWM Planning process fosters coordination, collaboration and communication among the many entities in the Region that previously had no formal forum for regional collaboration. The IRWM Planning process will result in greater efficiencies (e.g., efforts are not duplicated, information is shared), enhance public services, and facilitate greater public support for projects. As part of preparing this IRWM Plan, the regional agencies have provided input as to their ongoing water management activities, priorities, and projects. Knowledge of these activities and projects assists other agencies from duplicating efforts. Knowledge of each other's efforts has allowed Stakeholders to better coordinate and integrate project development. In addition, during IRWM Plan preparation, many of the agencies and non-profit groups shared the experience gained in implementing past projects – passing their knowledge and lessons-learned to others. For example, Amador-Tuolumne Community Action Agency was able to leverage their experience in implementing energy efficiency projects for low-income residents into development of a water use efficiency project targeted at Disadvantaged Communities. Efficiencies have also been achieved by cooperating on regional efforts rather than separate localized efforts. It is expected that these benefits will continue to grow as the Regional Water Management Group (RWMG) matures.

IRWM planning efforts endeavor to consider all potential components of watershed planning rather than focus on one particular area or one project type dominating. IRWM planning improves the likelihood that benefits and impacts are shared instead of one group or area reaping the benefits while another either receives no benefits or even bears redirected impacts.

IRWM planning efforts also increases the likelihood that projects that implement one particular objective (e.g., water supply) are considerate of other objectives (e.g., flood control or habitat preservation). As part of project integration, projects can be refined so that they achieve multiple objectives. The T-S IRWM Plan will also provide opportunities for otherwise separate agencies to speak as a unified region and to recommend improvements to policies, regulations and laws related to water demand, water supply, water quality, operational efficiency, and resource stewardship.

The 29 projects identified by this IRWM Plan address, at some level, elements of many of the Plan Objectives developed in Section 5. More projects will be added and developed in the future to fulfill additional Plan Objectives. As a result, full implementation of this IRWM Plan over the next 20 years will result in multiple benefits associated with these objectives. In addition, the IRWM Plan will provide for the following specific benefits through implementation of these projects:

- Water Supply and Conservation Projects. Projects related to water supply and conservation include implementing water distribution system improvements, investigating opportunities for new storage, identify potential conjunctive use programs, improving reliability of municipal supplies, increasing efficiency of existing water supply infrastructure, including fire flow and emergency storage with resulting improvements in public safety, improving domestic water conservation programs and implementing and expanding recycled water use. These projects would assist in maintaining the long-term sustainability of municipal and agricultural water supplies in the Region. Projects aimed at improved water use efficiency would result in lower demands, less energy use for treatment and delivery of water, and reduced need for water supply infrastructure.

- Projects to Improve and Protect Water Quality. T-S IRWM Plan projects include efforts to reduce contaminants in water sources by addressing sources such as soil erosion and urban runoff, upgrading wastewater collection and treatment within the Region, improving source water quality, upgrading drinking water treatment to meet Title 22 standards and implementing stormwater best management practices. The primary benefit from implementing these water quality projects would be the reduced potential for human exposure to potentially harmful substances as well as improving ambient water quality for ecological benefit. These projects would also improve the efficiency of both water and wastewater treatment processes. Besides improving drinking water quality, these projects would benefit other types of water users, such as agricultural water users and water dependent wildlife habitat and aquatic species.

- Resource Stewardship Projects. Projects related to resource stewardship include improving watershed health and ecosystem function, protection and recovery of sensitive, endangered or threatened species, reducing invasive species, and preserving and restoring sensitive habitats, like meadows, wetlands and riparian habitat. Implementation of these projects would improve habitat quality and would likely have the added benefit of improving overall watershed health function and source water quality.

- Efficiency-Related Projects. The IRWM Plan includes projects that improve energy efficiency, evaluate energy management or study opportunities for use of renewable energy. These projects have the potential to reduce greenhouse gas emissions, improve the efficiency of existing infrastructure and maximize the beneficial uses of resources.

Potential benefits and impacts from Plan implementation are summarized in Table 8-1.

Table 8-1: Potential Benefits and Impacts from Plan Implementation

Project Category	Within IRWM Region		Inter-Regional	
	Potential Benefits	***Potential Impacts***	***Potential Benefits***	***Potential Impacts***
Water Supply and Conservation Projects	• Enhanced supply reliability • Increased quantity of available water for beneficial uses • Reduced water demands • Less energy usage for treatment and delivery of water • Benefits extend to broad Region, including Disadvantaged Communities	Development of water supply projects could result in ground disturbance and have temporary impacts to aesthetics, air quality, biological resources, cultural resources, noise, soils, and transportation systems. No environmental justice or DAC impacts are anticipated.	Improved water supply reliability and reduced water demands within the T-S Region could impact regional and state-wide water supply reliability.	No inter-regional impacts anticipated.
Projects to Improve and Protect Water Quality	• Reduced human and ecological exposure to pollutants • Improved efficiency of drinking water supply and wastewater treatment • Preservation of aquatic habitat • Improvement to agricultural users • Improvement of water-based recreation • Benefits extend to broad Region, including any Disadvantaged Communities	Projects to improve water quality that involve construction could result in temporary impacts to aesthetics, air quality, biological resources, cultural resources, noise, soils, and transportation systems. No environmental justice or DAC impacts anticipated.	Improved water quality in the T-S Region would also benefit the Eastern San Joaquin and East Stanislaus IRWM Regions as well as the Sacramento-San Joaquin Delta and San Francisco Bay and associated groundwater basins.	No inter-regional impacts anticipated.

Table 8 1: Potential Benefits and Impacts from Plan Implementation (cont'd)

Project Category	Within IRWM Region		Inter-Regional	
	Potential Benefits	***Potential Impacts***	***Potential Benefits***	***Potential Impacts***
Projects to Promote Resource Stewardship	• Improved habitat quality • Reduced risk to native species from invasive species • Improved water supply • Improved water quality • Benefits extend to broad Region, including any Disadvantaged Community	Projects to remove invasive species could have temporary negative impacts to aesthetics, biological resources, cultural resources, and soils. No environmental justice or DAC impacts anticipated.	Removal of invasive species in the T-S Region would reduce the transport and deposition of invasive species to the San Joaquin River, the Sacramento-San Joaquin Delta and San Francisco Bay.	No inter-regional impacts anticipated.
Efficiency-Related Projects	• Reduced greenhouse gasses • Potentially improved air quality • Improved efficiency of existing infrastructure • Reduced need for new infrastructure • Maximize beneficial use of resources • Benefits extend to broad Region, including any Disadvantaged Communities	Development of efficiency-related projects could result in ground disturbance and have temporary impacts to aesthetics, air quality, biological resources, cultural resources, noise, soils, and transportation systems. No environmental justice or DAC impacts anticipated.	Improved public awareness about watershed protection and public support of IRWM projects could benefit public support of neighboring IRWM planning efforts.	No inter-regional impacts anticipated.
Actions to Adapt to Climate Change	Actions to incorporate climate change will occur in conjunction with other types of projects described above, as appropriate.			
Actions to Reduce Greenhouse Gas Emissions	Actions to incorporate greenhouse gas emissions reduction will occur in conjunction with other types of projects described above, as appropriate.			

8.1.2 Plan Beneficiaries

The potential beneficiaries of the T-S IRWM Plan are residents of the Region, water agencies, local, State and Federal agencies, businesses, recreational users within the Region and downstream, wildlife and associated habitats within the Region and downstream, downstream water users, and others within the jurisdictions served by IRWM Plan projects. These beneficiaries are represented by members of the RWMG and the larger stakeholder group.

Six projects were identified by the project proponents as benefiting Disadvantaged Communities (DAC). These projects are primarily focused on improving water supply infrastructure and water quality. Meeting the IRWM objectives will benefit the Region as a whole, not just in the vicinity of the individual project. DACs in the Region will benefit from implementation of this IRWM Plan and agencies supporting DACs are expected to play a further role sponsoring or cosponsoring projects throughout IRWM Plan implementation.

8.1.3 Interregional Benefits

The three major watersheds within the T-S Region (Upper Tuolumne River, Upper Stanislaus River, and Upper Rock Creek-French Camp Slough) are tributary to the San Joaquin River, which is a major supply to the Sacramento-San Joaquin Delta and the San Francisco Bay. Therefore, projects implemented in the upper watersheds of the Region are likely to directly impact downstream IRWM Plan efforts in the neighboring Eastern San Joaquin and East Stanislaus IRWM Regions, as well as the Bay Area IRWM Region, which receives water directly from the Upper Tuolumne River. It is likely that projects to enhance and protect the watershed, improve water quality and reduce sources of pollution would have downstream benefits. Because the Region is bounded by the Sierra Nevada mountain range to the east, projects are unlikely to directly impact IRWM Plan efforts in the neighboring Inyo-Mono region. The portions of the San Joaquin River headwaters watersheds adjacent (to the south) of the T-S Region, would also be minimally impacted, if at all, by implementation of T-S IRWM, but could collaborate on activities of mutual benefit.

8.2 Impacts of Plan Implementation

Negative impacts that may be associated with the T-S IRWM Plan projects include (1) short-term, site-specific impacts related to site grading and construction, and (2) long-term impacts associated with project operation. For the purposes of this IRWM Plan, impacts are discussed at a screening level below.

Project-specific and/or programmatic environmental compliance processes (consistent with the California Environmental Quality Act [CEQA] and, if applicable, the National Environmental Policy Act) will evaluate the significance of the impacts. Under CEQA, impacts determined to be significant must be mitigated to a level of non-significance (unless the lead agency makes findings of overriding consideration). The IRWM Plan itself does not lead to the implementation of any specific project. It has been determined that the IRWM Plan itself is exempt from CEQA. The following provisions of the State CEQA Guidelines apply:

- Statutory Exemption (15262 - Feasibility and Planning Studies)
- Categorical Exemption (15306 - Information Collection)

CEQA review of specific projects will provide an evaluation of impacts in much greater detail than discussed below:

- Aesthetics. Projects that include construction activities and new infrastructure have the potential to affect aesthetics. However, it is likely that projects would be constructed in areas that are already disturbed, or would include mitigation measures that would return disturbed areas to their pre-construction conditions.

- Air Quality. Short-term air quality impacts could result from construction of IRWM Plan projects. However, through the CEQA process potential air emissions would be minimized through application of Best Management Practices (BMPs) identified by the Air Quality Management District or mitigation measures.

- Biological Resources. Short-term biological impacts could result from construction activities, as well as non-native plant removal. Most of these negative effects would be avoided or minimized through mitigation efforts related to CEQA. Additionally, the IRWM Plan includes preservation and improvement of ecosystem health as the focus of several of its objectives. Thus, if implemented, Plan projects could result in overall benefits to biological resources.

- Cultural Resources. Impacts to cultural resources (historical, archeological, and paleontological resources) could result from construction activities from Plan projects. As part of the CEQA process, it will be necessary to develop mitigation measures to avoid or minimize these potential impacts.

- Geology and Soils. Plan projects with the potential to impact geologic resources would be required to undergo geological feasibility studies which would specify the appropriate engineering standards the contractor would have to comply with during construction. Compliance with these standards would mitigate project site geological and soil impacts.

- Hydrology and Water Quality. It is anticipated that impacts to hydrology and water quality would be generally beneficial because in the long-term Plan projects are intended to improve water supply reliability and water quality. For short-term erosion or sedimentation, project-specific BMPs would be identified as part of the construction related NPDES permitting process.

- Land Use and Planning. The Plan projects were evaluated as to their compatibility with other planning documents for the Region, including local and regional General Plans. Therefore, no significant land use changes or inconsistencies with policies are anticipated. It is hoped that the IRWM process can facilitate improvement of land and water use planning in the Region.

- Noise. Noise impacts could result from construction activities from some of the proposed projects. However, through the CEQA process most of these activities would be minimized through mitigation efforts and no long-term noise impacts are expected.

- Population and Housing. No adverse impacts to population and housing are anticipated. IRWM Plan implementation would help to meet the water demands of the existing and anticipated future population.

- Public Services and Utilities. Many of the IRWM Plan projects are intended to enhance water supply, water quality, and improve storm water management and flood control. These types of projects would benefit the utilities and service systems in the Region.

- Recreation. Impacts to recreation from IRWM Plan implementation are likely to be beneficial due to improved watershed health. However, some reduction in recreational opportunities may result from implementation of habitat restoration/improvement projects.

- Transportation and Circulation. Transportation and circulation could be temporarily impacted during construction of some of the Plan projects. Construction can temporarily increase traffic congestion due to transportation of equipment and trips by workers. Construction of projects located near roadways can result in temporary lane closures and detours. However, through the CEQA process most of these activities would be avoided or minimized and no long-term transportation and circulation impacts are expected.

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Section 9: Plan Implementation Framework

9.1 Introduction

This section documents the relationships and decision-making structure recommended for use during the continued development and implementation of the Tuolumne-Stanislaus Region (T-S Region, Region) Integrated Regional Water Management Plan (IRWM Plan) over the next 20 years. It also sets forward a proposed framework for Plan implementation and guidelines for performance monitoring to track progress, and it offers suggested initial Plan implementation activities. This section is intended to serve as the cornerstone of critical actions the Region must take to ensure the success of the IRWM program into the future. The governance structure recommendations included in this section are intended to be consistent with the Integrated Regional Water Management Guidelines for Proposition 84 and Proposition 1E published by the California Department of Water Resources (DWR) in November 2012.

9.2 Recommended Governance Structure for Plan Implementation

Once the T-S IRWM Plan has been adopted, the focus of the Regional Water Management Group (RWMG) and stakeholders will change significantly. Some of the activities conducted during Plan development will continue, but the emphasis will shift from planning toward implementation and tracking of progress. Implementation of the T-S IRWM Plan will rely on actions taken by existing agencies and organizations within the Region. In order to implement the Plan in an open and definitive way, each Region is required to develop a governance structure consistent with the Propositions 84 and 1E IRWM Guidelines. The guidelines state: “The IRWM Plan must document a governance structure that ensures the IRWM Plan will be updated and implemented beyond existing State grant programs.” The proposed governance structure was developed to reflect the discussions of the Planning Grant Committee (PGC) and numerous stakeholders to provide a means for the Region to maximize functionality, open participation in the Plan, and help assure Plan longevity and stability.

9.2.1 Organizational Structure and Function

The following provides the proposed governance model for consideration to include in the T-S IRWM Implementation Framework section. The recommendations in this section are not binding, and it is expected that any final provisions and institutional arrangements for IRWM program implementation will be decided outside of the IRWM Plan development process. Figure 9-1 shows the proposed IRWM Program organizational structure.

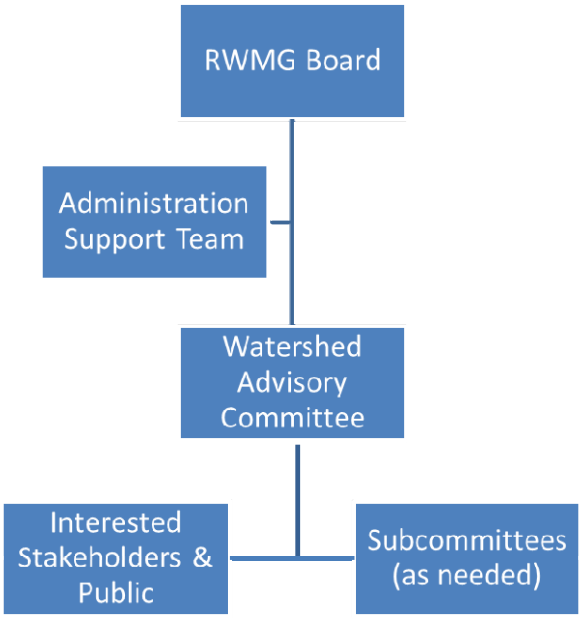


Figure 9-1: Proposed T-S IRWM Program Governance Model

It is anticipated that the implementation governance structure will be formed using a Joint Powers Authority (JPA) for the RWMG Board and an agreement document (Agreement) such as a Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA) for the Watershed Advisory Committee (WAC). A JPA is a legal agreement between two or more public agencies including Native American tribes in accordance with Chapter 5 of Division 7 of Title 1 of the Government Code of the State. A JPA differs from an organization formed under an MOU in that it has specific legal obligations, such as following the Brown Act similar to a public agency. In addition, it is agreed that the RWMG Board will charter the Watershed Advisory Committee (WAC).

While it is anticipated that the majority of IRWM Plan implementation activities will occur at the WAC level, the JPA will act on recommendations of the WAC as well as provide continuity, financial stability, and final decision-making for all matters related to implementation of the IRWM Plan. The WAC will be formed with its purpose, powers, procedures, governance principles, and other related matters documented in a MOA/MOU or other document approved by the JPA. It is anticipated that the WAC will be governed by governance principles similar to the current IRWM Plan Planning Grant MOU that was used to constitute the existing PGC. It is anticipated that the JPA Agreement will be executed around the same time the IRWM Plan is adopted and that the program will include the terms described below:

- The governance structure will be modified from that used during Plan development. The JPA will be formed to provide stability during program implementation. Organizational bodies will include the RWMG Board of Directors (JPA Board), the WAC, the Administration Support Team (AST), and, if needed, subcommittees.

- The RWMG would be reconvened under a Joint Powers Authority (JPA). The RWMG would include a minimum of three agencies, two of which have statutory authority over water, per the IRWM Guidelines.

- The RWMG will select a Chair and Vice-Chair each year to provide leadership for the activities being performed by the T-S IRWM. The Chair and Vice-Chair will not be from the same organization.

- Each RWMG member would designate an individual and an alternate to represent their agency on the RWMG Board.

- The Board would be the decision-making entity with respect to the IRWM Program to include recommendations put forward by the WAC, financial matters including budget setting, and be responsible for management of the AST, if needed. The Board will be more policy-focused and therefore may include senior management and/or elected officials of its member entities, as delegated by the individual members' governing bodies.

- The WAC would be comprised of all interested Watershed stakeholders who sign the WAC agreement document. The WAC Agreement document will include the same governance principles as the current PGC MOU. Membership of the WAC may include water agencies, federal and state agencies, non-governmental organizations, city and counties, and other organizations with interests in water in the Region. The WAC will provide more detailed, project/program focused, and technical information and recommendations than the RWMG Board, and therefore is likely to be comprised of the staff of its member entities.

- The WAC will select a Chair and Vice-Chair each year to provide leadership for the activities being performed by the T-S IRWM. The Chair and Vice-Chair will not be from the same organization.

9.2.2 Roles and Responsibilities

The stakeholders and RWMG need to work together to ensure successful plan implementation and each of the following groups will have vital roles and responsibilities:

- Tuolumne-Stanislaus Regional Water Management Group

- Tuolumne-Stanislaus Watershed Advisory Committee

- Administration Support Team

- Public and Interested Stakeholders

- Subcommittees

- Project Proponents

It should be noted that individuals may participate in more than one group fulfilling different roles as needed.

The RWMG Board, in collaboration with the WAC, will provide leadership for fostering cooperation, continuing coordination, tracking of Plan performance, and updating of the IRWM Plan. The WAC may in turn form stakeholder subcommittees to help focus collaboration and progress on specific topics or objectives. Some of the subcommittees may be "ad hoc" and only

exist for a few meetings to accomplish a specific task, while others may be long lasting with regular reporting responsibilities to the WAC.

The narrative that follows describes some of the specific roles and responsibilities of various participants involved in plan implementation. Table 9-1 that follows summarizes the overall activities of IRWM Implementation that were identified by the PGC. Activities that are listed in the Guidelines are shown as “required”, while other activities such as establishing and funding a local administration budget are marked “additional”. IRWM Implementation is not intended to interfere with or supersede actions taken by local agencies to fulfill the local agencies’ authorized duties. It should be noted that while some of the activities in the RWMG column may actually be performed by the Administrative Support Team, it is considered a RWMG responsibility as the RWMG provides funding for and oversight of the Administration Support Team.

Table 9-1: Activities, Participants, and Roles for Implementing the Tuolumne-Stanislaus IRWM Plan

Activities	RWMG with Admin. Support Team	WAC / Subcommittees	Project Proponents	Required	Additional
1. Foster Effective Communication					
a. Establish Point of Contact for IRWM Program	Coordinate			X	
b. Facilitate efficient and effective communication within implementing organizations including discussion of project integration	Coordinate	Support		X	
c. Facilitate efficient and effective communication outside of T-S Region and with DWR IRWM Program staff	Coordinate			X	
d. Maintain efficient and effective communication with the participating entities within the Region, the general public and the media, as needed.	Coordinate	Support		X	
e. Coordinate with neighboring IRWM Regions	Coordinate	Support		X	
f. Coordinate with local, state, and federal agencies	Coordinate	Support		X	
2. Conduct Stakeholder Meetings[(a)]					
a. Schedule meetings[(a)]	Coordinate			X	
b. Prepare agendas	Coordinate	Coordinate/ Support		X	
c. Prepare content	Coordinate	Coordinate/ Support		X	
d. Facilitate meetings	Coordinate	Coordinate		X	
e. Prepare meeting summaries	Coordinate	Coordinate/ Support		X	
3. Engage Public/DAC/Tribal Communities					
a. Maintain e-mail list	Coordinate	Support			X
b. Send announcements / invitations with meeting and other content	Coordinate	Coordinate			X

Activities	RWMG with Admin. Support Team	WAC / Subcommittees	Project Proponents	Required	Additional
4. Maintain Tuolumne-Stanislaus Website					
c. Administer site, and update content with meeting materials, and other relevant information	Coordinate	Support			X
5. Finance Implementation Coordination Activities					
a. Set annual operating budget for implementation/coordination	Coordinate			X	
b. Secure local funding to support operating budget annually	Coordinate				X
c. Manage expenditures of implementation/coordination activities	Coordinate			X	
6. Identify Grant Opportunities					
a. Communicate information on upcoming funding	Coordinate	Support		X	
b. Improve project integration and select projects for inclusion in grant applications	Co-Coordinate			X	
c. Prepare and submit grant applications	Support	Support	Lead	X	
7. Promote Progress on Plan Objectives					
a. Evaluate Plan Performance and Monitoring for Meeting Objectives	Coordinate	Support	Support	X	
b. Review and act on objectives/targets not accounted for in projects	Coordinate	Support	Support	X	
c. Gather and synthesize data related to Plan progress and report to stakeholders	Coordinate	Support	Support	X	
8. Update Tuolumne-Stanislaus IRWM Plan					
a. Review and update objectives	Coordinate	Support			X
b. Solicit new or revised/integrated projects, provide project evaluation/scoring and regularly revise project and update project priorities, as needed	Coordinate	Support		X	
c. Revise plan content at least every 5 years	Coordinate	Support		X	
9. Manage and Share Related Data and Information					
a. Identify the operational data that should be measured and managed to meet the goals and objectives of the IRWM Plan	Support	Coordinate			X
b. Gather, store, and manage the needed data and information including monitoring information to track meeting plan objectives		Coordinate	Support		X
c. Provide access to the needed information	Coordinate	Support			X

(a) In addition to the RWMG meetings, separate WAC meetings will be initiated and led by the WAC Chair/Vice chair.

9.2.2.1 Regional Water Management Group

The primary function of the RWMG formed under the JPA will be to develop an annual budget, manage funds required to fulfill the primary roles of the RWMG, and implement the Plan pursuant to the approved objectives. In its administration of the Plan, the RWMG will also be responsible for retaining an Administration Support Team as required. The RWMG will act on all matters necessary for IRWM Plan implementation including WAC recommendations.

9.2.2.2 Watershed Advisory Committee

The main purpose of the WAC is to provide leadership and focus on a more detailed, project/program level toward long-term collaboration and cooperation among implementing agencies and organizations to meet the Plan objectives. The primary roles of the WAC (on behalf of the RWMG) could include:

- Improve collaboration efforts to support development of integrated, regionally focused projects.
- Foster continued communication among stakeholders within the Region that support implementation of the T-S IRWM Plan.
- Assist Project Proponents in pursuit of grant funds to help implement projects included in the IRWM Plan. (Note: One or more agencies or organizations within the Region will serve as a fiscal agent on behalf of the RWMG to manage any grant funds received.)
- Conduct WAC meetings to provide opportunities for discussion and balanced access regarding Plan implementation and future updates or revisions to the T-S IRWM Plan and provide recommendations to the RWMG Board for consideration.
- Coordinate with neighboring IRWM efforts, state agencies, and federal agencies.
- Promote, track and report on progress toward meeting the Plan objectives.
- Recommend a process for updating or amending the T-S IRWM Plan.

9.2.2.3 Administration Support Team

The Administration Support Team (AST) will provide the logistical, management and staff support to ensure the activities that need to be accomplished are completed in a timely manner. The AST can include individuals who are hired for this role or designated to serve in this role while employed within another agency or organization within the Region or employed by retaining consultants. The AST responsibilities could include setting and distributing WAC meeting agendas and materials, supporting data management and plan performance monitoring activities, tracking grants and overall project implementation progress. The AST could be led by an IRWM Coordinator.

9.2.2.4 Public and Interested Stakeholders

A collection of people who chooses to participate in the T-S implementation activities.

9.2.2.5 Subcommittees

The WAC may choose to organize one or more small group(s) of people chartered to focus on a particular topic related to implementation of the T-S IRWM Plan (e.g., to recommend strategies which support accomplishing objectives D through G to improve watershed health, species protection and ecosystem function). Subcommittees may include members from the WAC, RWMG, and other stakeholders. Subcommittees will report and provide recommendations to the WAC depending on the topic that is being discussed. It is recommended that subcommittees have a chairperson and a written charter and that the subcommittee composition and charter be reviewed at least every two years, or as needed.

9.2.2.6 Project Proponents

Agencies or organizations who are implementing projects (including feasibility studies, data collection and analysis, etc.) are project proponents of the Plan. Projects included and tracked by the T-S IRWM Plan may include projects funded (in whole or in part) by IRWM grant funds, as well as projects and programs funded independently. Project proponents will be responsible for implementing the projects contained in the T-S IRWM Plan, and, if funded by IRWM grant funds, will be required to submit project-specific monitoring information to inform progress towards achieving Plan objectives.

It is envisioned that the project proponents will have the following roles and responsibilities:

1. Provide project-specific information for the regional project database that may aid in advancing the Plan's regional objectives.

2. Seek opportunities to integrate, where possible and practical, Plan projects in the database to most efficiently achieve the regional objectives. This process may be initiated and facilitated at stakeholder meetings, but it is expected that project proponents will further develop these opportunities outside of that forum.

3. Provide updated project-specific information for the regional project database as necessary to reflect major project milestones (e.g., CEQA completion, 100% design, construction underway, construction complete, and project completion). This particular role is a critical element of Plan implementation and is in the best interest of the project proponents, since having updated information available will help projects when applying for financial assistance.

4. Participate in WAC meetings to educate others about the proponent's project(s) in the database. This will happen naturally as a result of casual collaboration with others, but may also be in the form of presentations at WAC meetings.

5. Identify a point person for each project who will provide, in a timely manner, to the WAC and/or consultant, requested information for projects for inclusion in a grant application.

6. Identify a point person for each project who will provide, in a timely manner, to the grantee and/or consultant, requested information for projects selected for funding through a funding agency.

7. Comply with grant requirements, as identified by the funding agency, to qualify for grant funding.

9.2.3 Balanced Access and Opportunity for Participation

One of the most important aspects of Plan implementation is processes to ensure that the public and interested stakeholders continue to be involved. This will be accomplished through multiple avenues of communication and engagement among the RWMG, WAC and stakeholders, including, at minimum, the following:

- The RWMG/AST will conduct outreach, create content in coordination with the WAC, and facilitate at quarterly (minimum frequency) RWMG meetings. In addition, the RWMG will support the WAC on separate technical meetings. The WAC will communicate to the RWMG the results of Subcommittee work. During the meetings, all WAC Agreement signatories are invited to participate as equals in the interaction to reach consensus on the implementation of the Plan.

- The RWMG/AST will continue to foster dialog with Tribes and representatives of the Disadvantaged Communities and environmental justice communities within the Region as needed to support meeting the objectives of the Plan.

- The RWMG/AST will post meeting materials and other relevant information and invite review and comment from any interested person or organization.

9.2.3.1 Internal and External Communication

Multiple avenues of internal and external communication will be facilitated by the RWMG/AST including:

- Prepare communication materials for distribution, posting on the project website, and for use in meetings with governing boards and other interested parties.

- Conduct meetings at least quarterly that are announced and open to any stakeholder.

- Ensure that individuals are assigned to meet and coordinate with neighboring IRWM planning efforts, other local, state, and federal agencies as they relate to accomplishing the objectives in the T-S IRWM Plan.

- Ensure that engagement occurs with neighboring IRWM efforts and other state and federal agencies that have interests or could impact meeting the objectives of the Plan. The RWMG/AST will continue to communicate with DWR regional representatives.

9.2.3.2 Public Involvement Processes

All organizations and individuals with an interest in improving water management in the Region are invited to participate in Plan implementation. The RWMG recognizes that a committed public outreach and notification process is a necessary task to ensure the public is aware that there are multiple opportunities to become involved in the program. Disadvantaged Communities and Tribes will continue to be an important aspect of outreach in the Region. The public involvement processes to be completed by the RWMG/AST include:

- Coordinate WAC/Stakeholder Input meetings at least once per quarter to discuss relevant topics of progress on implementation of the T-S IRWM Plan. The WAC may convene additional meetings as desired to support fulfilling the objectives of the Plan.

- Maintain and update content to the T-S IRWM Plan website.
- Maintain a contact e-mail and phone number for people to send comments or ask questions about the T-S IRWM Plan.
- Maintain the T-S stakeholder e-mail list and send updates and meeting invitations as appropriate.

The WAC will coordinate the activities of Subcommittees (if required) including tracking of subcommittee membership, scope of subcommittee activities, and maintaining documentation of subcommittee recommendations to the WAC.

9.2.4 Decision Making

The RWMG Board will receive WAC recommendations related to plan update and implementation including project solicitation. The RWMG will directly consider financial, personnel management, and communication and outreach issues. The RWMG must act on recommendations from the WAC. Decisions of the RWMG will require a majority vote of a quorum of the RWMG board. The WAC will likely operate under Governance Principles similar to that defined in the 2012 updated governance principles found in Appendix A. The specific details of decision-making will be described in the JPA formation agreement and documents related to formation of the WAC.

All WAC Agreement signatories will be invited to participate as equals during WAC meetings to discuss implementation activities to meet the objectives in the IRWM Plan. Members of the public will be invited to participate as well, but will not have a voting role. The WAC will set agendas, interact with stakeholders, and foster collaborative decisions as described in Table 9-1.

9.3 Plan Financing

Financing of an IRWM Plan is an enormous undertaking and requires the contributions and attention of local, state, and federal agencies to ensure success. Financing of this T-S IRWM Plan involves two distinct tracks: funding of IRWM Plan administration and coordination and funding of project implementation. This section highlights the anticipated funding needs for both tracks, identifies potential funding sources, and documents some of the activities that the RWMG and others will employ to secure additional funding.

9.3.1 Funding Needs

9.3.1.1 Implementation Administration Funding

Development of the IRWM Plan was funded by the RWMG and an IRWM Planning grant from the DWR. However, these funds cannot be spent on implementation activities, so one of the first steps to implement the IRWM Plan is to establish a budget and funding source to support implementation coordination. These could include activities undertaken by the WAC and/or Administration Support Team to plan for and conduct stakeholder input meetings, track plan implementation (including progress towards completing plan objectives and projects), and conduct ongoing public outreach and engagement as described in the governance sections.

Specific funding needs have not yet been confirmed, and so it is anticipated that the following steps will be taken to establish a funding mechanism for this task:

- The RWMG Board will establish an annual operating budget to fulfill the activities of the AST.
- Members of the RWMG (and potentially other agencies/organizations within the Region) may provide funds or in-kind services to fulfill the roles of the WAC and administrative support.
- The RWMG Board may direct the expenditure of implementation coordination funds for any of the roles defined for the WAC and administrative support.

9.3.1.2 Project Implementation Funding

As of June 2013, twenty-nine projects are included in the IRWM Plan. All of the projects provided funding information, with a total estimated funding need of $92.6 million. Of the twenty-nine projects, several are projects currently at the early planning or feasibility study stage, which is an indicator that the overall funding needs will likely increase as these projects progress and are developed into implementable projects, programs, or actions, and as other projects are added to the IRWM Plan. Table 9-2 summarizes financing needs and the availability of capital and operations and maintenance funding sources based on information provided by project proponents. The asterisked projects were submitted for an IRWM Round 2 Implementation grant in March 2013. It is recommended that this table be updated and included in the annual report each year.

Table 9-2: Project Financing Summary

Project No.	Lead Agency/Organization	Project Title	Approximate Total Cost	Funding Source and % of Total Cost	Funding Certainty/Longevity
1	Tuolumne County Resource Conservation District	Water Quality Monitoring Enhancement Program	$92,000	None	Unsecure
2*	Murphys Sanitary District	Wastewater Treatment Facilities Improvement Project	$5,500,000	None	Unsecure
3	Tuolumne Band of Me-Wuk Indians	Murphy Ranch Meadow Restoration	$20,000	None	Unsecure
4	Stanislaus National Forest	Shell Meadow Restoration Project	$47,625	NFWF grant; 18%; USFS: 28%	Secure - NFWF Grant Awarded and Part of USFS Budget
5	Stanislaus National Forest	Tuolumne-Stanislaus Meadow Protection & Restoration	$264,731	RAC 25%; Sierra Nevada Conservancy Grant 10%	Secure - RAC Appropriated Funds and Awarded Grant Funding

Project No.	Lead Agency/Organization	Project Title	Approximate Total Cost	Funding Source and % of Total Cost	Funding Certainty/Longevity
6	Stanislaus National Forest	South Fork Stanislaus River watershed restoration - Lyons	$303,745	CMLG Legacy Roads Funds; 34%	Secure - non-recurring competitive funds.
7	Tuolumne Utilities District	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	$18,500,000	None	Unsecure
8	Stanislaus National Forest	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	$2,638,495	CERCLA; 89%	Secure - Funds Spent
9*	Stanislaus National Forest	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	$1,937,556	ARRA/FERC Relicensing Projects; 71%	Secure
10	Stanislaus National Forest	Prather-Medusa Stream Channel Restoration and Road Decommissioning	$470,304	CMLG, appropriated NFRW & CWFS funds; 47%	Secure - CMLG Awarded Funds and appropriated NFRW & CWFS Funds
11	US Forest Service, Stanislaus National Forest	Mi-Wok Complex Thinning, Murphy Ranch Area	$948,800	ARRA, ERFO, CMLG, & internal appropriated funds; 26%	Secure - ARRA, ERFO, CMLG Awarded Funds and Internal Appropriated Funds
12	Tamarack Springs Mutual Water Company	Tamarack Springs Source Improvement Project	$90,000	None	Unsecure
13	Tuolumne Utilities District	Phoenix Bypass Ditch Pipeline	$1,200,000	None	Unsecure
14	City of Angels Camp	City of Angels Camp Secondary Water Supply	$1,000,000	None	Unsecure
15	Union Public Utility District	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	$872,000	None	Unsecure
16*	Tuolumne County Resource Conservation District	Small Acreage Land Stewardship Program	$242,375	None	Unsecure
17*	Amador Tuolumne Community Action Agency	In-Home Water Conservation for DACs	$250,000	None	Unsecure

Project No.	Lead Agency/Organization	Project Title	Approximate Total Cost	Funding Source and % of Total Cost	Funding Certainty/Longevity
18*	Tuolumne Utilities District	Phoenix Lake Preservation and Restoration	$20,000,000	None	Unsecure
19	Tuolumne Utilities District	West Ranch Recycled Water Reservoir	$23,900,000	None	Unsecure
20	Tuolumne Utilities District	Section 4 Raw Water Storage	$8,000,000	None	Unsecure
21	Tuolumne River Trust	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	$125,000	TRT funds; 4%	TRT Funds
22*	Tuolumne River Trust	Watershed Outreach, Stewardship, and Water Efficiency Incentives	$450,000	TRT funds; 1%	TRT Funds
23	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	$225,000	None	Unsecure
24	City of Angels Camp	Filter Backwash Water Settling Ponds and Recycling Project	$1,200,000	None	Unsecure
25*	Calaveras County Water District	Douglas Flat/Vallecito Storage Ponds	$978,500	None	Unsecure
26	Tuolumne Me-Wuk Tribal Council	Tuolumne Rancheria Septic Abandonment Project	$109,500	None	Unsecure
27*	Groveland Community Services District	Big Oak Flat- Sewer LS #16 Reconstruction	$672,000	GCSD funds; 0.07%	Ratepayer Revenue
28	Groveland Community Services District	Big Oak Flat-Water Distribution System Improvements	$1,232,000	GCSD funds; 0.05%	Ratepayer Revenue
29	Groveland Community Services District	Groveland Townsite-Water Distribution System Improvements	$1,369,000	GCSD funds; 0.04%	Ratepayer Revenue
Total			**$92,638,631**		

9.3.2 Potential Funding Sources

9.3.2.1 Stakeholder Funding

Funding sources are rarely assured far in advance of project implementation. Additionally, many agencies have encountered challenges to securing project funding as grant programs have become more competitive and agency budgets have become significantly constrained during the recent economic downturn. It is understood that funding is required to implement (that is, to construct) projects, as well as operate and maintain the project after initial construction is completed. In most cases, it will be the responsibility of the project proponents to ensure that initial construction and operations and maintenance funding needs are met for specific projects. Despite limited funds, most agencies do have a variety of funding tools available including:

- Ratepayers,
- Operating funds,
- Water enterprise funds,
- Special taxes, assessments, and fees,
- State or federal grants and loans,
- Private loans, and
- Local bonds.

9.3.2.2 Grants and Other Sources

The RWMG/AST will work with the WAC to research, identify and pursue grant funds that could help implement the projects and meet the objectives included in the T-S IRWM Plan.

The RWMG will not serve as a fiscal agent for grant funds, but rather will identify a willing agency or organization with the appropriate authority and financial management capacity to serve as a fiscal agent on behalf of the Region, as necessary, for each specific grant opportunity that is pursued. Some grant programs may require a single grantee for a Region while others can be applied for by individual member agencies.

The fiscal agent(s) may distribute grant funds to other project proponents within the Region according to the specific terms of the grant program that provides funds. The project proponents whom receive grant funds will be responsible to complete their project(s) as described in the relevant grant application and/or grant agreement. The fiscal agent will not be responsible to fund or complete projects for other project proponents outside of the specific commitments made in a particular grant agreement.

The RWMG/AST will track the amount of grant funds brought into the Region to support implementation of the IRWM Plan and the specific projects being funded (or partially funded) with grant funds. The RWMG/AST will include this information in their annual report of Plan performance.

9.4 Plan Performance and Monitoring

Another important element of successful Plan implementation is a well-developed approach to performance and monitoring. This section describes such an approach, including monitoring, adjustments, and data sharing in order to meet the 2012 IRWM Guidelines. The key elements of plan performance and monitoring involve tracking of project implementation and progress towards achieving objectives and the individual measurable planning targets (MPTs). This tracking will be monitored in a Data Management System described in the following section and will provide key information to inform the WAC and stakeholders as to whether the Plan is being implemented as intended, or whether updates or other changes are needed to keep the Plan on track.

The tracking and monitoring of plan performance does not replace required regulatory reporting by specific agencies within the Region. Plan performance tracking is being done to monitor progress on Plan implementation and provide information that can be useful for continuing implementation of, updating or amending the Plan.

9.4.1 Project-Focused Performance Monitoring

Project implementation will be tracked as part of the IRWM Plan Implementation activities included in the topic area: Update Tuolumne – Stanislaus IRWM Plan and Manage and Share Related Data and Information. It is expected that project implementation tracking will include:

- Annual (minimum) call for new/revised projects.
- Annual update of status of the existing project list including project archival following completion of projects.
- Monitoring of in-progress project performance including project status, data results, budget and schedule.
- Consideration of opportunities to integrate or enhance existing projects.

Information about projects can be maintained in an excel spreadsheet or on the Data Management System described further in Section 9.4.2. It is anticipated that the AST will have primary responsibility for project focused monitoring and will periodically request current project status information from proponents.

Table 9-3 outlines several considerations for monitoring efforts as articulated in the Proposition 84/1E guidelines (required for Proposition 84/1E grant-funded projects and recommended for all other projects in the Plan) for purposes of this Plan:

Table 9-3: Project Specific Monitoring Plans

Category	Description
Responsibility for developing project specific monitoring plans and monitoring activities	Project proponent responsibilities include development of project-specific monitoring plans and monitoring of project performance after implementation. Project proponents must report this information to the RWMG and to any lead agency responsible for grant or loan funding contributions.
Stage of project development when a project-specific monitoring plan will be prepared	Project-specific monitoring plans will be developed by the project proponent before the start of project implementation.
Typical project specific monitoring plan requirements	Monitoring plans will include delineation of the following components: ▪ Description of what will be monitored for each project, ▪ Methods for monitoring problems that occur during project implementation and their correction, ▪ Monitoring location(s), ▪ Monitoring frequency, ▪ Monitoring protocols, procedures, and responsibilities, ▪ Reporting of data collected to the data management system (DMS) described in Section 9.4.2 for sharing with project stakeholders as well as to statewide databases, and ▪ Procedures and funding assurances to document that the monitoring will take place as intended during the entire monitoring period.

Lessons learned will be applied to future project implementation by evaluating the extent to which the Plan objectives and targets are accomplished, and reviewing and refining the types of projects or targets themselves based on the various experiences. For example, technical information and data collected will contribute to a greater body of understanding about certain challenges faced by the Region. Likewise, financial performance and reporting experiences will help inform more efficient ways of planning and implementing important projects. These experiences will be shared through the (at minimum quarterly) interactions with the WAC and stakeholders, and through project reporting mechanisms.

Objectives Focused Performance Monitoring: The tracking of Plan Objectives A-N and the associated MPTs will require more effort and coordination than tracking of IRWM Plan projects. The Objectives Tracking table found in Appendix F was created in Excel and focuses on individual MPTs. The table identifies the projects that can contribute to meeting the MPT, and where appropriate, identifies specific activities needed to achieve the MPTs. Some of the suggested activities will require development of projects to assist in meeting some of the objectives/planning targets. The table is sorted by draft target completion date and priority so that it is clear when the activities are expected to be completed. The activities and dates are suggested and can and should be periodically reviewed and updated by the WAC and AST for action by the RWMG Board. The data associated with this table could also be maintained in the Data Management System.

9.4.2 Data Management

The T-S PGC has elected to develop a Data Management System (DMS) to help retain, organize and process key plan performance and monitoring data. The data management system linkage and tracking of information will feed into the Region's understanding of the success of Plan implementation, and whether adjustments to objectives, projects, or strategies may be needed in the future. The following schematic provided in Figure 9-2 illustrates the relationship between the IRWM Plan and data management activities. The T-S IRWM Plan developed objectives and MPTs are shown in green on the schematic. The MPTs are specific and measurable targets that need to be fulfilled to document completion of each objective. One or more projects are required to fulfill each MPT. The AST and stakeholders in the Region are required to collect and report on project specific data, which will in turn be used in the DMS to document progress towards achieving MPTs and objectives.

As data are collected, whether linked to implementation grant programs or other funding mechanisms, there are typically reporting requirements. Many water resources linked efforts are also attached to mandatory regulatory reporting requirements to statewide databases. To make data from the Region accessible and compatible with State databases (such as SWAMP, Geotracker, GAMA, CEDEN, the California Water Data Library and many others), the RWMG will require implementation projects clearly delineate the nature of the data being collected (parameters, units), the timeframe associated with the data, and the location associated with the data. The T-S DMS is not intended to supersede or duplicate the statewide data collection efforts, but instead work together with the databases as resources to draw important information. For example, the statewide Sanitary Sewer Overflow (SSO) database could be queried to determine the number of spills that occurred in the Region in a given year. This information will help inform the Region on several MPTs, including MPT C.III, which states " annual wastewater collection system preventable spill events per mile are reduced by a minimum of 20% over 2012 levels by 2020".

9.4.2.1 Near-Term Data Management Approach

The Phase 1 DMS has been implemented as part of development of the IRWM Plan. The remaining tasks for completion of the baseline Phase 1 DMS are described below and potential future phases and functionality of the DMS need to be developed as needed.

The DMS does not need to be a fully integrated Geographic Information System (GIS) portal, but can rely on a combination of systems such as GIS, spreadsheets, and databases to track important plan information. The existing system is a hybrid solution and provides a user friendly ESRI-software based GIS front-end interface that is supported by databases and spreadsheets for specific data. The DMS is located at (http://aims3.kennedyjenks.com/ts-irwm/) and includes the following features:

- Topographic Base map with layers for water agency boundaries, watershed boundaries with rivers and lakes, DAC areas, Tribal lands (partial), TUD Raw water system, 303d listed streams and water bodies, watersheds, General Plan and DWR Land Use classifications
- Production of custom maps with available information
- Document library and document search tool
- Reference documents
- Plan sections when complete
- IRWM Projects and project information forms

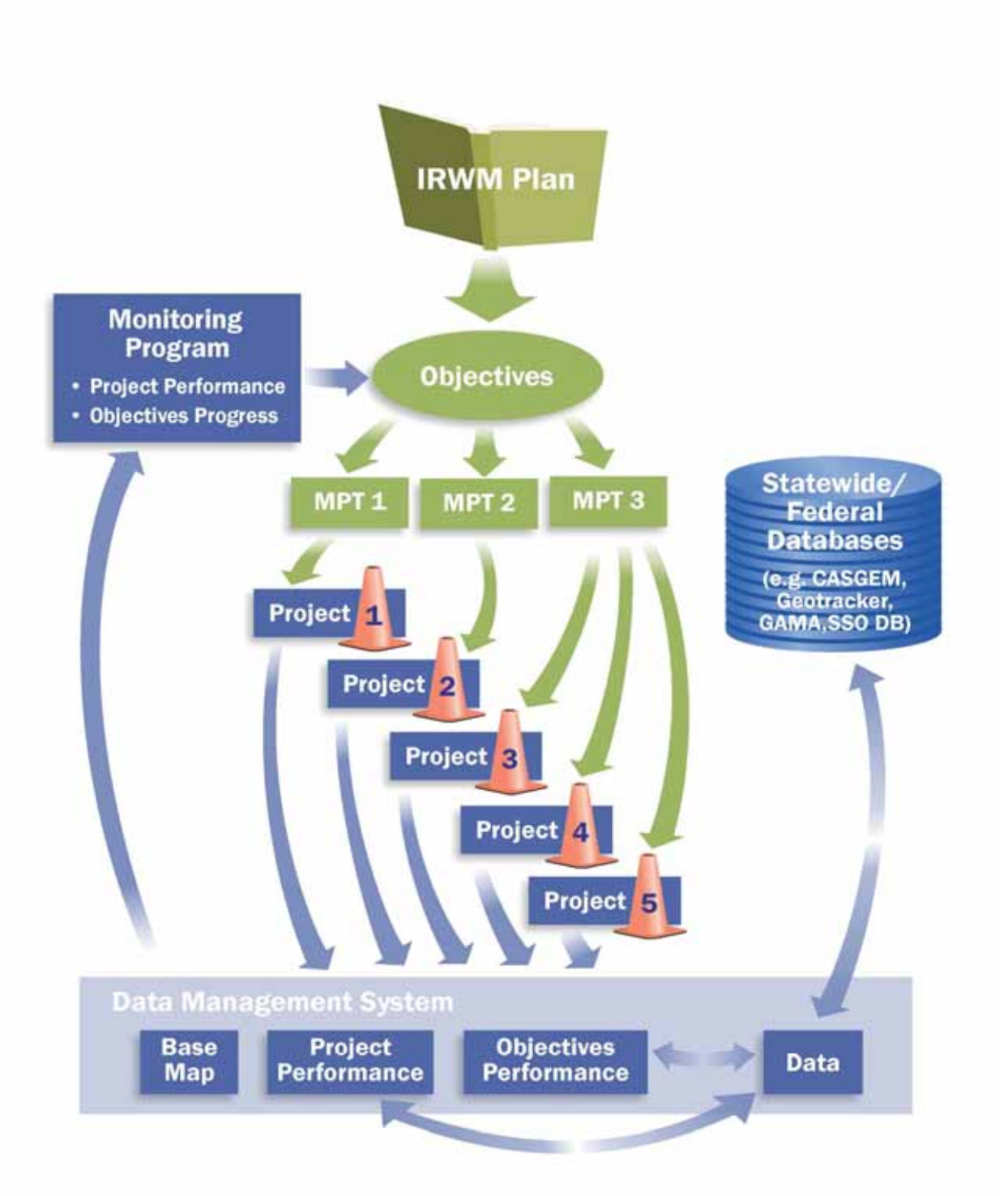


Figure 9-2: Plan Performance and the Linkage with Data Management

Features that are proposed to be incorporated into the DMS:

- Project Tracking Database/Spreadsheet. It is anticipated that the DMS will include functionality to track projects in a spreadsheet for consideration to include in the IRWM Plan. A future DMS phase could include an on-line database which will require an administrator to manage and add the projects. The spreadsheet will track information including:
    - Project name
    - Project proponent
    - Project location
    - Short description
    - Estimated cost and funding sources (such as Proposition 84/1E funded)
    - Project schedule and current status
    - Type and location of project specific monitoring information
    - Objectives and MPTs the project will contribute to
- Objectives Tracking spreadsheet or database (Note: the spreadsheet has been developed as described in Section 5 and is included in Appendix F to this Plan)

9.4.2.2 Potential Long-Term Data Management Options

At present, questions remain regarding the future update, maintenance, hosting, and troubleshooting of the DMS. There are also opportunities to further enhance the DMS in the future that should be considered. In the near-term, it is anticipated that the DMS will either be transferred to one of the RWMG members or continue to be hosted by the consultant that developed the DMS and administered by the AST.

9.5 Suggested Initial Steps for Plan Implementation

In order to bring focus to the specific implementation action recommendations described in Table 9-1, the following near-term activities and schedules are suggested as shown in Table 9-4. The lead responsibilities and schedule will be further refined during the formation of the JPA and development of the WAC Agreement.

Table 9-4: IRWM Plan Near-Term Implementation Activities and Schedule

	Activity/Action	Lead Entity	Planned Schedule
1.	Develop and execute a Joint Powers Authority to establish a RWMG according to the terms described in this section.	A minimum of three agencies, two of which have statutory authority over water	By December 2013
2.	Establish an annual operating budget for implementation support and manage expenditures of administration support activities	RWMG	By February 2014
3.	Draft WAC Agreement and charter the WAC (successor to the Planning Grant Committee)	Current PGC Members to transition to WAC with JPA Support	By December 2013
4.	Retain Administration Support Team (AST)	RWMG	By February 2014
5.	Convene Plan Implementation Meetings to develop proposed meeting schedule for the remainder of 2013 and 2014. It is suggested that at minimum one plan implementation meeting be held per quarter.	Current PGC to transition to RWMG/WAC (to be defined in JPA/WAC agreements)	Hold one meeting by October 2013 and schedule 2013-2014 meetings
6.	Identify high priority objectives with short term implementation windows. Convene subcommittees if needed to address. Initial subcommittees to consider include DAC outreach, infrastructure, and ecosystem/meadow restoration.	WAC	By December 2013 for 2014 implementation
7.	Transition, maintain and complete DMS	RWMG/AST	By December 1, 2014
8.	Issue a Call for Projects to add, delete, or integrate existing projects	WAC with support from AST	By January 2014
9.	Issue a call for project status updates	WAC with support from AST	By August 2014
10.	Prepare for applying for Round 3 DWR Implementation Grant funds and other grant funding opportunities	WAC to transition to Project Proponents	By November 2014
11.	Coordinate with neighboring IRWM regions and local, state and federal agencies	WAC or subcommittee	On-going - quarterly

9.6 Plan Updates and Changes

9.6.1 Making Changes to the IRWM Plan

The RWMG will work with the WAC to review the T-S IRWM Plan at least once every five years to determine if the content of the Plan needs to be changed in a significant way other than the periodic updates or amendments of the objectives and projects as described below. If significant changes are needed, the RWMG will lead the process for revising the Plan and the WAC will be active participants in IRWM Plan revisions. Once substantial revisions are made, the RWMG will request that RWMG members, WAC signatories, and project proponents adopt the revised Plan.

9.6.2 Updating and Amending the IRWM Plan

The RWMG/WAC will invite stakeholders and project proponents at least once per year to submit additional projects for consideration to be included in the IRWM Plan or provide updates to projects already included in the IRWM Plan. The RWMG/WAC will publicize the opportunity and process to submit new projects (or updates) for consideration. The WAC will present and discuss the potential additions/revisions to the project list within the T-S IRWM Plan in one or more Stakeholder input meetings, and recommended them to the RWMG for inclusion in the Plan. Following acceptance of the RWMG of the addition/revisions to the project list, adoption of the project list may be required on a case by case basis by individual project proponents to meet requirements of the IRWM Guidelines or individual proposal solicitation packages.

Other changes to the Plan or Plan objectives will be decided as described above and published as Plan Amendments. The RWMG will request that members of the RWMG, WAC, and project proponents adopt the Plan Amendments as an addendum to the previously adopted T-S IRWM Plan.

Section 10: Coordination

As described in previous sections of this Plan, management of water and other related resources within this Region is complex and has many interdependencies. Furthermore, the authorities and responsibilities for managing water and related resources within the Region are spread across many different agencies, organizations, and other stakeholders. This complexity and the distributed network of shared responsibilities create the need for robust and effective coordination. This section describes how the T-S current Planning Grant Committee (PGC) has taken steps forward to improve coordination on water resources related matters in the Region. This section also outline how the successor Regional Water Management Group (RWMG) and Watershed Advisory Committee (WAC) plan to coordinate with neighboring IRWM regions, local, state, and federal agencies and other stakeholders to improve integrated water management throughout the Region and neighboring areas.

Coordination is one of the most essential components of integrated regional water management, and coordination related to the T-S Region is described in several sections of this Plan. For example:

- Section 1, “Introduction,” discusses the stakeholder coordination and public outreach activities, including outreach to tribal entities and disadvantaged communities (DACs) that were conducted during the development of the Plan.

- Section 3, “Relation to Local Water and Land Use Planning” describes how water management on the local level relates directly to land use planning and ways that improved coordination will help directly address several water-related challenges.

- Section 9, “Implementation Framework,” describes the specific responsibilities of the RWMG, WAC, and others during Plan implementation.

The outreach and coordination process of the T-S IRWM Plan has enabled bringing together a broad array of groups into a forum to help ensure that the Plan reflects the water-related needs of the entire Region, promotes the formation of regional partnerships, and encourages increased coordination with local, state and federal agencies.

10.1 Balanced Access and Opportunity for Participation

10.1.1 Coordination by RWMG and Coordinating Committee

One of the critical ingredients for improving water resources management is to provide multiple opportunities for water managers, community stakeholders, and other organizations with interests related to water resources to be informed about and participate in the IRWM program. A structured approach to coordination helps prevent conflicts and can help provide more effective and efficient management of resources. The T-S PGC and successor RWMG and WAC are committed to fostering improved coordination within the Region through the following activities:

- The T-S RWMG and WAC will continue to conduct outreach, create and distribute meeting agendas and content by e-mail and web posting, facilitate stakeholder input meetings, organize and charter topic-specific sub-committees, and help track and

communicate progress toward Plan implementation. During the stakeholder input meetings all people who are interested have been and will continue to be invited to participate in a collaborative approach to help meet Plan objectives. Success of the Plan is dependent on the contributions of stakeholders throughout the Region.

- The T-S RWMG and WAC will continue to foster an open dialog with Tribes and representatives of the Disadvantaged Communities within the Region to help meet Plan objectives. Coordination efforts will continue in order to identify issues and ultimately help develop projects specific to water-related needs of these groups.

- The T-S RWMG and WAC will continue to conduct stakeholder input meetings as needed, which will be announced and open to any interested person or organization. RWMG and WAC members will meet and coordinate with local, state, and federal agencies, in addition to reaching out to those active in neighboring IRWM planning efforts to accomplish the Plan objectives.

- The RWMG and WAC will continue to use the Tuolumne-Stanislaus website IRWM page (http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/), to provide ongoing opportunities for stakeholder involvement during Plan implementation. This will include posting the status of proposed projects, providing notice of stakeholder meetings, and providing notices for coordination and evaluation of ongoing and future project needs.

10.1.2 Coordination among Local Agencies and Organizations

A collaborative approach to water management is essential to meeting regional goals for water supply and demand, conservation, and resource protection. Many of the local water management agencies within the T-S Region have developed cooperative relationships and processes for coordination. An example of this cooperation can be seen by the composition of the PGC, which includes the majority of water management agencies, non-profit watershed stewardship organizations, community advocates, Tribes, in addition to many of the land and resources management agencies within the T-S Region. It is expected that majority of the PGC members will transition to become WAC members as described in Section 9.

Some of the relationships among local water agencies have been strengthened during the collaborative development of this Plan. Additionally, through the T-S IRWM process, land and water management organizations in the Region have taken steps towards improved understanding, which can result in better collaboration regarding regional water management issues. The IRWM process encourages land use planners to explicitly consider the link between water resources planning and land use planning and to consider and evaluate water supply goals when carrying out the goals and policies of a general plan. These working relationships and processes serve as a building block for local water managers to improve collaboration in the future.

10.2 Coordination with State and Federal Agencies

Coordination with state and federal agencies has occurred during initial formation of the T-S Region and during Plan preparation. Several state and federal resource agencies, including the U.S. Forest Service helped describe ongoing activities that require coordination with IRWM, identify issues and objectives, and develop projects for this IRWM Plan. Coordination with these

agencies will occur on an as-needed basis for implementation of specific projects and during future Plan updates. The following state and federal organizations received emails and notifications related to T-S stakeholder meetings and opportunities to review and comment on IRWM Plan sections. The active participants who attended meetings are identified with an asterisk (*):

Federal

- Bureau of Reclamation
- *U.S. Department of Agriculture - Stanislaus National Forest
- National Park Service -Yosemite National Park

State

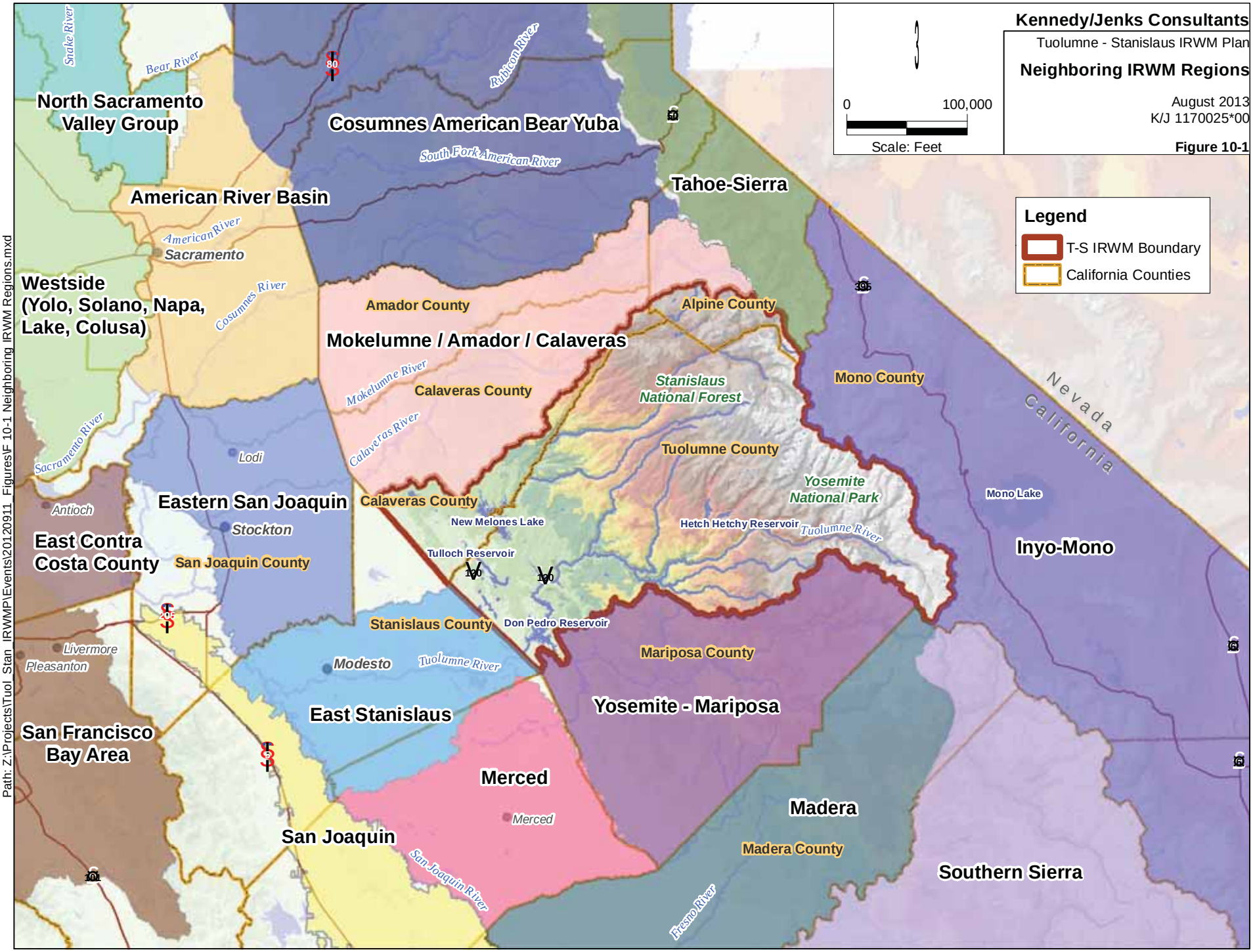
- Department of Water Resources (DWR)
  - Integrated Regional Water Management
  - *Central District
- Fish and Wildlife
- Regional Water Quality Control Board – Central Valley Region
- University of California, Cooperative Extension

While the majority of projects included in the T-S IRWM Plan were submitted by local entities, seven out of a total of 29 projects were submitted by the Stanislaus National Forest, a federal agency. Additionally, Stanislaus National Forest Leadership team has met with TUD, Hetch Hetchy, and Utica Power Authority to better understand water needs. It is understood that with over two-thirds of the T-S Region's land area located in forested, federally managed lands, coordination with all of these entities is an important component in the T-S IRWM planning process and may improve the understanding of the interrelationship between water resources, forest, land use, economic and urban objectives.

Much of the Region's future interaction with state and federal agencies will also occur during project planning and implementation, when consultation will occur during planning stages, environmental document preparation and permitting prior to construction as well as the preparation of funding applications.

10.3 Interregional Coordination

Beyond the need for internal coordination, the T-S Region also recognizes the importance of coordination with other nearby IRWM planning regions. Appropriate coordination among regions and agencies can help leverage shared activities, identify opportunities for cooperative projects, and reduce potential conflicts among IRWM projects. The T-S Region is bounded by eight neighboring IRWM regions and shares significant water resources with a ninth, as shown on Figure 10-1. Initial outreach efforts have been conducted as part of the T-S IRWM planning process to foster communication and program coordination with neighboring and nearby IRWM regions through discussions, conversations and direct participation. Letters were sent in September 2011 to the Yosemite-Mariposa, Mokelumne-Amador-Calaveras, Inyo-Mono and East Stanislaus IRWM Regions to initiate interregional coordination activities and establish mutual communications protocols for sharing information about the progress of the IRWM Plans and potential opportunities to collaborate. A copy of the letter provided to these RWMGs is included in Appendix B. Most of these adjacent IRWM groups receive e-mail notification of upcoming meetings.



Path: Z:\Projects\Tuol_Stan_IRWMP\Events\20120911_Figures\F 10-1 Neighboring IRWM Regions.mxd

Members of the WAC will engage with neighboring IRWM regional water management groups and communicate with DWR on statewide IRWM issues that involve or could impact Plan objectives. The neighboring IRWM regions and associated interregional coordination activities with the T-S Region are summarized in the sections that follow.

Tahoe-Sierra

The Tahoe-Sierra IRWM region is located to the northeast of the Tuolumne-Stanislaus Region, sharing a small boundary in Alpine County. The region is located at high elevation within the northern reaches of the Sierra Nevada including Lake Tahoe and drains to the east through the Carson and Truckee Rivers. Similar to the T-S Region, the majority of the region is dominated by a forested ecosystem and spring snowmelt is the primary source of water supply. The region is currently in the process of updating their IRWM Plan and are in the beginning phases of IRWM meetings. Forest management, watershed health and climate change are potential areas that these two regions can coordinate on in the future.

Inyo-Mono

The Inyo-Mono IRWM region lies on the eastern side of the Sierra Nevada and is thereby physically separated from the T-S Region by the crest of the mountain range. The region encompasses a vast area that is sparsely populated with large open spaces. Due to its geographic location and in contrast to the T-S region, the Inyo-Mono region largely ranges from arid to hyper-arid. In addition, available surface waters in the region are largely exported to southern California, resulting overall in limited water supplies.

During the RAP process for the Inyo-Mono region, efforts were made to reach out to neighboring regions, such as sending a letter of cooperation to regions, including the T-S region. The Inyo-Mono IRWM Plan was recently revised and adopted in late 2012. The region is now implementing the Round 2 Planning grant, Round 1 Implementation grant, in addition to a DWR grant for a Rural DAC and Tribal Program. As a part of the Inyo-Mono DAC program, the region has engaged in conversations with representatives of the RWMGs, DACs and tribal communities in neighboring regions, including Tuolumne-Stanislaus and Yosemite-Mariposa. While there is an emphasis on the Inyo-Mono region, the region is focusing on advancing a broader approach to IRWM planning across regional boundaries, with mutual collaboration for addressing issues related to rural headwater and Disadvantaged Communities. Among the region's efforts for cooperative regional work is the active participation in the Sierra Water Workgroup Summit in June of 2013.

Mokelumne/Amador/Calaveras (MAC)

The T-S Region is bounded on the north by the MAC IRWM region, adjoining with the watershed boundary of the North Fork Stanislaus River. As in the T-S Region, primary sources of water in the MAC region are large river watersheds fed by snowmelt and rainfall from the Sierra Nevada. In addition, both regions include portions of Calaveras County as well as portions of Stanislaus National Forest.

The Updated MAC IRWM Plan was completed in early 2013 and information transfer to the T-S Region has taken place throughout the MAC update. Coordination between the regions has occurred as a result of the participation of Calaveras County Water District. Calaveras County Water District, which is a MAC IRWM region member has also been participating in the

T-S IRWM process, thereby enabling both regions to share information and updates on the IRWM progress and identify potential conflicts and opportunities.

Eastern San Joaquin

The Eastern San Joaquin Region lies to the west of the T-S Region, situated within the Central Valley and encompassing portions of the Sacramento-San Joaquin Delta on its western edge and the Sierra Nevada foothills on the eastern edge. Water supply issues vary significantly from the T-S region, as the Eastern San Joaquin is predominantly reliant on groundwater compared to the surface water resources in the T-S Region. Among the major water challenges in the region are over-appropriated and over-drafted water supplies.

Currently the region is updating its IRWM Plan with an anticipated completion date by September 2013. Interregional coordination in the Eastern San Joaquin region is currently focused on the MAC region, where a recently awarded planning grant will help fund joint investigation of water supply conjunctive use opportunities. However, there are also similar opportunities with the T-S Region resulting from shared water supplies from the Stanislaus River. As such, the Eastern San Joaquin region would benefit from surface water reliability projects in the T-S Region, providing an opportunity for future coordination. Communication between the regions is ongoing.

East Stanislaus

The interface between the T-S Region and East Stanislaus Region is the border of Stanislaus and Tuolumne Counties, in the southwestern portion of the T-S Region. The East Stanislaus region is hydrologically connected with the T-S Region primarily through the Tuolumne River system, thereby sharing major resources. The East Stanislaus Region is in the process of completing its first IRWM Plan, with adoption expected in 2013. Interregional collaboration is considered to be very important to the region. Plans are in place to enhance these efforts, such as through a letter of coordination/cooperation that would help establish communication and information sharing, initiate discussions on shared areas and issues of interest, and identify potential opportunities for shared projects and other interregional collaborative efforts. Communication between the East Stanislaus and T-S Region has already been established and is expected to continue through Plan implementation.

Yosemite-Mariposa

The Yosemite-Mariposa region was awarded an IRWM planning grant in late 2012 and has recently begun the process of developing an IRWM Plan. The southern boundary of the T-S Region, which is defined by the Tuolumne River watershed, generally matches the northern boundary of the Yosemite-Mariposa IRWM region. Located in the foothills of the Sierra Nevada, both regions share similar hydrologic characteristics of snowmelt-fed stream systems that drain to the San Joaquin River. In addition, both regions encompass portions of Yosemite National Park. These regional similarities and shared resources provide opportunities for effective collaboration and there has been coordination between the regions, including communication of meeting information between the groups. Additionally, there has been collaboration with tribal communities due to related overlap between the T-S and Yosemite-Mariposa regions.

Madera

The Madera region shares only a small portion of its northwestern boundary with the southwestern boundary of the T-S Region. Currently, the Madera region is in the process of updating their IRWM Plan. The region spans from the Sierra Nevada to the relatively flat floor of the San Joaquin Valley. Groundwater resources are the primary source of water supplies in the region, which are becoming increasingly strained with population growth. Similar to the T-S Region, septic systems pose a threat to groundwater quality and are among the areas where improvements are recommended. Additionally, with large portions of the region located within the Sierra Nevada, forest management is an important component of their active watershed management program, and water yield improvements from watershed management practices are considered important options.

Merced

The T-S Region boundary to the southeast touches, at a point, the extreme northwest boundary of the Merced IRWM region. The Merced region is primarily distinct from the T-S Region through the existing crystalline basement rock that divides the region's groundwater basin in the east from the fluvial and fractured rock systems of the T-S Region. Additionally, the major stream systems of the T-S Region do not feed into the Merced region, so that the regions are largely disconnected. There has been limited coordination with this region to date, but the Tuolumne-Stanislaus WAC remains open to a dialogue about common interests.

Bay Area

The Bay Area IRWM region is separated from the T-S Region by other neighboring regions, however they both share significant water resources, specifically upstream exports for downstream uses. The San Francisco Public Utilities Commission (SFPUC) holds water rights and operates facilities on the upper Tuolumne watershed (Lake Eleanor, Cherry Reservoir, and the Hetch Hetchy Reservoir) and exports significant amounts of water out of the watershed to provide supplies to water users in the Bay Area. Additionally, the SFPUC supplies water to the Groveland Communities Services District under a contract for service. As a result of these close ties, open communication and cooperation has occurred between the regions through regular monitoring of each other's programs and through meeting notices, exchanges of agenda materials, review of web posted information, and occasional telephone contact. Such communication will continue.

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Section 11: Acronyms and Glossary

11.1 Acronyms and Abbreviations

Acronym	Definition
°F	degrees, Fahrenheit
AF	acre-feet
AFY	acre-feet per year
Angels Camp	City of Angels Camp
ARRA	American Recovery and Reinvestment Act
AST	Administration Support Team
ATCAA	Amador-Tuolumne Community Action Agency
Basin Plan	Sacramento/San Joaquin Basin Plan
BMP	best management practice
CAP	Climate Action Plan
CARB	California Air Resources Control Board
CCWD	Calaveras County Water District
CDEC	California Data Exchange Center
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CE	state listed endangered
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CIMIS	California Irrigation Management System
CNPS 1B	rare, threatened or endangered in California and elsewhere
CNPS-4	limited distribution; a watch list
CSAS	Central Sierra Audubon Society
CSC	state species of concern
CSD	Community Services District
CSERC	Central Sierra Environmental Resource Center
CT	state listed threatened
CVRWQCB or RWQCB	Central Valley Regional Water Quality Control Board
CWA	Federal Clean Water Act
CWP	California Water Plan

Acronym	Definition
DAC	disadvantaged community(ies)
DBP	disinfection byproducts
DMS	Data Management System
DO	dissolved oxygen
DWR	California Department of Water Resources
E. coli	Escherichia coli
EJ	Environmental Justice
ETo	Evapotranspiration
Farm Bureau	Tuolumne County Farm Bureau
FERC	Federal Energy Regulatory Commission
FPT	federally proposed threatened
FSC	federal species of concern
FSS	Federal Species (FS) sensitive, Region 5
FSV	Sierra Nevada framework species of moderate to high vulnerability
FSW	FS Watch List
FT	federally listed threatened
GCM	general circulation models
GCSD	Groveland Community Services District
GHG	Greenhouse Gas
GIS	Geographic Information System
GPCD or gcpd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
GWMP	Groundwater Management Plan
in.	Inches
IPO	Interim Plan of Operation
IRWM Plan	Integrated Regional Water Management Plan
IS	Indicator species
JPA	Joint Powers Authority
LAFCO	Local Agency Formation Commission
LDPCSD	Lake Don Pedro Community Services District
LST	leaking underground storage tank
LT2	Long Term 2 Enhanced Surface Water Treatment Rule
M&I	municipal and industrial

Acronym	Definition
MAC	Mokelumne/Amador/Calaveras
MAF	million acre feet
MCL	maximum contaminant level
mg/l	milligrams per liter
MGD or mgd	million gallons per day
MHI	median household income
MID	Modesto Irrigation District
MIS	FS management indicator species
MOU	Memorandum of Understanding
MPT	Measurable Planning Target
MSD	Murphys Sanitary District
MW	Megawatts
N/A	not applicable
NCPA	Northern California Power Agency
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NGO	non-governmental organizations
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NPS	nonpoint source
OHV	off-highway vehicle
OID	Oakdale Irrigation District
OWTS	Onsite Waste Treatment System
PG&E	Pacific Gas and Electric Company
PGC	Planning Grant Committee
POTW	publicly operated treatment works
RAC	Resource Advisory Committee
RAP	Regional Acceptance Process
RCD	Resources Conservation District
RD	reclamation districts
Reclamation	United States Bureau of Reclamation
RMS	Resource Management Strategies
RPO	Revised Plan of Operation
RWMG	Regional Water Management Group
SBx7-7	Senate Bill x7-7

Acronym	Definition
SDWA	Safe Drinking Water Act
SFPUC	San Francisco Public Utilities Commission
Sierra Club	Tuolumne Group of the Sierra Club
SMART	Specific, Measurable, Attainable, Relevant, Time-based
SMCL	Secondary Maximum Contaminant Limit
SNF	Stanislaus National Forest
Sonora	City of Sonora
SSJID	South San Joaquin Irrigation District
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
TCRCD	Tuolumne County Resource Conservation District
TDS	total dissolved solids
THCSD/Twain Harte CSD	Twain Harte Community Services District
TID	Turlock Irrigation District
TMDL	total maximum daily load
TRC	Technical Review Committee
TRT	Tuolumne River Trust
T-S Region, Region	Tuolumne-Stanislaus Region
TUD	Tuolumne Utilities District
UC	University of California
UPA	Utica Power Authority
UPUD	Union Public Utility District
USBR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture
USEPA or EPA	U.S. Environmental Protection Agency
USFS	United States Forest Service
USGS	U.S. Geologic Survey
UWMP	Urban Water Management Plan
WAC	Watershed Advisory Committee
WDR	Waste Discharge Requirement
WSA	Water Supply Assessment
WTP	water treatment plant
WUE	water use efficiency
WWTP	wastewater treatment plant
Yosemite	Yosemite National Park

11.2 Glossary

100-year Flood Event – A 100-year flood is the flood event having a 1-percent (or 1/100) chance of being equaled or exceeded in any given year.[1]

303(d) List – Refers to Section 303(d) of the Clean Water Act that requires each state to periodically submit to the United States Environmental Protection Agency, a list of impaired waters.[2]

500-year Flood Event – A 500-year flood is the flood event having a 0.2-percent (or 1/500) chance of being equaled or exceed in any given year.[1]

Acre-Foot (AF) – The volume of water that would cover one acre to a depth of one foot; equal to 43,560 cubic feet or 325,851 gallons.[1]

Active Participation by Planning Grant Committee Members – Active participation means regular attendance at Planning Grant Committee meetings. Active participants will be Parties who have not missed more than two consecutive preceding official Planning Grant Committee meetings without representation from their organization.[3]

Adopted IRWM Plan – An Integrated Regional Water Management (IRWM) Plan that has been formally accepted, as evidenced by a resolution or other written documentation by the governing bodies of each agency that is part of the regional water management group responsible for the development of the Plan and have responsibility for implementation of the Plan. At a minimum, each project proponent named in an IRWM grant application must also adopt the IRWM Plan. Adoption of an IRWM Plan must follow the notification process in California Water Code (CWC) §10543.[2]

Agency – Agency means a governmental entity, department, office or administrative unit responsible for carrying out regulations.[4]

Alluvial/Alluvium – A general term for clay, silt, sand, gravel, or similar unconsolidated detrital material, deposited during comparatively recent geologic time by a stream or other body of running water, as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, as a cone or fan at the base of a mountain slope.[1]

Anadromous Fish – Fish that live a majority of time in the ocean, and breed in fresh water.[1]

Anthropogenic – Of human origin or resulting from human activity.[2]

Applied Water – The total amount of water that is diverted from any source to meet the demands of water users without adjusting for the quantity of water that is consumed, returned to the developed supply, or irrecoverable. It is the quantity of water delivered to the intake for a city water system or factory, or a farm headgate, or direct or incidental flows to a marsh or wetland for wildlife areas. For existing instream use, applied water is the portion of the streamflow dedicated to instream use.[2]

Appropriative Right – The legal right to use water that is diverted or extracted by a non-riparian or non-overlying party for non-riparian or non-overlying beneficial uses. In California, surface water appropriative rights are subject to a statutory permitting process, while groundwater appropriation is not.[1]

Aquifer – A body of rock or sediment that is sufficiently porous and permeable to store, transmit, and yield significant quantities of groundwater to wells and springs.[1]

Artificial Recharge – The addition of water to an aquifer by human activity, such as irrigation or induced infiltration from streams, wells, or recharge/spreading basins. *See also* Groundwater Recharge.[1]

Average Annual Runoff – The average value of total annual runoff volume calculated for a selected period of record, at a specified location, such as a dam or stream gage.[1]

Average Year Water Demand – Demand for water under average hydrologic conditions for a specific level of development.[1]

Basin Plan – Also referred to as a Water Quality Control Plan, identifies 1) beneficial uses to be protected; 2) water quality objectives for the reasonable protection of beneficial uses; and 3) a program of implementation for achieving the water quality objectives as established by the Regional Water Quality Control Boards or State Water Resources Control Board.[2]

Beneficial Uses – The uses of streams, lakes, rivers, and other water bodies, have to humans and other life. Beneficial uses are outlined in a Water Quality Control Plan (Basin Plan). Each body of water in the State has a set of beneficial uses it supports.[2]

Best Management Practices (BMPs) – Any program, technology, process, siting criteria, operating method, measure or device which controls, prevents, removes or reduces impacts from an action. The most effective, or "best" techniques are applied to each specific circumstance depending on the problem, physical or geopolitical setting.[4]

Bulletin No. 118 – Department of Water Resources' (DWR's) report California's Groundwater Bulletin 118, updated in 2003.[1]

California Environmental Quality Act (CEQA) – The California Environmental Quality Act is a state law requiring state and local agencies to regulate activities with consideration for environmental protection.[4]

California Irrigation Management Information System (CIMIS) – CIMIS is a network of automated weather stations that are owned and operated cooperatively between the Department of Water Resources (DWR) and local agencies. The stations are installed in most of the agricultural and urban areas in the State and provide farm and large landscape irrigation managers and researchers with "real-time" weather data to estimate crop and landscape evapotranspiration (ET) rates and make irrigation management decisions.[1]

California Native American Tribe – All Indigenous Communities of California, which are on the contact list maintained by the Native American Heritage Commission, including those that are federally non-recognized and federally recognized, and those with allotment lands, regardless of whether they own those lands.[2]

Catchment – The area of land which catches and collects water above a reservoir or other storage structure.[1]

Census – Census means the official decennial enumeration of the population conducted by the federal government.[4]

Central Valley Project – Water storage and delivery system that is operated by United States Bureau of Reclamation to provide irrigation and municipal water to communities in and around California's Central Valley.[1]

CIMIS – *See also* California Irrigation Management Information System (CIMIS).[1]

Climate Change – Changes in average annual temperature and precipitation and their temporal patterns in the future compared to today.[1]

Commercial – A land use classification which permits facilities for the buying and selling of commodities and services.[4]

Conjunctive Use – The coordinated and planned management of both surface and groundwater resources in order to maximize the efficient use of the resource.[1]

Conservation (Water) – Urban water conservation or water use efficiency includes reductions realized from voluntary, more efficient, water use practices promoted through public education and from state-mandated requirements to install water-conserving fixtures in newly constructed and renovated buildings. Agricultural water conservation or agricultural water use efficiency means reducing the amount of water applied in irrigation through measures that increase irrigation efficiency.[1]

Consumptive Use – A quantity of applied water that is not available for immediate or economical reuse. It includes water that evaporates, transpires, or is incorporated into products, plant tissue, or animal tissue. Consumptively used water is removed from available supplies without return to a water resource system.[1]

Contaminant – Any substance or property preventing the use or reducing the usability of water for ordinary purposes such as drinking, preparing food, bathing, washing, recreation, and cooling. Any solute or cause of change in physical properties that renders water unfit for a given use. (Generally considered synonymous with pollutant.)[1]

Conveyance Losses/Evaporative Losses– The quantity of water that becomes unavailable for use from major water supply conveyance systems due to irrecoverable leaks, evaporation and evapotranspiration by vegetation in and near canals.

Conveyance Facilities – Canals, pipelines, pump lifts, ditches, etc. used to move water from one area to another.[1]

Crop Coefficient – A numerical factor (normally identified as Kp or Kc) that relates the evapotranspiration (ET) of the individual crop (Etc) to reference evaporation or some other index.[1]

Cubic Feet Per Second (CFS) – A unit of measurement describing the flow of water. A cubic foot is the amount of water needed to fill a cube that is one foot on all sides, about 7.5 gallons.[1]

Direct Deliveries – The amount of water diverted from streams and rivers directly that is not withdrawn from storage in reservoirs.

Disadvantaged Community – A community with an annual median household income that is less than 80 percent of the statewide annual median household income.[2]

Domestic Well – A water well used to supply groundwater for the domestic needs of an individual residence or systems of four or fewer service connections.[1]

Drinking Water Standards – State and federal regulations regarding water delivered by water purveyors that is used as a potable supply.[1]

Drinking Water Treatment and Distribution – Treatment is the physical, biological, and chemical processes that make water suitable for potable use. Distribution includes storage, pumping, and pipe systems to protect and deliver the treated water to customers.[1]

Drought Condition – Hydrologic conditions during a defined period, greater than one year, when precipitation and runoff are much less than average.[1]

Drought Preparedness – Long-term and short-term measures that are to be used to prepare for the effects of drought. These may include implementation of such measures as water conservation and conjunctive use.[1]

Efficient Water Management Practices – Reasonable and economically justifiable programs to improve the delivery and use of water used for agricultural purposes.

Electrical Conductivity (EC) – The measure of the ability of water to conduct an electrical current, the magnitude of which depends on the dissolved mineral content of the water.[1]

Elevation – The vertical reference of a site location above mean sea level, measured in feet or meters.

Emerging Contaminants – *See also* Emerging Pollutants.[1]

Emerging Pollutants – Some unregulated chemicals and pollutants are being discovered to have unexpected health and environmental effects. Chemicals found in pharmaceuticals and personal care products, by-products of fires and fire suppression, and discarded elements of nanotechnology are emerging as actual or potential water contaminants. Air deposition of a whole host of pollutants is now seen as a significant contributor to water pollution.[1]

Endemic – Native species found only in a particular geographic area with comparatively restricted habitat and distribution.

Environmental Justice – The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code §65040.12[e]).[2]

Environmental Water – Minimum flow levels of a specific quality that is needed in order to assure the continued viability of fish and wildlife resources for a particular water body. This is water that is used to maintain and enhance the beneficial uses related to the preservation and enhancement of fish, wildlife, and other aquatic resources or preserves as specified in the Porter/Cologne Water Quality Control Act, 2008.[1]

Ephemeral – An ephemeral water body is one that exists for only a short period of time following precipitation or snow-melt. This is not the same as an intermittent or seasonal water body which exists for a longer period of time.[1]

Erosion – (1) The loosening and transportation of rock and soil debris by wind, rain, or running water. (2) The gradual wearing away of the upper layers of the earth.[4]

ETAW – *See also* Evapotranspiration of Applied Water (ETAW).[1]

ETo (Reference Evapotranspiration) – The evapotranspiration rate from an extended surface of 3- to 6-inch (8 to 15 cm) tall green grass cover of uniform height, actively growing, completely shading the ground, and not short on water (the reference evapotranspiration [ET] reported by California Irrigation Management Information System [CIMIS]).[1]

Evaporation – The physical process by which a liquid or solid is transformed to a gaseous state.[1]

Evapotranspiration (ET) – ET is the amount of water transpired by plants, retained in plant tissues, and evaporated from plant tissues and surrounding soil surfaces.[1]

Firm Yield – The maximum annual supply of a given water development that is expected to be available on demand from year to year.[1]

Flood Protection – A level of risk protection that is necessary to withstand flooding that may occur in any given year. Flood protection is most frequently used to refer to an urban level of flood protection which corresponds to the level protection that is necessary to withstand flooding that has a certain probability of occurring in any given year using criteria consistent with, or developed by the Department of Water Resources.

Flood Risk – The combination of the magnitude and probability of consequences that likely would occur as a result of flood-induced damages under a specific level of development.[1]

Fluvial – The processes associated with rivers and streams comprising the motion of sediment and erosion of, or deposition on, the river bed.[1]

Form and Function – A waterway's form refers its morphology or structure and its function refers to the flood behavior and sediment transport characteristics. Alterations in the natural form and function of a waterway can, in some cases, degrade important habitats and water conveyance capacities of the channels.

Funding Match – Funds made available by the applicant to assist in financing a project. Funding match consists of non-State funds and can include in-kind services. In-kind services must relate directly to the scope of work funded in the grant proposal.[2]

General Plan – A comprehensive, long-term framework for the physical development of a jurisdiction, required by State law, consisting of a statement of development policies and the proposals to implement those policies, together with appropriate diagrams. The General Plan must address at a minimum the following seven issues or elements: land use, circulation, housing, conservation, open space, safety and noise. Optional issues of concern to the County may be included. All development regulations, such as zoning, and physical improvement projects, must be consistent with the policies of the General Plan.[4]

Geographic Information System (GIS) – An integrated computer system for the collection, storage, manipulation and presentation of geographical data.[4]

Greenhouse Gas (GHG) Emissions – Also referred to as carbon intensity or carbon footprint.[2]

Groundwater – Water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated. It excludes soil moisture, which refers to water held by capillary action in the upper unsaturated zones of soil or rock.[1]

Groundwater Basin – An alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom.[1]

Groundwater Management – The planned and coordinated management of a groundwater basin or portion of a groundwater basin with a goal of long-term sustainability of the resource.[1]

Groundwater Recharge – Groundwater recharge is the mechanism by which surface water moves from the land surface, through the topsoil and subsurface, and into de-watered aquifer space, or through injection of water directly into the aquifer by wells. Groundwater recharge can be either natural or managed.[1]

Groundwater Storage – Groundwater storage can be defined in three different ways depending on the context of its use: (a) the quantity of water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation beneath the land surface; (b) the volume of usable physical space available to store water in the pore spaces of the alluvium, soil, or rock formation beneath the land surface; (c) the act of storing water in the pore spaces of the alluvium, soil, or rock formation beneath the land surface.[1]

Groundwater Storage Capacity – Volume of void space that can be occupied by water in a given volume of a formation, aquifer, or groundwater basin.[1]

Groundwater Subbasin – A subdivision of a groundwater basin created by dividing the basin using geologist and hydrologic conditions or institutional boundaries. *See also* Groundwater Basin.[1]

Groundwater Table – The upper surface of the zone of saturation in an unconfined aquifer.[1]

Headgate – A gate for controlling the water flowing into a channel (as an irrigation ditch).[1]

Headwaters – Small streams and upland areas that are the source of larger streams and rivers.

Hydrograph – A graph that shows some property of groundwater or surface water as a function of time at a given point.

Hydrologic Cycle – The circulation of water from the ocean through the atmosphere to the land and ultimately back to the ocean.[1]

Hydrologic Region – A geographical division of the state established by the California Department of Water Resources based on the local hydrologic basins.[1]

Hydrologic Unit – The United States is divided and subdivided into successively smaller hydrologic units which are classified into four levels: regions, subregions, accounting units, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging units), to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of

classification in the hydrologic unit system. (*See* http://water.usgs.gov/GIS/huc.html for more information.)[1]

Hydrology – The scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere.

Hydromodification – Channel modification (channelization), flow alterations, levees, and dams.[1]

Impaired Water Body – A water body that does not attain water quality standards due to an individual pollutant, multiple pollutants, pollution, or an unknown cause of impairment. A list of impaired water bodies is compiled by the State Water Resources Control Board (SWRCB) pursuant to Section 303(d) of the Clean Water Act.[2]

Indirect Reuse – When a downstream entity withdraws water from a stream and a portion of that water is wastewater from an upstream discharge that has commingled with the ambient streamflow, the reuse is termed "indirect reuse."[2]

Industrial – The manufacture, production, and processing of consumer goods. Industrial is often divided into "heavy industrial" uses, such as construction yards, quarrying, and factories; and "light industrial" uses, such as research and development and less intensive warehousing and manufacturing.[4]

Infiltration – The flow of water downward from the land surface into and through the upper soil layers.[1]

Infrastructure – The underlying foundation or basic framework of a system. For water systems, this includes the canals, pipelines, pumps, reservoirs, and treatment plants that make up the treatment and delivery system.[1]

In-Lieu Recharge – The practice of providing surplus surface water to historical groundwater users, thereby leaving groundwater in storage for later use.[2]

Instream Uses – The beneficial uses of water within a stream for river without diversion from the stream.[1]

Integrated Regional Water Management – A multi-objective approach to managing water and associated resources that encourages using a mix of resource management strategies to provide benefits to regions.[1]

Integrated Regional Water Management Plan (IRWM Plan) – Defined in CWC§10534 as "a comprehensive plan for a defined geographic area, the specific development, content, and adoption of which shall satisfy requirements developed pursuant to this part. At a minimum, an Integrated Regional Water Management Plan describes the major water-related objectives and conflicts within a region, considers a broad variety of resource management strategies, identifies the appropriate mix of water demand and supply management alternatives, water quality protections, and environmental stewardship actions to provide long-term, reliable, and high-quality water supply and protect the environment, and identifies disadvantaged communities in the region and takes the water-related needs of those communities into consideration." (CWC §10530 *et seq.*)

Integrated Water Resources Information System (IRWIS) – IRWIS, released by the Department of Water Resources (DWR) in 2008, is the first centralized groundwater data management system developed to help local and regional water management entities integrate and analyze existing data about their groundwater system and potential value of current groundwater management in their integrated planning processes. It serves as a centralized information system for accessing the data about groundwater, as well as groundwater management and some DWR grant program funding statewide.[1]

Invasive Species – Non-indigenous plants or animals that adversely affect the habitats they invade economically, environmentally, or ecologically.[1]

IRWM Plan – See Integrated Regional Water Management Plan.[1]

Lacustrine – Natural lakes, ponds, and human-made reservoirs ecosystems.[1]

Land Subsidence – The lowering of the natural land surface due to groundwater (or oil and gas) extraction.[1]

Land Use – The occupation or utilization of land for any human activity or any purpose defined in the General Plan.[4]

Life Cycle Habitat – An area that provides appropriate habitat to support the entire life cycle of a species. For some species such as anadromous fish this may span a large geographical area including both freshwater and the ocean.

Load Reduction (of Pollutant) – The decrease of a particular contaminant in the impaired waterbody resulting from the implementation of a project.

Local Agency – Any city, county, city and county, special district, joint powers authority, or other political subdivision of the State, a public utility as defined in Sections 216 of the Public Utilities Code, or a mutual water company as defined in Section 2725 of the Public Utilities Code (California Water Code [CWC] §10535).[2]

Low Impact Development (LID) – LID is a stormwater management strategy aimed at maintaining or restoring the natural hydrologic functions of a site or project to achieve natural resource protection objectives and fulfill environmental regulatory requirements. LID employs a variety of natural and built features that reduce the rate of runoff, filter pollutants out of runoff, and facilitate the infiltration of water into the ground and/or onsite storage of water for reuse.[2]

M&I – Municipal and industrial water use; generally urban uses for human activities.[1]

Maximum Contaminant Level (MCL) – The highest drinking water contaminant concentration allowed under federal and State Safe Drinking Water Act regulations.

Measurable Planning Target (MPT) – a specific and tangible outcome of a IRWM Plan objective that is intended to be achieved by or during a designated time.

Median Household Income – The amount which divides the annual income for households within a region into two equal groups. Half of the households in the region have incomes above the median and half have incomes below the median.

Memorandum of Understanding – An agreement that documents the mutual understanding between two or more parties with an intended common line of action.

Micrograms per Liter (µg/L) – A unit of measurement describing the concentration of a constituent in water. It is equivalent to one part per billion (ppb).

Milligrams Per Liter (**mg/L)** – A unit of measurement describing the concentration of a constituent in water. It is equivalent to one part per million (ppm).[1]

Municipal Wastewater – Primarily from domestic sources, but includes wastewater from commercial, industrial, and institutional sources that discharge to a common collection system where it mixes with domestic wastewater before treatment.

National Environmental Policy Act (NEPA) – An act passed in 1974 establishing federal legislation for national environmental policy, a council on environmental quality, and the requirements for environmental impact statements.[4]

National Pollutant Discharge Elimination System (NPDES) Permit Program – Controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Since its introduction in 1972, the NPDES Permit Program has been responsible for significant improvements to our Nation's and State's water quality.

Natural Channel – A waterway created by the erosive forces of water moving over land that has not been altered by human interference.

Natural Recharge – Replenishment of an aquifer generally from snowmelt and runoff; through seepage from the surface. Recharge of an aquifer that occurs without human interference. Also referred to an unintentional recharge.[1]

Non-Consumptive Environmental Water Use – Water dedicated to instream environmental benefit which does not reduce the available water supply downstream for other uses.[1]

Non-Governmental Organization (NGO) – Private sector cause-based (and usually not-for-profit) organization.

Non-Native Species – Plant or animal species brought into an area from another geographic region.

Non-Point Source Pollution – Sources for pollution that are less definable and usually cover broad areas of land, such as agricultural land with fertilizers that are carried from the land by runoff, or automobiles.[2]

On-Site Wastewater Treatment System (OWTS) – System for wastewater disposal typically consisting of a septic tank and soil absorption field, commonly called a septic system.[2]

Open Space Land – Any parcel or area of land or water which is essentially unimproved and devoted to a use for the purposes of (1) the preservation of natural resources, (2) the managed production of resources, (3) outdoor recreation, or (4) public health and safety.[4]

Ordinance – A law set forth by a governmental authority.[1]

Parts per Billion (ppb) – A ratio of two substances, usually by mass, expressing the number of units of the designated substance present in one billion parts of the mixture. For water solutions parts per billion is equivalent to micrograms per liter.

Parts per Million (ppm) – A ratio of two substances, usually by mass, expressing the number of units of the designated substance present in one million parts of the mixture. For water solutions, parts per million is equivalent to the milligrams per liter.[1]

Peak Flow – The maximum instantaneous rate of flow during a storm or other period of time.

Per-Capita Water Use – The amount of water used by or introduced into the system of an urban water supplier divided by the total residential population; normally expressed in gallons per-capita-per-day (GCPD).[1]

Percolation – The act of surface water infiltrating into and through the ground and into an aquifer.

Perennial Stream – A stream channel that carries water year round.[4]

Pesticide – Any of a class of chemicals used for killing insects, weeds, or other undesirable entities most commonly associated with agricultural activities, but has significant domestic use in California.[1]

Planning Area – A designated geographic subset of the Tuolumne-Stanislaus Region used for planning purposes. The Planning Areas (PA) for the Tuolumne-Stanislaus IRWM Plan consists of the Upper Tuolumne, Upper Stanislaus and Upper Rock Creek French Camp Slough. These PAs were developed based on hydrologic watersheds within the Region.

Planning Horizon – The period of 2013-2035 for which the IRWM Plan covers.

Plan Goal – A desired outcome or result of which effort will be made to accomplish. These goals describe a high-level perspective of what the IRWM Plan is intended to address and were developed to be relevant over the entire planning horizon and beyond.

Planning Grant Committee – Comprised of organizations representing diverse interests from within both the upper Stanislaus and Tuolumne watersheds. Members of the planning Grant Committee must execute the Memorandum of Understanding for the Tuolumne-Stanislaus IRWMP Program.[3]

Plan Objective – A specific and tangible outcome that is intended to be achieved by or during a designated time.

Plan Review Committee – Reviewed development of plan sections and key plan content when requested. Provided alternative forum to resolve any issues that could not be settled in the PGC meetings.

Point Source – Source of pollution that involves discharge of wastes from an identifiable point, such as a sewage treatment plant.

Pollution (of Water) – The alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.

Pollution Prevention – Improving water quality for all beneficial uses by protecting water at its source, reducing the need and cost for other water management actions and treatment.[1]

Population Density – The average number of people per square mile for a planning area.

Potable Water – Water suitable for human consumption without undesirable health consequences. Drinkable. Meets Department of Health Services drinking water requirements.[1]

Prioritization – A quantitative or qualitative method to compare the relative importance and urgency of desired actions.

Privately Owned Water Systems – Include investor-owned utilities, mutual water companies, mobile home parks, and water associations, and may also include various commercial enterprises, such as restaurants, hotels, resorts, employee housing, etc. that have their own water supply.[1]

Program Preferences – Components of an Integrated Regional Water Management (IRWM) plan that will be given preference by the Integrated Regional Water Management funding process.[2]

Proposition 1E – The "Disaster Preparedness and Flood Prevention Bond Act of 2006" passed by California voters on November 7, 2006, and as set forth in Division 5 of the PRC.[2]

Proposition 50 – "Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002" passed by California voters in November 2002, and as set forth in Division 26.5 of the California Water Code (CWC).[2]

Proposition 84 – "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" passed by California voters on November 7, 2006, and as set forth in Division 43 of the PRC.[2]

Public Forum – The term used to describe the general public and the broad range of organization that may be interested in the Tuolumne-Stanislaus IRWM Planning Process and that seek information about related activities either by attendance at meetings or through other means of communication.[3]

Public Water System – A system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Rare Threatened or Endangered Species – A species of animal or plant listed in: Sections 670.2 or 670.5, Title 14, California Administrative Code; or Title 50, Code of Federal Regulations, Section 17.11 or Section 17.2, pursuant to the Federal Endangered Species Act designating species as rare, threatened, or endangered.[4]

Rate Structure – Designates the rate basis for cost recovery (e.g., flat, uniform, tiered). Block/Tiered rates are assumed to provide cost signals to consumers. Costs can include capital,

operation and maintenance, financing, environmental compliance (documentation, permitting and mitigation), etc.[1]

Recharge (Groundwater) – Natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils.[4]

Recreation – Water-dependent recreation activities that are consumptive (e.g., parks), flat-water (e.g., boating), or flow-based (e.g., whitewater rafting) as well as non-consumptive uses such as hiking, biking etc.[1]

Recycled Water – Water which, as a result of a high level of treatment of wastewater, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is, therefore, considered a valuable resource.[1]

Region – Refers to the Tuolumne-Stanislaus Region which encompasses all of Tuolumne County and portion of Calaveras and Alpine Counties.[2]

Regional Water Management Group (RWMG) – A group in which three or more agencies; at least two of which have a statutory authority over water supply or water management, as well as those persons who may be necessary for the development and implementation of an Integrated Regional Water Management (IRWM) Plan that meets the requirements in California Water Code (CWC) §10540 and §10541.[2]

Regulatory Agencies – Agencies with authority to control activities in the Region. These agencies include but are not limited to the Central Valley Regional Water Quality Control Board, State Water Resources Control Board, California Department of Public Health, National Marine Fisheries Service, Federal Emergency Management Agency, and the Department of Fish and Wildlife.

Required Instream Flow – The amount of water required for instream use by agreement, water rights permit, or State/federal Acts.[2]

Residential – Land designated in the City or County General Plan and zoning ordinance for buildings consisting of dwelling units. A multiple family residential land designation is usually three or more dwelling units on a single site. A single family residential land designation is a single dwelling unit on a site.[4]

Return Flow – The portion of water from agricultural or landscape irrigation that returns to surface flows or percolates into the aquifers and is later recoverable.[1]

Riparian Habitat or Community – A riparian habitat is the land, plants and animal life bordering a stream, river or lake. The riparian community is defined as coinciding with the 100-year flood plain of a water body.[4]

Riparian Right – A right to use surface water, such right derived from the fact that the land in question abuts the banks of streams or other water source (lake or pond). These rights are senior to most appropriative rights. *See also* Appropriate Rights.[1]

Runoff – The portion of rain or snow which does not percolate into the ground and is discharged into streams.[4]

Safe Yield – The maximum quantity of water that can be continuously withdrawn from a groundwater basin without adverse effect on groundwater levels.[1]

Salinity – Generally, the concentration of mineral salts dissolved in water. Salinity may be expressed in terms of a concentration or as electrical conductivity.[1]

Salts – Materials that originate from dissolution or weathering of the rocks and soil, including dissolution of lime, gypsum and other slowly dissolved soil minerals.[1]

Saturated Zone – The zone within an aquifer in which all interconnected openings are filled with water, usually underlying the unsaturated zone.[1]

Secondary Treatment – Secondary treatment refers to treatment of sewage at a wastewater treatment plant to substantially degrade the biological content. The majority of municipal plants use aerobic biological processes for secondary treatment.[2]

Sedimentation – The deposition or accumulation of sediment.

Seepage – The gradual movement of water into, through, or from a porous medium. Also, the infiltration of water into the soil from canals, ditches, laterals, watercourse, reservoir, storage facilities, or other body of water, or from a field.[2]

Septic System – A sewage-treatment system that includes a settling tank through which liquid sewage flows and in which solid sewage settles and is decomposed by bacteria in the absence of oxygen. Septic systems are often used for individual-home waste disposal where an urban sewer system is not available. See On-Site Wastewater Treatment System (OWTS).[4]

Service Area – The geographic area served by a water or other agency.

Special-Status Species – Plants and animals that are legally protected under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), or other federal, state, or local regulations, or are considered sufficiently rare by the scientific community to deserve protection.

Specific Yield – The ratio of the volume of water a rock or soil will yield by gravity drainage to the total volume of the rock or soil.

Stakeholder – An individual, group, coalition, agency or others who are involved in, affected by, or have an interest in the goals, objectives, projects, or other implementation activities shown in this Plan.[2]

State Waters – Also known as “Waters of the State”, means all surface water, groundwater, and saline waters within the boundaries of the State of California (California Water Code [CWC] §13050[e]).[2]

Stormwater – Water generated by runoff from land and impervious surfaces during rainfall and snow events.[2]

Stream Gage – The site on a stream where hydrologic data is collected.

Stream Gradient – The change of a stream in vertical elevation per unit of horizontal distance.

Streamflow – The active flow of water within a stream, river, or creek.

Surface Storage – Use of above ground reservoirs to collect water for later release and use.[1]

Surface Water – Water that is flowing across or contained on the surface of the earth, such as in rivers, streams, creeks, lakes, and reservoirs.

Surplus Water – Water that is not being used directly or indirectly to benefit the environment, agricultural or urban use sectors.[1]

Sustainable – Capable of being maintained over the long term without significant environmental, social or economic damage.

Tailwater – Surface runoff water from irrigated agriculture.[1]

Technical Reviewers – A group of agency representatives assembled to evaluate the technical competence of a proposed project and the feasibility of the project being successful if implemented.[2]

Technical Review Committee – Group of stakeholders representing various interests who scored submitted projects in accordance with the project selection criteria.

Tertiary Treatment – Tertiary treatment provides effluent polishing to further improve the water quality of the effluent discharged from a wastewater treatment plant.

Threatened – A species likely to become endangered within the foreseeable future if certain conditions continue to deteriorate.

Total Capital Cost – Total monetary cost of option required for “turnkey” implementation, including environmental and third party impact mitigation, storage, conveyance, energy, capitalized operations and maintenance, administrative, planning, legal and engineering costs.[1]

Total Dissolved Solids (TDS) – A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution.[1]

Total Irrigated Crop Area – The total area of irrigated crops (by type) planted in a planning area during a given year. This number includes consideration of multiple cropping practices.[1]

Total Maximum Daily Load (TMDL) – Identifies the maximum quantity of a particular pollutant that can be discharged into a water body without violating a water quality standard, and allocates allowable loading amounts among the identified pollutant sources.[2]

Transpiration – An essential physiological process in which plant tissues give off water vapor to the atmosphere.[1]

Tributary – A smaller river or stream that joins a larger one and contributes to its water flow.

Turbidity – A measure of cloudiness and suspended sediments in water. Water high in turbidity appears murky and contains sediments in suspension. Turbid water may also result in higher concentrations of contaminants and pathogens, that bond to the particles in the water.

Unaccounted for Water – Deteriorated and aging infrastructure can play an important role in unaccounted for water (sometimes referred to as water losses), contributing to significant water leakage and a high rate of main breaks.[1]

Urban Water Management Planning Act – Sections 10610 through 10657 of the California Water Code (CWC). The Act requires urban water suppliers to prepare urban water management plans which describe and evaluate sources of water supplies, efficient uses of water, demand management measures, implementation strategies and schedules, and other relevant information and programs within their water service areas. Urban water suppliers (CWC §10617) are either publicly or privately owned and provide water for municipal purposes, either directly or indirectly, to more than 3,000 customers or supply more than 3,000 acre-feet of water annually.[1]

Urban Water Supplier – Supplier, either public or privately owned, that provides water for municipal purposes, either directly or indirectly, to more than 3,000 customers, or supplying more than 3,000 acre-feet of water annually (California Water Code [CWC] §10617).[2]

Urban Water Use Efficiency – Methods or technologies resulting in the same beneficial, residential, commercial, industrial, and institutional uses with less water or increased beneficial uses from existing water quantities.[1]

Usable Storage Capacity – The quantity of groundwater of acceptable quality that can be economically withdrawn from storage.[1]

Vernal Pools – Subset of wetlands that occur in shallow foothill and valley depressions. Water usually remains in the pools and swales from only a few days to a few months. The presence of low permeability soils (e.g., clay, hardpan) generally limit water filtration.[1]

Waste Discharge Requirements (WDRs) – Requirements that are adopted by the Regional Water Quality Control Boards to protect the waters of the state for the use and enjoyment of the people of California.

Waste Water Treatment Facility – Facilities that store and process municipal sewage before release.

Water Demand – The desired quantity of water that would be used if the water is available and a number of other factors, such as price, do not change. Demand is not static.[1]

Water Quality – A term used to describe the chemical, physical, and biologic characteristics of water with respect to its suitability for a particular use.[1]

Water Recycling – The process of treating wastewater for beneficial use, storing and distributing recycled water.[1]

Water Reliability – Dry: A measure of a system's ability to sustain the social, environmental, and economic systems that it serves during a dry year. Wet: A measure of a system's ability to sustain the social, environmental, and economic systems which it serves during a wet year.[1]

Water Reuse – The additional use of previously used water, with our without treatment.

Water Rights – In water law, refers to the right of a user to use water from a water source, e.g., a river, stream, pond or source of groundwater.[1]

Water Service Area – Geographic area in which a water agency is the designated water service provider.[1]

Water Transfer – A voluntary change in the way water is usually distributed among water users in response to water scarcity. Compare to water exchanges, which are typically water delivered by one water user. The receiving water will return the water at a specified time or when the conditions of the parties to the agreement are met.[1]

Water Year – A continuous 12-month period for which hydrologic records are compiled and summarized. Different agencies may use different calendar periods for their water years. The Department of Water Resources (DWR) water year is October 1 through September 30.[1]

Watershed – The land area from which water drains into a stream, river, or reservoir.

Watershed Management – The process of evaluating, planning, managing, restoring, and organizing land and other resource use within an area that has a single common drainage point.[1]

Wet Season – The period of time on an annual cycle in which the majority of rainfall occurs.[1]

Wild and Scenic River – State- and federal-designated river system based on 1968 Wild and Scenic Rivers Act, and the California Wild and Scenic Rivers Act of 1972.[1]

Wildfire – A sweeping and destructive conflagration, especially in a wilderness or a rural area.

Glossary References

[1] Department of Water Resources and State of California Natural Resources Agency. *California Water Plan Update 2009 Glossary, 2009*. 2009.

[2] Department of Water Resources Department of Integrated Water Management and State of California Natural Resources Agency. *Proposition 84 & 1E IRWM Guidelines*. 2010.

[3] Tuolumne-Stanislaus Integrated Regional Water Management Planning Program. *Memorandum of Understanding*. 2008.

[4] Tuolumne County General Plan.

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References

Alpine County. 2009. *General Plan.* September 16, 2009.

Bales, R.C., et al. 2011. *Forests and Water in the Sierra Nevada: Sierra Nevada Watershed Ecosystem Enhancement Project.* Prepared for Sierra Nevada Research Institute; Center for Forestry, University of California, Berkeley; and Center for Conservation Incentives. November 29, 2011.

Binkley Associates, Inc. 2011. Re: *Ranchito Well Study - Final Report*. Prepared for LDPCSD. December 13, 2011.

Black & Veatch. 2006. *Watershed Sanitary Survey Update Stanislaus River Watershed.* Prepared for SEWD, CCWD, TUD, UPUD, SNF, SCC, KFCSD, City of Angels, and BCC. May 2006.

Burr, B., Stephenson, J. and Benoit, J. 2011. *Public Review Draft Water and Wastewater Municipal Service Review.* Prepared for Calaveras LAFCO. April 15, 2011.

Calaveras County. 1996. *General Plan.* December 1996, amended through 2010.

Calaveras County Environmental Health Department. 2004. *Calaveras County Local Agency Ground Water Protection Program Final Report*. August 31, 2004.

Calaveras County Public Works. 2007. Calaveras County Storm Water Management Plan. July 30, 2007.

Calaveras County Water District Water Resources & Engineering Department with assistance from J. Crowley Group Water Resources Planning and Engineering. 2011. *Urban Water Management Plan 2010.*

CCWD. 2010. *Calaveras County Water District Sewer System Management Plan*. July 2010.

CDM. 2011. *Draft Handbook Regional Water Management Planning with Climate Change Adaptation and Mitigation.* Prepared for USEPA Region 9 Water Division. May 2011.

CH2MHILL. 2005. *Water Resources Plan Summary Report.* Prepared for Oakdale Irrigation District. November 2005.

City of Angels Camp. 2009. *Angels Camp 2020 General Plan.* February 3, 2009.

City of Sonora. 2007. *City of Sonora General Plan 2020.* May 30, 2007.

CSERC. 2009. 2009 Road Survey Report Identifying Resource Impacts and Public Safety Hazards on USFS Roads in the Stanislaus National Forest. 2009.

DWR. 2012. Integrated Regional Water Management Guidelines for Proposition 84 and 1E. November 2012.

DWR. 2010. Integrated Regional Water Management Guidelines for Proposition 84 and 1E. August 2010.

DWR. 2007. California Central Valley Unimpaired Flow Data - Fourth Edition Draft. May 2007

DWR. 2006. *California's Groundwater Bulletin 118: San Joaquin Valley Groundwater Basin Eastern San Joaquin Subbasin.* Updated January 20, 2006.

DWR. *California Irrigation Management Information System.* (accessed February 13, 2013).

DWR. *Land Use Surveys.* Various dates.

ESA. 2007. *Final Tuolumne County Foothill Watershed Assessment.* Prepared for Tuolumne County. February 2007.

FERC. 2004. *Draft Environmental Impact Statement for Hydropower Projects Stanislaus River Projects.* September 2004.

FERC. *eLibrary.* (accessed February 13 2013).

GCSD. 2011. *Urban Water Management Plan 2010.*

GCSD. 2007. *Exhibit "A" 2007 Municipal Service Review for the Groveland Community Services District.* Prepared for Tuolumne County LAFCO. 2007.

Horizon Water and Environment and cbec. 2012. *Final Report Tuolumne Utilities District Phoenix Lake Preservation and Restoration Plan.* Prepared for TUD. July 2012.

Hydrocomp, Inc. 2012. *Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios.* Prepared for SFPUC. January 2012.

Kennedy/Jenks Consultants. 2011. *Tuolumne Utilities District 2010 Urban Water Management Plan.* Prepared for Tuolumne Utilities District. June 2011.

Leland Meadows Water District. 2006. *Exhibit 'A' 2006 Municipal Service Review for the Leland Meadows Water District.* Prepared for Tuolumne County LAFCO. November 27, 2006.

Myers and Whited. 2012. *The Impact of Cattle Grazing in High Elevation Sierra Nevada Mountain Meadows over Widely Variable Annual Climatic Conditions*. Prepared for CSERC. July 17, 2012.

Myers and Whited. 2010. *Bacteria Contamination of Surface Waters Due to Livestock Grazing in the Stanislaus National Forest, California* (Second Year Study). Prepared for CSERC. August 30, 2010.

NCPA. *Hydroelectric Facilities.* (accessed February 13, 2013).

PMC. 2008. *Clavey River Ecosystem Project: Clavey River Watershed Assessment*. Prepared for CREP. March 2008.

RBF Consulting. 2001. *Wastewater Master Plan.* Prepared for GCSD. October 2001.

RBF Consulting. 2001. *Water Master Plan.* Prepared for GCSD. October 2001.

SFPUC. 2011. *2010 Urban Water Management Plan for the City and County of San Francisco.* June 22, 2011.

Stantec. 2012. *Ditch Sustainability Project Case Study.* Prepared for TUD. February 2012.

THCSD. 2007. *Exhibit "A" 2007 Municipal Service Review for the Twain Harte Community Services District.* Prepared for Tuolumne County LAFCO. April 30, 2007.

The Resources Agency Department of Parks and Recreation. 1989. *Unit 306 Calaveras Big Trees State Park General Plan.* May 1989.

TID. *Don Pedro Reservoir.* (accessed February 13 2013).

TUD. 2010. *Tuolumne Utilities District Wastewater Ordinance.* Amended February 23, 2010.

TUD. 2007. *Exhibit "A" 2007 Municipal Service Review for the Tuolumne Utilities District.* Prepared for Tuolumne County LAFCO. August 2007.

Tuolumne County. 2007. *Final Report Tuolumne County Water Quality Plan.* March 26, 2007.

Tuolumne County. 2004. *Tuolumne County Multi-Jurisdiction Hazard Mitigation Plan.* October 19, 2004.

Tuolumne County. 1996. *Tuolumne County General Plan Policy Document.* December 1996, amended through 2009.

U.S. Department of the Interior Bureau of Reclamation. 2010. *New Melones Lake Area Final Resource Management Plan Environmental Impact Statement*. February 2010.

U.S. Department of the Interior National Park Service. 1980. *General Management Plan Visitor Use/Park Operations/Development.* September 1980.

USDA. 2013. *Ecological Restoration Implementation Plan.* January 2013.

USDA Forest Service Pacific Southwest Region Stanislaus National Forest. 2010. *Stanislaus National Forest Plan Direction.* April 2010.

USEPA. 2011. *2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report Statewide.* October 11, 2011.

Weber, Ghio & Associates, Inc. 2004. *Union Public Utility District Water Master Plan 2002-2032.* Prepared for UPUD. February 2004.

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Appendix A

Core Documents

Appendix A.1

Memorandum of Understanding for Plan Development

Memorandum of Understanding
Tuolumne - Stanislaus
Integrated Regional Water Management Planning Program
May 18, 2011

This Memorandum of Understanding ("MOU") is entered into by and between the Tuolumne Utilities District, Groveland Community Services District, Twain Harte Community Services District, Lake Don Pedro Community Services District, County of Tuolumne, Utica Power Authority, Union Public Utilities District, Murphy's Sanitary District, County of Calaveras, Calaveras County Water District, City of Sonora, City of Angels Camp, Tuolumne County Resource Conservation District, Stanislaus National Forest, Central Sierra Environmental Resource Center, Tuolumne River Trust, Central Sierra Audubon, Tuolumne Group of the Sierra Club, Tuolumne County Farm Bureau, California Dept. of Fish & Game, U.S. Dept. of the Interior Yosemite National Park, Amador-Tuolumne Community Action Agency, and hereafter referred to collectively as the "Parties," effective July 1, 2011.

Additional parties may be added to this MOU by signing the addendum (attached).

Introduction

The primary purposes of the Tuolumne - Stanislaus Integrated Regional Water Management Program (IRWMP) are to prepare a Proposition 84 compliant IRWM Plan, and if agreed upon by participating Parties, seek funding sources for and jointly develop implementation programs and projects.

The IRWM Program is intended to follow the objectives of the Plan and the application of sound project selection criteria that mirror the Planning Grant Committee's commitment to integration of resource management strategies that maximize resource benefits in a sustainable fashion using efficient fiscal management.

The implementation of an IRWM Plan will promote collaboration throughout project implementation such that quantifiable ecosystem restoration and improved water supply and water quality benefits will occur in an integrated, cost and time efficient manner. The plan will integrate activities, which will increase environmental education and stewardship, reduce conflicts and litigation potential, and through interregional cooperation, increase understanding and participation in export water proposals as they relate to beneficial uses in the area of origin. Further, it is essential that a data management system be designed and maintained so that it can inform the PGC of the relative success of various Resource Management Strategies, programs and projects. This information will be key to an implementation effort grounded on adaptive management and guided by an active and involved governance entity. With the elements of collaboration, adaptive management and active governance in place, the IRWM Plan and Program can not only become the vehicle for guiding the investment of public fiscal resources, but it can also serve as one logical venue for resolving difficult matters of resource management policy in the Region.

This will require a regular IRWM Plan update process, which for the time being is anticipated to be coincident with the State's, own Water Plan updates (every 5 years), and with opportunities for more frequent amendments if warranted.

Following development of the Plan, the IRWM Program will require a sustainable, local community capacity to be developed from within the public agency members and as supported by the Non-Governmental Organization membership that enables the program to be ongoing and funded, to the extent possible, from non-state funds.

While this MOU addresses the process only through the development of the IRWM Plan there is an anticipated long-term organizational structure that would be needed to carry out the implementation of the Program, consistent with the precepts of Integrated Regional Water Management.

Recitals

Whereas, the California Department of Water Resources is coordinating the preparation of Integrated Regional Water Management Programs (IRWMP) throughout the state; and

Whereas, Parties include, but are not limited to water agencies, local governments, local agencies, federal agencies, land use management agencies and non-governmental organizations with interests within the planning region shown on Exhibit A attached hereto; and

Whereas, the Parties recognize a need for working collaboratively in developing integrated water and natural resources management and watershed management coordination on a regional scale; and

Whereas, several phases of work will be required to develop an IRWMP for the upper Stanislaus and Tuolumne River watersheds and the Little John Creek Watershed within Tuolumne and Calaveras counties, as shown on Exhibit A attached hereto, including but not limited to, IRWM Plan preparation, plan administration and program and project development.

Now, therefore, the Parties enter into this Memorandum of Understanding to carry out the objectives of the Integrated Regional Water Management Program ("IRWMP") for the upper Tuolumne and Stanislaus watersheds and the Little John Creek Watershed as shown on Exhibit A attached hereto, under the Terms and conditions contained herein and the Governance Principals and Financial Agreement attached hereto.

Terms

1. **Term.** This MOU is effective _____July 1, 2011_____, and shall continue in effect until such time as the IRWM Plan for the Tuolumne – Stanislaus Region is completed and approved by the Department of Water Resources, subject to the earlier withdrawal of any party as provided herein. This MOU may be extended by the written agreement of the parties hereto.

2. **Development of an IRWMP Proposition 84 compliant Plan.** The first phase of work under this MOU is the preparation of an IRWMP Proposition 84 compliant Plan. The parties agree to support and pursue the development of an Integrated Regional Water Management Plan for the upper Stanislaus and Tuolumne watersheds and the Little John Creek Watershed, as shown on Exhibit A attached hereto. The Parties hereby agree that:

    a. The decision-making entity shall generally meet once each month to review the status of the IRWM Plan and provide direction. Meetings shall be open to the public and provide reasonable opportunity for public comment. Decision-making shall be in compliance with the Governance Principles, attached hereto as Appendix A.

    b. Subcommittees and consultant work groups, formally or informally formed, may meet to carry out the tasks associated in support of the IRWMP Program' and consistent with the Governance Principles.

    c. The Parties will support the process and tasks necessary to develop an upper Tuolumne - Stanislaus and Little John Creek Watershed IRWMP Plan as shown on Exhibit A attached hereto.

    d. The Tuolumne Utilities District (TUD) shall act as the program administrative agency as described in the Financial Agreement, attached hereto as Appendix B. TUD shall provide meeting rooms, appurtenant equipment, conference rooms and other "in kind" services as needed and provided in the Financial Agreement.

    e. TUD shall provide staff and the program consultant to support the IRWMP Planning Program as provided in the Financial Agreement.

    f. Other parties shall also provide support as provided in the Financial Agreement.

    g. The participating Parties will continue to seek other sources of funding in support of the IRWMP Planning effort.

h. In support of the objective of obtaining an IRWMP Planning grant, the Parties will develop and submit written comments on the anticipated grant program Guidelines from the Department of Water Resources (DWR).

i. The Parties may participate in opportunities, both formally and informally, to provide additional comments and suggestions to the DWR as related to the IRWMP.

3. **Role and Authority of the Parties.** This MOU does not create any new authority in any Party and does not transfer any existing authority from one Party to another. The sole purpose of this MOU is to promote coordination among the Parties in the development; of an IRWMP for the Region. This MOU does not provide authority for any Party to bind another Party.

4. **Administrative Agency**. The Tuolumne Utilities District (TUD) shall serve as the administrative agency for this MOU, to provide appropriate services in support thereof, and to receive, disburse, and account for funds related to this MOU as provided in the Financial Agreement. The TUD shall be responsible for any necessary financial reporting under this MOU, including reports needed to comply with the terms of any grant agreement.

5. **Withdrawal from MOU.** Any Party may withdraw from this MOU upon written notice to the other Parties. Withdrawal shall be in compliance with any responsibilities contained within the Financial Agreement.

6. **General Provisions.**

a. Notices and Contact Persons. All notices required or permitted under this MOU shall be sent to all signatories of this MOU.

b. Effect of MOU. In entering into this MOU, it is the intention of the Parties that this MOU shall not be construed to be an enforceable contract or agreement, but is rather a statement of principles and intentions, and shall not be the basis for litigation between the parties or by any third party. This MOU is not intended to, and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, against any of the Parties or their agencies or officers or against any person.

c. Public Information and Records. Any information furnished to the Forest Service or other federal agency under this MOU is subject to the Freedom of Information Act (5 U.S.C. 552). Records of the other public Parties are

subject to the California Public Records Act (Government Code Section 6250 et seq.).

d. Participation in Similar Activities. This MOU in no way restricts the Parties from participating in similar activities with other public or private agencies, organizations, or individuals.

e. Funding of Parties. Except to the extent identified within the Financial Agreement or expressly provided for in support of IRWMP Plan, the Parties and their respective organizations and agencies and offices will handle their own activities and use their own resources, including the expenditure of their own funds, in carrying out activities related to this Program.

f. Future MOU Signatories. New signatories to this MOU shall be approved upon consensus of the Parties hereto. Addition of new signatories shall not require revision of this MOU.

The Parties hereto have executed this instrument

Tuolumne Utilities District

Gary J. Wells, R.C.E.
Groveland Community Services District

Twain Harte Community Services District

William A Trusselo
Lake Don Pedro Community Services Dist.

County of Tuolumne

County of Calaveras

Calaveras County Water District

Non-participant April 18, 2012
City of Sonora

City of Angels Camp

Susan Skalski
Stanislaus National Forest

Lindsey Rascoe
Tuolumne County Resource Conservation Dist.

Patrick Koepke
Tuolumne River Trust

I hereby certify that according to the provisions of Government Code Section 25103, delivery of this document has been made.

ADICIA J. JAMAR
Clerk of the Board

By:

Central Sierra Environmental Resource Center

Central Sierra Audubon

Tuolumne Group of the Sierra Club

Tuolumne County Farm Bureau

Murphys Sanitary District

Union Public Utility District

Utica Power Authority

Non-participant April 18, 2012
U.S. Dept. of the Interior
Yosemite National Park

Non-participant April 18, 2012
Department of Fish and Game

Amador-Tuolumne Community Action Agency

~~Tuolumne County Building Industry~~

Addendum

Memorandum of Understanding
Tuolumne – Stanislaus
Integrated Regional Water Management Planning Program

This addendum to the May 18, 2011, Memorandum of Understanding (MOU) of the Tuolumne – Stanislaus IRWM Planning Program, provides a list of those organizations or agencies that have executed the agreement after May 18, 2011. All conditions and terms of the May 18, 2011, MOU shall be binding and in effect immediately upon the parties executing the MOU as listed below.

Tuolumne County Building Industry

Tuolumne County Business Council

APPENDIX A

Tuolumne - Stanislaus Integrated Regional Water Management Program
Governance Principles
August 8, 2012

I. PURPOSES

The primary purposes of the Tuolumne - Stanislaus Integrated Regional Water Management Program (IRWMP) are to prepare a Proposition 84 compliant IRWM Plan, and if agreed upon by participating Parties, seek funding sources for and jointly develop implementation programs and projects.

The IRWM Program is intended to follow the objectives of the Plan and the application of sound project selection criteria that mirror the Planning Grant Committee's commitment to integration of resource management strategies that maximize resource benefits in a sustainable fashion using efficient fiscal management.

Implementation of the IRWM Plan will promote collaboration throughout project implementation such that quantifiable ecosystem restoration and improved water supply and water quality benefits will occur in an integrated, cost and time efficient manner. The plan will integrate activities, which will increase environmental education and stewardship, reduce conflicts and litigation potential, and through interregional cooperation, increase understanding and participation in export water proposals as they relate to beneficial uses in the area of origin. Further, it is essential that a data management system be designed and maintained so that it can inform the PGC of the relative success of various Resource Management Strategies, programs and projects. This information will be key to an implementation effort grounded on adaptive management and guided by an active and involved governance entity. With the elements of collaboration, adaptive management and active governance in place, the IRWM Plan and Program can not only become the vehicle for guiding the investment of public fiscal resources, but it can also serve as one logical venue for resolving difficult matters of resource management policy in the Region.

This will require a regular IRWM Plan update process, which for the time being is anticipated to be coincident with the State's, own Water Plan updates (every 5 years), and with opportunities for more frequent amendments if warranted.

Following development of the Plan, the IRWM Program will require a sustainable, local community capacity to be developed from within the public agency members and as supported by the Non-Governmental Organization membership that enables the

program to be ongoing and funded, to the extent possible, from non-state funds.

While the Program's MOU addresses the process only through the development of the IRWM Plan there is an anticipated long-term organizational structure that would be needed to carry out the implementation of the Program, consistent with the precepts of Integrated Regional Water Management.

The IRWM Plan shall be compliant with Proposition 84 and provide for an integrated approach to water management across two watersheds of the region -- the upper Stanislaus River watershed (in southern Calaveras County and northern Tuolumne County) and the upper Tuolumne River watershed (entirely in Tuolumne County), as shown on Exhibit A attached hereto. A soundly developed IRWM Plan, anchored on balanced objectives and supported by a broad and diverse spectrum of interests within the region, will provide multiple opportunities from various funding sources (federal, state and local) to implement a visionary and effective IRWM Program. Implementation measures could provide for enhancing the beneficial uses of water resources and man-made infrastructure of the region, while restoring or protecting natural aquatic systems and watersheds. They could also improve water reliability, improve the affordability of water for beneficial uses, and improve water quality. A completed Tuolumne – Stanislaus IRWM Plan could also assure that all of the various components of the Plan share a common and overarching environmental stewardship covenant.

II. IRWM PLAN TIMETABLE

The development of an IRWM Plan in compliance with Proposition 84 is intended to be carried out consistent with the schedule as submitted to the Department of Water Resources in the formal application for a Planning Grant as awarded by the Department of Water Resources.

III. TUOLUMNE – STANISLAUS WATERSHEDS STAKEHOLDER IRWMP GOVERNANCE STRUCTURE

1. **Planning Grant Committee:** The Planning Grant Committee, comprised of organizations representing diverse interests from within both the upper Stanislaus and Tuolumne watersheds, as shown on Exhibit A attached hereto is the decision - making body of the Tuolumne – Stanislaus IRWMP. Members of the Planning Grant Committee must execute the Memorandum of Understanding for the Tuolumne - Stanislaus IRWMP Program.

2. **Designated Committees:** Various committees may be appointed from time to time by the Planning Grant Committee based on the needs of the IRWMP effort. Designated Committees may meet to participate with and/or assist staff and consultants with a variety of matters for which staff needs more regular input and consultation.

Designated Committees may play a role in the development of the IRWM Plan at the request of the Planning Grant Committee, but they will have no independent decision-making authority.

3. **Public Forum:** The "Public Forum" is the term used to describe the general public and the broad range of organizations interested in the Tuolumne - Stanislaus IRWMP plan development processes that seek information about planning activities either by attendance at meetings or through other means of communication. The planning process will seek input from the Public Forum through verbal and written comments.

IV. ROLES AND RESPONSIBILITIES

Planning Grant Committee

1. Organizations and governmental agencies participating in the Tuolumne – Stanislaus IRWMP process will select one formal designee to represent them on the Tuolumne – Stanislaus IRWMP Planning Grant Committee. The designee will represent the views of the organization that selected them to participate in the process.

2. Planning Grant Committee members will attend meetings consistently and, if unable to attend any session, will send an alternate also chosen by their participating group. The use of alternates is not encouraged as this can interfere with the continuity of discussion and decision-making. Time is of the essence in this process as the schedule is set by the DWR.

3. The Planning Grant Committee is the decision-making body of the Tuolumne – Stanislaus IRWM Program. Its members will make a good faith effort to achieve consensus in order to produce a plan with the strongest support possible.

4. Members will regularly communicate information about the process to their organizations or agencies, as well as to the individual constituencies and communities they represent.

5. The Planning Grant Committee will make decisions in accordance with the rules set out in Section VIII on Decision-Making.

6. A Planning Grant Committee member's eligibility to take part in Tuolumne – Stanislaus IRWMP decision-making also depends on active participation by that member. Active Participation is defined in Section VIII (4) below.

Designated Committee(s)

1. Designated Committees may consist of any number of members as approved by the Planning Grant Committee.

2. The role of a Designated Committee may include process planning and logistics or other work to assist staff and consultants with scheduling, recommendations for process, modifications, communication, and other tasks as needed in between Planning Grant Committee meetings.

3. Designated committees will have no decision-making authority.

4. A Designated Committee will strive for consensus and, lacking that, will present the full range of opinions on any proposal to the Planning Grant Committee to inform the Planning Grant Committee's decisions.

5. The number of committees designated by the Planning Grant Committee should be kept to a minimum in recognition of both available times from Planning Grant Committee members and budget management.

Public Forum

The "Public Forum" is the term used to describe the general public and the broad range of organizations that may be interested in the Tuolumne – Stanislaus IRWM Planning process and that seek information about related activities either by attendance at meetings or through other means of communication. The Tuolumne – Stanislaus IRWM Planning process will seek input from the Public Forum on the program's direction and content.

Strategies for reaching this larger audience include:

1. When possible provide for a public comment time at Planning Grant Committee meetings; which shall be allowed in a flexible and inclusive manner rather than limited to a single period;

2. Developing a master mailing list compiled by the Planning Grant Committee consisting of lists contributed by member organizations as well as from public inquiries, meeting attendance lists, and website sign-ins;

3. Materials created by the Tuolumne – Stanislaus IRWM Program or its members to assist in updating constituents and others on planning activities and to inform local and regional media of milestone achievements;

4. Outreach to tribal governments to elicit their input in a manner consistent with protocols on government-to-government relationships;

5. Additional efforts to identify and communicate with known Environmental Justice communities throughout the region; and

6. Other public participation strategies as developed by the Planning Grant Committee or a Designated Committee.

V. PLANNING GRANT COMMITTEE MEETING SCHEDULE

The regular day and time for the Planning Grant Committee meetings will be the third Wednesday of every month, at 9:00 a.m. Meetings will end at the conclusion of business. Modifications to this schedule may be made by agreement of the Planning Grant Committee.

VI. ATTENDANCE

Given the tasks ahead and the desire for consensus-based decision-making, regular attendance by each member or his/her designated representative is essential.

VII. COMMUNICATION

1. Meeting summaries will be provided following each Planning Grant Committee meeting.

2. Planning Grant Committee Members are asked to speak only for their organization or themselves when communicating with external parties, including the media, about the Tuolumne - Stanislaus IRWMP, unless there has been a formal adoption of a statement, concept, schedule, or recommendation by the Planning Grant Committee.

3. In addition, staff of participating Parties will be reasonably available to provide presentations of the group's work at meetings, conferences, or other venues consistent with budget management. Members are strongly encouraged to provide or arrange presentations about the group's work wherever feasible to increase awareness of the Tuolumne – Stanislaus IRWM Program.

VIII. PLANNING GRANT COMMITTEE DECISION-MAKING

1. **Consensus as the Fundamental Principle:** The Planning Grant Committee shall strive for consensus (agreement among all participants) in all of its decision-making. Working toward consensus is a fundamental principle of the Tuolumne – Stanislaus IRWM Program process.

2. **Definition of "Consensus":** In reaching consensus, some Planning Grant Committee members may strongly endorse a particular proposal, while others may accept it as just "workable." Others may be only able to "live with it." Still others may choose to "stand aside" by verbally noting a disagreement, yet allowing the group to reach a consensus without them if the decision does not affect them or compromise their interests. Any of these actions still constitutes consensus.

A. Planning Grant Committee Voting Process

- If no consensus is reached, then the PGC automatically moves to a voting structure. Absent consensus the necessary vote to take action on an item by the PGC is 70% or more of the PGC members present at the IRWM meeting. There is no minimum caucus of PGC members needed to take an action.

- However, those PGC members who could not "stand aside" will be asked to indicate whether they believe, in good faith, there is sufficient potential for compromise to recommend referral to the Plan Review Committee.

- PGC members will, if necessary, determine through a roll call vote whether there is a minimum of 70% of those present who wish to send the proposal to the Plan Review Committee (PRC) for further consideration. If the vote indicates the PGC does not believe the potential exists to develop a modified proposal, members will use the voting threshold of 70% to determine the fate of the proposal "on the table".

- If a proposal is referred to the PRC, the PRC will diligently strive to develop an acceptable proposal to present to the PGC at the next regularly scheduled meeting.

- If the PRC cannot come to consensus on a modified proposal, the PGC will vote on the original proposal utilizing the 70% threshold.

- If the PRC recommends a modified proposal, the PGC will attempt to come to consensus on the PRC recommendation.

- If the PGC cannot come to consensus on the modified proposal the PGC will vote on the PRC recommendation utilizing the 70%

threshold. The PGC may also vote on the original proposal, or any other modification to that proposal, utilizing the 70% threshold.

- If there is no vote of 70% or more for any action proposed, then the item is considered to not have been passed by the PGC.

3. **Definition of Active Participation by Planning Grant Committee Members:** Active participation means regular attendance at Planning Grant Committee meetings. If there is a question as to whether a Planning Grant Committee member should be considered "active" for purposes of decision-making, the Planning Grant Committee will make that determination based upon attendance records. Active participants will be Parties who have not missed more than two consecutive preceding official Planning Grant Committee meetings without representation from their organization.

4. **Check-Ins:** Throughout the process, in order to determine if the group is moving in a productive direction, the program facilitator, or the program consultant may also ask for an informal "read" of the group's perspective. Answers to request are used for the purpose of developing the dialogue and are not in any way binding.

5. **Conditional Endorsements:** It is also understood that Planning Grant Committee members represent organizations and, in some cases, may not be able to make final commitments without conferring first with their organization. In this case, agreements will be considered conditionally endorsed, pending organizational confirmation.

IX. TUOLUMNE – STANISLAUS WATERSHEDS IRWM PROGRAM PHILOSOPHY

The Tuolumne – Stanislaus IRWMP Planning Grant Committee is the decision-making body responsible for developing and approving the IRWM Proposition 84 compliant plan. Members of the Planning Grant Committee affirm their commitment to work in good faith with all the diverse interests represented on the Committee. Good faith implies an obligation to regularly attend and participate in meetings and strive to understand all perspectives, engage in dialogue and deliberation, and earnestly work toward building common ground and consensus with fellow Planning Grant Committee members.

The Tuolumne – Stanislaus IRWM Program philosophy also recognizes that Planning Grant Committee members and their organizations may have to occasionally unilaterally pursue their interests during the process. This does not imply that an organization is

violating their good faith participation. No interest participating in the process is being asked to abandon their obligations to their organizations or give up any type of rights.

X. GROUND RULES

The Planning Grant Committee will utilize the following standing ground rules regarding meeting protocol and may modify them as appropriate.

They individually and collectively agree to:

- Listen and frankly discuss subject matter with others who hold diverse views;
- Recognize and treat disagreements as problems to be solved rather than battles to be won;
- Refrain from ascribing motives or intentions to other participants; and
- Respect the integrity and values of other participants.

Several specific rules apply during meetings. The group agrees to:

- Efficiently use time and speak briefly when possible;
- Use conversational courtesy by raising hands so that the meeting facilitator can provide fair and orderly opportunities to speak;
- Keep pagers and mobile phones silent during meetings, and return calls during breaks; if possible
- Maintain schedules and agenda time allotments, including group discussions and public input periods.

XI. OPEN PROCESS

1. All meetings of the Tuolumne – Stanislaus IRWM Program Planning Grant Committee are open to the public.

2. Planning Grant Committee agendas will be sent out in advance of the meetings to the Tuolumne - Stanislaus IRWMP mailing list and will be posted on the TUD website.

3. At each meeting members of the public will be allowed timely opportunities to comment.

4. Members of the public are expected to adhere to the above Tuolumne – Stanislaus IRWM Program ground rules.

XII. AMENDMENTS TO THIS DOCUMENT

The Planning Grant Committee, utilizing the decision-making process as described in Section VIII above, may adopt changes to any portion of this document as desired.

APPENDIX B

Tuolumne-Stanislaus Integrated Regional Water Management Program
FINANCIAL AGREEMENT
July 18, 2012

This Financial Agreement (FA) is to support the Memorandum of Understanding for the development of the Tuolumne - Stanislaus Integrated Regional Water Management Program (IRWMP). The purpose of the FA is to identify and assign financial support and responsibility to participants in the IRWMP.

The FA assigns contribution responsibilities to support the IRWMP effort for the period July 1, 2012 through June 30, 2013. This funding period is intended to support a consensus-based public process that will work on the development of a Proposition 84 compliant plan consistent with the Scope of Work and Schedule application as awarded by the Department of Water Resources.

The funding for the period July 1, 2012 to June 30, 2013, covers the costs for those support activities for the IRWM program, as provided in the budget as adopted by the Planning Grant Committee. Those costs are borne in the interim by the Tuolumne Utilities District and are to be repaid proportionately by those agencies that execute the MOU and provide financial contributions.

The funding for the period of July 1, 2012 to June 30, 2013, covers the cost for those activities in support of continuing the IRWM process not funded within the Proposition 84 planning grant. These include but are not limited to; coordinating and managing the meetings of the Planning Grant Committee, maintaining the administrative record of proceedings, maintaining a liaison with the DWR Program staff, providing IRWM Program related information and assistance to Planning Grant Committee members and/or their organizations and the public, communicating with Program participants and DWR and working on program materials and providing staff support to the Center For Collaborative Policy (CCP) facilitation task on developing Project Selection Criteria for the IRWM Plan.

There may be additional contingency costs incurred during the period of the FA, upon the direction of the IRWM Planning Grant Committee. Those contingency costs will be proportionately shared, per this agreement, between those agencies that execute the MOU and provide financial contributions. The Parties hereto agree that prior to July 1, 2013 a subsequent FA will be developed.

The schedule is an estimate of time that will be required to maintain and provide institutional capacity in the development of the IRWM Proposition 84 compliant Plan. Due to the uncertainty in both the funding process and other factors outside the control

of the Planning Grant Committee, the FA costs are an estimate based upon current information and conditions. It is anticipated that if the schedule changes, adjustments may need to be made in the budget and therefore the contributions. Such adjustments would be made through the Planning Grant Committee decision-making process as consistent with this FA.

Participation in the Planning Grant Committee with financial contributions for public water service agencies shall be as follows; for all water agencies the amount of financial participation shall be based on the total estimated number of retail water/sewer connections as estimated below:

Tuolumne Utilities District	13,500 customers
Calaveras County Water Dist.	13,500
Groveland Community Serv. Dist.	3,200
Twain Harte Community Serv. Dist.	1,600
Lake Don Pedro Comm. Serv. Dist.	1,450
Union Public Utilities District	1,848
Murphys Sanitary District	783
Utica Power Authority	3,048

The County of Tuolumne would pay an amount that is equal to the Tuolumne Utilities District or based on 13,500 utility connections. The County of Calaveras would pay the amount that is equal to the Calaveras County Water District or based on 13,500 utility connections. Other water agencies shall pay based on estimated number of connections. The City of Angels Camp would pay an amount based on its population; 3,592.

Thus, total customers upon which to base allocation would equal 65,921. Each customer amount is divided by this total to provide an allocation percentage, which is rounded down, below.

Estimates of a proportional contribution to the budget for the twelve-month period (approximately $53, 949) for the twelve-month period would be:

Estimated Budget Total				
Agency	Customer Basis	Percentage of Total	Total Budget	50%
Tuolumne Utilities District	13,500	19.42%	$ 10,360	$ 5,180
Calaveras County Water Dist.	13,500	19.42%	$ 10,360	$ 5,180
Groveland Community Serv. Dist.	3,200	4.60%	$ 2,456	$ 1,228
Twain Harte Community Serv. Dist.	1,600	2.30%	$ 1,228	$ 614
Lake Don Pedro Comm. Serv. Dist.	1,450	2.09%	$ 1,113	$ 557
Murphys Sanitary District	783	1.13%	$ 601	$ 301
Union Public Utilities District	1,848	2.66%	$ 1,418	$ 709
Utica Power Authority	3,048	4.38%	$ 2,339	$ 1,170
Tuolumne County	13,500	19.42%	$ 10,360	$ 5,180
Calaveras County	13,500	19.42%	$ 10,360	$ 5,180
City of Angels	3,592	5.17%	$ 2,756	$ 1,378
Amador-Tuolumne Action Agency			$ 100	$ 50
CSERC			$ 100	$ 50
Central Sierra Audobon Society			$ 100	$ 50
TCRCD			$ 100	$ 50
Tuolumne Group of the Sierra Club			$ 100	$ 50
Tuolumne County Farm Bureau			$ 100	$ 50
Tuolumne River Trust			$ 100	$ 50
Totals	69,521	100.00%	$ 53,949	$ 27,028

These payments would be made proportionately as follows:

By September 30, 2012 50% of the actual program costs to that time would be paid to the Tuolumne Utilities District.

By January 1, 2013 50% of the actual program costs for that time period would be paid to the Tuolumne Utilities District.

In the event of withdrawal or addition of any number of financial participants, the total budget will be reallocated among the remaining participants. The reallocation of costs due to withdrawal of participants from the program will occur at the second billing cycle listed above. Should withdrawals and reallocation occur, each participating member will receive a supplemental bill to cover the proportional cost of the budget shortfall, in addition to their normal amount to be billed. The amount of such charges shall be agreed upon by the Planning Grant Committee prior to billing.

The Tuolumne Utilities District will act as the Administering Agency and maintain financial records for the IRWMP and act as the paying agent for all costs incurred during that time, subject to the reimbursement schedule herein defined.

For all non-governmental organizations, or those agencies that cannot contribute substantial financial resources, the contribution of "in kind" services, such as technical assistance, public affairs, outreach, data and information may serve to meet their proportional share of the program costs for the period of the FA, along with a minimum $100 contribution.

Appendix A.2

IRWM Guidelines Cross-Referencing Table

IRWM Guidelines Cross-Referencing Table

	IRWM Plan Requirement	IRWM Plan Location
	1. Governance	
a	Document a governance structure that ensures the IRWM Plan will be updated and implemented beyond existing State grant programs	1.3, 9.2.4, 9.6, Appendix A
b	Name of the RWMG responsible for development and implementation of the Plan. An RWMG must meet the definition of CWC §10539	1.3, 9.2.2.1
c	Description of the IRWM governance structure	1.3, 9.2.1, 9.2.2, Appendix A
d	Description of how the chosen form of governance addresses and ensures public outreach and involvement, processes effective decision making, balanced access and opportunity for participation in the IRWM process, effective communication both internal and external to the IRWM region, long term implementation of the IRWM Plan, coordination with neighboring IRWM efforts and State and federal agencies, the collaborative process(es) used to establish plan objectives, how interim changes and formal changes to the IRWM Plan will be performed, and updating or amending the IRWM Plan	1.4, 1.5, 5.3, 9.2.3, 9.2.4, 9.4.2.2, 9.6
	2. Region Description	
a	Description of the watersheds and water systems	2.2.1, 2.7, 2.9, 2.10, 4.5, 4.6
b	Description of internal boundaries within the region	2.6
c	Description of water supplies and demands for a minimum 20-year planning horizon	2.9, 4.3
d	Comparison of current and future (or proposed) water quality conditions in the region	2.11, 4.4
e	Description of the social and cultural makeup of the regional community	2.3
f	Description of major water related objectives and conflicts in the defined management region	4
g	Explanation of how the IRWM regional boundary was determined and why the region is an appropriate area for IRWM planning	1.2.3
h	Identification of neighboring and/or overlapping IRWM efforts (if any) and an explanation of the planned/working relationship that promotes cooperation and coordination between regions.	1.4.4
	3. Objectives	
a	Clearly present plan objectives and describe the process used to develop the objectives	5.1, 5.2, 5.3, 5.4, Appendix F
b	Explanation of the prioritization or reason why the objectives are not prioritized	5.5, 5.6

IRWM Guidelines Cross-Referencing Table

	IRWM Plan Requirement	IRWM Plan Location
	4. Resource Management Strategies	
a	Document the range of RMS considered to meet the IRWM objectives and identify which RMS were incorporated into the IRWM Plan	6
	5. Integration	
a	Structures and processes that provide opportunities to develop and foster integration	7.1, 7.3, 9.2
	6. Project Review Process	
a	Process or processes to select projects for inclusion in the IRWM Plan.	7.2, 7.3
b	Procedures for submitting a project to the RWMG	7.1
c	Procedure for review of projects considered for inclusion into the IRWM Plan	7.2, 7.3
d	List(s) of selected projects	7.3.1, Appendix E
	7. Impact and Benefit	
a	Discussion of potential impacts and benefits of Plan implementation	8
	8. Plan Performance Monitoring	
a	Performance measures and monitoring methods to ensure the objectives of the Plan are met. Describe a method for evaluating and monitoring the RWMG's ability to meet the objectives and implement the projects in the IRWM Plan	9.4, 9.5
b	Explanation of who or what group within the RWMG will be responsible for IRWM implementation evaluation	9.2.2, 9.5
c	List the frequency of evaluating the RWMG's performance at implementing projects in the IRWM Plan (monthly, semi-annual, yearly, etc.)	9.4.1.1
d	Explanation of how IRWM implementation will be tracked with a Data Management System and who will be responsible for maintaining the DMS	9.4.2
e	Discussion on how findings or "lessons learned" from project-specific monitoring efforts will be used to improve the RWMG's ability to implement future projects in the IRWM Plan	9.4.1.1
f	Identification of who has the primary responsibility for developing and conducting project-specific monitoring plans	9.4.1.1
g	Specify the stage of project development that a project-specific monitoring plan will be prepared.	9.4.1.1
h	Explanation of the monitoring plan contents	9.4.1.1
	9. Data Management	
a	Describe the process of data collection, storage, and dissemination to IRWM participants, stakeholders, the public, and the State.	9.4.2

IRWM Guidelines Cross-Referencing Table

	IRWM Plan Requirement	IRWM Plan Location
	10. Technical Analysis	
a	Document the data and technical analyses that were used in the development of the IRWM Plan	Appendix C
b	Description of the technical information sources and/or data sets used to develop the water management needs in the IRWM plan	Appendix C
c	Description of the studies, models, or other technical methodologies used to analyze the technical information and data sets	Appendix C
	11. Finance	
a	Plan for implementation and financing of identified projects and programs (CWC §10541.(e)(8)). The IRWM Plan must also identify and explain potential financing for implementation of the IRWM Plan	9.3
b	List known, as well as, possible funding sources, programs, and grant opportunities for the development and ongoing funding of the IRWM Plan	9.3.2
c	List the funding mechanisms, including water enterprise funds, rate structures, and private financing options, for projects that implement the IRWM Plan	9.3.2.1
d	Explanation of the certainty and longevity of known or potential funding for the IRWM Plan and projects that implement the Plan	9.3.2
e	Explanation of how operation and maintenance (O&M) costs for projects that implement the IRWM Plan would be covered and the certainty of operation and maintenance funding	9.3.2
	12. Relation to Local Water Planning	
a	List of local water plans used in the IRWM Plan	Appendix C1.2, C1.3
b	Discussion of how the IRWM Plan relates to planning documents and programs established by local agencies	3.1
c	Description of the dynamics between the IRWM Plan and local planning documents	3.1
	13. Relation to Local Land Use Planning	
a	IRWM Plans must contain processes that foster communication between land use managers and RWMGs with the intent of effectively integrating water management and land use planning	3.2.3
b	Document current relationship between local land use planning, regional water issues, and water management objectives	3.2
c	Document future plans to further a collaborative, proactive relationship between land use planners and water managers	3.2

IRWM Guidelines Cross-Referencing Table

	IRWM Plan Requirement	IRWM Plan Location
	14. Stakeholder Involvement	
a	Public process that provides outreach and an opportunity to participate in IRWM Plan development and implementation to the appropriate local agencies and stakeholders, as applicable to the region	1.4.1, 10.1.1, 10.1.2, Appendix B
b	Process used to identify, inform, invite, and involve stakeholder groups in the IRWM process, including mechanisms and processes that have been or will be used to facilitate stakeholder involvement and communication during development and implementation of the IRWM Plan	1.4.1, 1.4.2, 1.4.3, 10.1.1, 10.1.2
c	Discussion on how the RWMG will endeavor to involve DACs and Native American tribal communities in the IRWM planning effort	1.4.3, 9.2.3
d	Description of the decision making process including IRWM committees, roles, or positions that stakeholders can occupy and how a stakeholder goes about participating in those committees, roles, or positions regardless of their ability to contribute financially to the Plan	1.4.3, 9.2.2, 9.2.3, 9.2.4
e	Discussion regarding how stakeholders are necessary to address the objectives and resource management strategies of the IRWM Plan and are involved or are being invited to be involved in Plan activities	1.4.1, 1.4.2, 1.4.3, 5.3
f	Discussion of how collaborative processes will engage a balance of the interest groups listed above in the IRWM process regardless of their ability to contribute financially to the IRWM Plan's development or implementation	1.4.1
	15. Coordination	
a	Identification of a process to coordinate water management projects and activities of participating local agencies and local stakeholders to avoid conflicts and take advantage of efficiencies (CWC §10541.(e)(13))	1.4, 9.2.3, 10.1
b	Identification of other neighboring IRWM efforts and the way cooperation or coordination with these other efforts will be accomplished and a discussion of any ongoing water management conflicts with adjacent IRWM efforts	1.4.4, 10.3
c	Identification of areas where a State agency or other agencies may be able to assist in communication, cooperation, or implementation of IRWM Plan components, processes, and projects, or where State or federal regulatory decisions are required before implementing the projects	1.4.2, 9.3.2, 10.2

IRWM Guidelines Cross-Referencing Table

	IRWM Plan Requirement	IRWM Plan Location
	16. Climate Change	
a	Address adaptation to the effects of climate change and mitigation of GHG emissions	5.4, 5.6.2
b	Discussion of the potential effect 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 to those vulnerabilities. The evaluation of vulnerabilities must, at a minimum, be equivalent to the vulnerability assessment contain in the Climate Change Handbook for Regional Water Planning (December, 2011) (http://www.water.ca.goy/climatechange/CCHandbookcfm).	4.7, 5.6, Appendix D
c	A process that discloses and considers GHG emissions when choosing between project alternative and mitigation strategy	5.6.2, 7.2.1
d	List of prioritized vulnerabilities based on the vulnerability assessment and the IRWM's decision making process	4.7.2, 5.6.1, Appendix D
e	Plan, program, or methodology for further data gathering and analysis of the prioritized vulnerabilities	5.6.2

Appendix A.3

Organizations that have Adopted or Endorsed the IRWM Plan

Appendix A.3: Organizations that have Adopted or Endorsed the IRWM Plan

Additional Tuolumne-Stanislaus IRWM Plan adoption resolutions and letters of endorsement and support will be appended once they are received.

- Central Sierra Audubon Society
- Central Sierra Environmental Resource Center
- Murphys Sanitary District
- Tuolumne City Sanitary District
- Tuolumne County Building Industry
- Tuolumne Utilities District

Central Sierra
AUDUBON
SOCIETY

P.O. BOX 3047 • SONORA, CA 95370 • (209) 532-0570

August 23, 2013

Kennedy Jenks Consultants
C/O Sean Maguire
10850 Gold Center Drive, Suite 350
Rancho Cordova, CA 95670

Subject: Support of Tuolumne-Stanislaus Integrated Regional Water Management Plan (IRWM Plan)

To Whom It May Concern:

The Tuolumne - Stanislaus IRWM Plan was completed in August of 2013 and represents the long-term efforts of numerous entities with vested interests in improving water quality, water supply reliability, water recycling, water conservation, flood control, recreation and access, wetlands enhancement and creation, and environmental and habitat protection in the Upper Tuolumne River and Upper Stanislaus River watersheds.

My organization, the Central Sierra Audubon Society (CSAS), has been a participant in the development of the IRWM Plan. As such, CSAS supports the Tuolumne-Stanislaus IRWM Plan and will participate in active implementation of the Tuolumne-Stanislaus IRWM Plan. For the past six plus years, the CSAS has demonstrated active participation in Tuolumne-Stanislaus IRWM activities through attending meetings, reviewing documents and participating in committees.

CSAS supports the Tuolumne-Stanislaus IRWM Plan Update and will continue to support Tuolumne-Stanislaus IRWM plan implementation and accepts the Tuolumne-Stanislaus IRWM Plan as proposed. To this end, CSAS will continue involvement in IRWM Plan implementation activities including on-going attendance at Tuolumne-Stanislaus IRWM Plan/JPA meetings.

The original signed letter of support will be held at the office of the Tuolumne County Resource Conservation District office. Please include this copy of our letter in the T-Stan IRWM Plan. Thank you.

Sincerely,

Thomas E. Parrington, Vice-President for Conservation
Central Sierra Audubon Society

Resolution of the Board of Directors of the Central Sierra Environmental Resource Center

Resolution:

Over the past six years, members of the CSERC staff have participated in the lengthy collaborative planning efforts of the Tuolumne-Stanislaus Integrated Regional Water Management Planning process. That process has now culminated in a formal management plan for the upper Tuolumne and upper Stanislaus Rivers, as well as a list of projects desired for funding and implementation that have been submitted by various members of the Planning Grant Committee.

The CSERC Board of Directors officially accepts the Tuolumne-Stanislaus Integrated Regional Water Management Plan as presented at the June 2013 IRWM meeting. This resolution of acceptance of the IRWM plan has been approved by a unanimous vote of CSERC's Board of Directors at the July 9, 2013 quarterly board session held at Twain Harte, California.

signed _____

Dr. Tom Hofstra, President, Board of Directors

Date July 11, 2013

MURPHYS SANITARY DISTRICT

RESOLUTION NO. 2013-04

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MURPHYS SANITARY DISTRICT, MURPHYS, CALIFORNIA, ADOPTING THE TUOLUMNE-STANISLAUS INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWM PLAN)

WHEREAS, the Murphys Sanitary District has the responsibility for water management through its activities of wastewater treatment; and

WHEREAS, in 2002, the California legislature enacted Division 6, Part 2.2, of the California Water Code, known as the Integrated Regional Water Management Planning Act of 2002 ("Act") for, among other things, the purpose of encouraging local agencies to work together to manage their available water supplies and to improve the quality, quantity, and availability of those supplies; and

WHEREAS, the Act encourages local agencies of different types to join together to form a Regional Water Management Group (RWMG) to address water supply, quantity, and quality issues in their areas; and

WHEREAS, on or about August 2010, Tuolumne Utilities District, Groveland Community Services District, Twain Harte Community Services District, Lake Don Pedro Community Services District, County of Tuolumne, County of Calaveras, Calaveras County Water District, City of Sonora, City of Angels Camp, Tuolumne County Resource Conservation District, Stanislaus National Forest, Central Sierra Environmental Resource Center, Tuolumne River Preservation Trust, Central Sierra Audubon, Tuolumne Group of the Sierra Club, Tuolumne County Farm Bureau, and the Sierra Nevada Alliance pursuant to a Memorandum of Understanding and associated Governance Principles, entered into by said parties, formed a Planning Grant Committee (PGC) to address the resource stewardship, water supply, quality, and quantity issues in their region. As described in the Regional Acceptance Process Submittal, the Regional Water Management Group is a component of the PGC; and

WHEREAS, on or about May 2011, Murphys Sanitary District, became a participant in the Tuolumne-Stanislaus Integrated Regional Water Management Group and signed the amended Memorandum of Understanding.

WHEREAS, the Tuolumne-Stanislaus Integrated Regional Water Management Group, of which the Murphys Sanitary District is a member, has developed a proposed Integrated Regional Water Management Plan for the upper Tuolumne and Stanislaus Rivers, and pursuant thereto, published notice of the group's intention to adopt such a plan in accordance with the requirements of the Act; and

WHEREAS, the proposed Tuolumne-Stanislaus Integrated Regional Water Management Plan was developed through a comprehensive stakeholder process; and

WHEREAS, the Tuolumne-Stanislaus Integrated Regional Water Management Plan is not "project" within the meaning of the California Environmental Quality Act (CEQA) because

the plan is not likely to cause any significant physical change to the environment, given that it is simply a planning tool. But even if the plan is a project subject to CEQA review, it is exempt from CEQA review pursuant to, inter alia, Section 15262 and Section 15306 of the State CEQA Guidelines. It is exempt under Section 15262 because it involves a conceptual plan associated with feasibility and planning studies for possible future actions. Further, it is exempt under

Section 15306 because it involves basic data collection, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource.

NOW, THEREFORE, the Board of Directors of the Murphys Sanitary District does hereby resolve, determine, and order as follows:

SECTION 1. The Board of Directors adopts the Tuolumne-Stanislaus Integrated Regional Water Management Plan on behalf of the Murphys Sanitary District.

SECTION 2. The GOVERNING BODY SECRETARY shall certify to the adoption of this Resolution. PASSED, APPROVED AND ADOPTED this 12th day of August, 2013.

Delma E. Harris

BOARD PRESIDENT

ATTEST:

BOARD SECRETARY

MURPHYS SANITARY DISTRICT

STATE OF CALIFORNIA)
COUNTY OF NAME) ss.
CITY/AGENCY NAME)

I, Cindy Nugent Clerk to the Board of the Murphys Sanitary District, do hereby certify that the foregoing Resolution 2013-04 was duly adopted by the Board of Directors of the Murphys Sanitary District at a regular meeting thereof, held on the 12th day of August 2013, by the following vote:

AYES: 4

NOES: 0

ABSENT: 0

Cindy Nugent
Murphys Sanitary District Clerk to the Board

MURPHYS SANITARY DISTRICT

STATE OF CALIFORNIA)
CALAVERAS COUNTY) ss.
MURPHYS SANITARY DISTRICT)

CERTIFICATION OF MURPHYS SANITARY DISTRICT RESOLUTION

I, Cindy Nugent, Clerk to the Board of the Murphys Sanitary District, do hereby certify that this is a true and correct copy of the original Resolution No. 2013-04, adopted by the Board of Directors of the Murphys Sanitary District Murphys, California on August 12, 2013, which is now on file in my office.

Witness my hand and seal of the Murphys Sanitary District, Murphys, California, on this 12th day of August 2013.

Cindy Nugent
Murphys Sanitary District Clerk to the Board

August 22, 2013

Kennedy Jenks Consultants
C/O Sean Maguire
10850 Gold Center Drive, Suite 350
Rancho Cordova, CA 95670

Subject: Support of Tuolumne-Stanislaus Integrated Regional Water Management Plan (IRWM Plan)

To Whom It May Concern:

The Tuolumne - Stanislaus IRWM Plan was completed in August of 2013 and represents the long-term efforts of numerous entities with vested interests in improving water quality, water supply reliability, water recycling, water conservation, flood control, recreation and access, wetlands enhancement and creation, and environmental and habitat protection in the Upper Tuolumne River and Upper Stanislaus River watersheds.

Tuolumne City Sanitary District has been a participant in the development of the IRWM Plan. As such, the Tuolumne City Sanitary District supports the Tuolumne-Stanislaus IRWM Plan and will participate in active implementation of the Tuolumne-Stanislaus IRWM Plan. In the past, the Tuolumne City Sanitary District has demonstrated active participation in Tuolumne-Stanislaus IRWM activities through attending meetings, reviewing documents, and participating in committees.

Tuolumne City Sanitary District does not have a formal governance body that can adopt the Tuolumne-Stanislaus IRWM Plan Update. However, Tuolumne City Sanitary District will continue to support Tuolumne-Stanislaus IRWM plan implementation and accepts the Tuolumne-Stanislaus IRWM Plan as proposed. To this end, Tuolumne City Sanitary District will continue involvement in IRWM Plan implementation activities including on-going attendance at Tuolumne-Stanislaus IRWM Plan meetings.

The original signed letter of support will be held at the office of the Tuolumne County Resource Conservation District office. Please include this copy of our letter in the T-Stan IRWM Plan. Thank you.

Sincerely,

John Feriani
Tuolumne City Sanitary District – Board President

TCBI
Tuolumne County Building Industry

August 22, 2013

Kennedy Jenks Consultants
C/O Sean Maguire
10850 Gold Center Drive, Suite 350
Rancho Cordova, CA 95670

Subject: Support of Tuolumne-Stanislaus Integrated Regional Water Management Plan (IRWM Plan)

To Whom It May Concern:

The Tuolumne - Stanislaus IRWM Plan was completed in August of 2013 and represents the long-term efforts of numerous entities with vested interests in improving water quality, water supply reliability, water recycling, water conservation, flood control, recreation and access, wetlands enhancement and creation, and environmental and habitat protection in the Upper Tuolumne River and Upper Stanislaus River watersheds.

Tuolumne County Building Industry Association (TCBI) has been a participant in the development of the IRWM Plan. As such, the TCBI supports the Tuolumne-Stanislaus IRWM Plan and will participate in active implementation of the Tuolumne-Stanislaus IRWM Plan. In the past, the TCBI has demonstrated active participation in Tuolumne-Stanislaus IRWM activities through attending meetings, reviewing documents, and participating in committees.

The TCBI does not have a formal governance body that can adopt the Tuolumne-Stanislaus IRWM Plan Update. However, TCBIA will continue to support Tuolumne-Stanislaus IRWM plan implementation and accepts the Tuolumne-Stanislaus IRWM Plan as proposed. To this end, TCBI will continue involvement in IRWM Plan implementation activities including on-going attendance at Tuolumne-Stanislaus IRWM Plan meetings.

The original signed letter of support will be held at the office of the Tuolumne County Resource Conservation District office. Please include this copy of our letter in the T-Stan IRWM Plan. Thank you.

Sincerely,

Mark Banks
President,
Tuolumne County Building Industry

RESOLUTION NO. 34-13

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE TUOLUMNE UTILITIES DISTRICT, SONORA, CALIFORNIA, ADOPTING THE TUOLUMNE-STANISLAUS INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWM PLAN)

WHEREAS, the Tuolumne Utilities District has the responsibility for water management through its activities of water supply, and wastewater treatment, and

WHEREAS, in 2002, the California legislature enacted Division 6, Part 2.2, of the California Water Code, known as the Integrated Regional Water Management Planning Act of 2002 ("Act") for, among other things, the purpose of encouraging local agencies to work together to manage their available water supplies and to improve the quality, quantity, and availability of those supplies; and

WHEREAS, the Act encourages local agencies of different types to join together to form a Regional Water Management Group (RWMG) to address water supply, quantity, and quality issues in their areas; and

WHEREAS, on or about August 2010, Tuolumne Utilities District, Groveland Community Services District, Twain Harte Community Services District, Lake Don Pedro Community Services District, County of Tuolumne, County of Calaveras, Calaveras County Water District, City of Sonora, City of Angels Camp, Tuolumne County Resource Conservation District, Stanislaus National Forest, Central Sierra Environmental Resource Center, Tuolumne River Preservation Trust, Central Sierra Audubon, Tuolumne Group of the Sierra Club, Tuolumne County Farm Bureau, and the Sierra Nevada Alliance pursuant to a Memorandum of Understanding and associated Governance Principles, entered into by said parties, formed a Planning Grant Committee (PGC) to address the resource stewardship, water supply, quality, and quantity issues in their region. As described in the Regional Acceptance Process Submittal, the Regional Water Management Group is a component of the PGC; and

WHEREAS, the Tuolumne-Stanislaus Integrated Regional Water Management Group, of which the Tuolumne Utilities District is a member, has developed a proposed Integrated Regional Water Management Plan for the upper Tuolumne and Stanislaus Rivers, and pursuant thereto, published notice of the group's intention to adopt such a plan in accordance with the requirements of the Act; and

WHEREAS, the proposed Tuolumne-Stanislaus Integrated Regional Water Management Plan was developed through a comprehensive stakeholder process; and

WHEREAS, the Tuolumne-Stanislaus Integrated Regional Water Management Plan is not "project" within the meaning of the California Environmental Quality Act (CEQA) because the plan is not likely to cause any significant physical change to the environment, given that it is simply a planning tool. But even if the plan is a project subject to CEQA review, it is exempt from CEQA review pursuant to, inter alia, Section 15262 and Section 15306 of the State CEQA Guidelines. It is exempt under Section 15262 because it involves a conceptual plan associated with feasibility and planning studies for possible future actions. Further, it is exempt under

Section 15306 because it involves basic data collection, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource.

NOW, THEREFORE, the Board of Directors of the Tuolumne Utilities District does hereby resolve, determine, and order as follows:

SECTION 1. The Board of Directors adopt the Tuolumne-Stanislaus Integrated Regional Water Management Plan on behalf of the Tuolumne Utilities District.

SECTION 2. The GOVERNING BODY SECRETARY shall certify to the

adoption of this Resolution. PASSED, APPROVED AND ADOPTED this:

3rd day of September, 2013 by the following vote:

AYES: Sarno, Rotelli, Maciel, Mikkelsen

NOES: None

ABSENT: Johnson

ABSTAINED: None

Michael P. Sarno, Board President

ATTEST:

Melissa McMullen, Board Clerk

STATE OF CALIFORNIA)
COUNTY OF TUOLUMNE) ss.
TUOLUMNE UTILITIES DISTRICT)

I, Melissa McMullen, Board Clerk of the Tuolumne Utilities District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of the Tuolumne Utilities District at a Special Board Meeting thereof, held on September 3, 2013, by the following vote:

AYES: Sarno, Rotelli, Maciel, Mikkelsen

NOES: None

ABSENT: Johnson

ABSTAINED: None

By _____
Michael P. Sarno, President
Board of Directors

_____
Melissa McMullen, Board Clerk

STATE OF CALIFORNIA)
COUNTY OF TUOLUMNE) ss.
TUOLUMNE UTILITIES DISTRICT)

CERTIFICATION OF TUOLUMNE UTILITES DISTRICT RESOLUTION

I, Melissa McMullen, Board Clerk of the Tuolumne Utilities District, do hereby certify that this is a true and correct copy of the original Resolution No. 34-13, adopted by the Board of Directors of the Tuolumne Utilities District, California on September 3, 2013 which is now on file in my office.

Witness my hand and seal of the Tuolumne Utilities District, California, this 3rd day of September, 2013.

Melissa McMullen, Board Clerk

By

Michael P. Sarno, President
Board of Directors

Appendix B

Outreach Material

Appendix B.1

Stakeholder Meeting Summaries

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, September 21, 2011

I. Meeting Opening

In Attendance:

Bill Airola	Union Public Utility District
Bob Behee	Tuolumne Utilities District
John Buckley	Central Sierra Environmental Resource Center
Jerry Cadagan	Tuolumne County resident
Craig Case	Amador-Tuolumne Community Action Agency
Rebecca Cremeen	Central Sierra Environmental Resource Center
Michelle Dooley	Department of Water Resources
Sasha J. Farkas	Tuolumne County Farm Bureau
Beth Hartline	Tuolumne County Economic Development Authority
Renee' Hendry	Tuolumne County Community Development Department
Sachi Itagaki	Kennedy/Jenks Consultants
Pete Kampa	Tuolumne Utilities District
Patrick Koepele	Tuolumne River Trust
Joone Lopez	Calaveras County Water District
Carolyn Lott	Center For Collaborative Policy
Sean Maguire	Kennedy/Jenks Consultants
Melissa McMullen	Tuolumne Utilities District
Gary Mello	Groveland Community Service District
Rebecca Miller-Cripps	U.C. Cooperative Extension
John S. Mills	Tuolumne Utilities District Water Consultant
Scot Moody	Twain Harte Community Services District
Frank Oyung	Tuolumne Group Sierra Club
Tom Parrington	Central Sierra Audubon
Ed Pattison	Calaveras County Water District
Mitch Pyle	Utica Power Authority
Vern Pyle	Utica Power Authority
Aaron Randi	Groveland Community Service District
Ron Ringen	TUD rate payer
Lindsay Rosasco	Tuolumne County Resource Conservation District
Don Stump	Calaveras County Water District
Jon Sturtevant	Tuolumne Group Sierra Club
Cynthia Trade	Murphys Sanitary District
Garett Walker	City of Angels Camp
Tim Williams	Kennedy/Jenks Consultants

a. Introductions

Carolyn Lott from the Center of Collaborative Policy introduced herself to the group and gave a brief summary of her role as the facilitator.

Self introductions were given by the group.

Carolyn Lott distributed the current distribution list for the group to review and make any revisions or additions of agencies or entities that should be receiving information.

b. Agenda Review

Carolyn Lott reviewed the agenda with the group and explained time limits and discussion on agenda items.

c. Ground rules
Carolyn Lott distributed and discussed the ground rules for the meeting and responded to any questions.

II. Welcome

a. Grant Update
Pete Kampa gave an update on the grant stating with the assistance of Kennedy/Jenks Consultants fantastic scope of work, which was fully funded through the DWR Grant and Proposition 84, contracts have been signed and everything is currently on track.

III. Confirmation & Signing of Governance MOU
Pete Kampa asked that any authorized signers please see Melissa McMullen to sign the Memorandum of Understanding (MOU). Melissa McMullen distributed the MOU for signatures. Any agencies that were not present to sign may sign at the next meeting. Also Mrs. McMullen is currently mailing the MOU to agencies that were not in attendance.

a. Payment Schedule
Pete Kampa reminded the group that the first Agency/District Financial Contribution is due September 30, 2011

Carolyn Lott stated that any agency that is currently listed on the MOU and has determined that they are not going to be signers need to give notification to the group.

Michelle Dooley from the Department of Water Resources commented that the Tuolumne-Stanislaus IRWM is the first planning grant to get started and that the Tuolumne-Stanislaus IRWM submitted an excellent proposal.

IV. Approval of Minutes
Carolyn Lott announced that the minutes to every meeting will be emailed to all members. If any member has corrections to minutes please submit them while the minutes are still in draft form. Your corrections should be emailed to Melissa McMullen at melissam@tuolumneutilities.com.

The minutes from the May 18, 2011 IRWMP meeting were approved as presented.

V. Scope of Work and Team Roles
Sachi Itagaki from Kennedy/Jenks Consultants reviewed the roles and responsibilities. Ms. Itagaki stated that Tuolumne Utilities District (TUD) is the contracting entity. TUD has entered into contract with the Department of Water Resources (DWR) and is responsible for making sure that all financial responsibilities are met and work is completed.

Kennedy/Jenks Consultants are also contracted by TUD on behalf of the IRWM Program. Kennedy/Jenks consultants are primarily responsible for the preparation of the various draft elements of the IRWM Plan as well as the preparation of the final IRWM Plan. They will work in coordination with Carolyn Lott (Program Facilitator) and John Mills throughout the development of the Plan.

John Mills is responsible for the coordination of the Program as well as specific tasks within the scope of work in review and development of the various draft and final elements of the IRWM Plan, the Inter-regional and public outreach, general meeting support services, the primary lead on Project Selection Criteria development and the supervision of the invoices for the IRWM Program that are to be submitted to the DWR.

Carolyn Lott is from the Center for Collaborative Policy (CCP). CCP holds two contracts related to this work. One is with TUD for providing facilitation services throughout the IRWM Plan development. The second contract is with the DWR and is to provide facilitation services for the development of Project Selection Criteria

Sachi Itagaki also reviewed the roles of the stakeholders. Ms. Itagaki stated that Kennedy/Jenks as the consultant

team are really counting on the stakeholders for their participation and help in the IRWM process. Ms. Itagaki reiterated the importance of attendance by the stakeholders.

VI. Member In-Kind Contribution Tracking

Carolyn Lott discussed the importance of In-Kind tracking. Ms. Lott stated the funds given to the IRWM by DWR and the funds utilized by Kennedy/Jenks, CCP and In-Kind services must all be accounted for. DWR requires back-up for all In-Kind services.

Sachi Itagaki stated that there are three main back-up pieces of information that DWR is requiring.
1. A list of who the participants are, the agency they represent and the role they will serve
2. A labor rate
3. Justification of the labor rate

A tracking form was distributed to the group. This form will be used to keep track of In-Kind services on a monthly basis.

VII. IRWM Plan Process

b. Meeting Schedule

Sachi Itagaki explained and reviewed the Master Meeting Schedule for the Tuolumne-Stanislaus Region's IRWMP.

Carolyn Lott asked the group if they would like to meet in December or prefer to cancel that meeting due to other obligations occurring that month. The consensus of the group was to cancel the December IRWMP meeting.

Sachi Itagaki reported that an updated schedule would be given to the group on a quarterly basis.

VIII. Inter-Regional Coordination Compliance

John Mills reported that the Regional Acceptance Process has some suggestions and conditions that the Tuolumne-Stanislaus IRWM communicate with other regions in the local area. Currently there is the Inyo-Mono region to the East, Mokelumne-Amador-Calaveras region to the North, Yosemite-Mariposa region to the South and the newly accepted region the East Stanislaus to the West. Mr. Mills stated that within the last month he has been in contact with each region and a letter was drafted in response to these conversations. The letter is to inform the other regions that in acknowledgement of the common physical boundaries between the Tuolumne-Stanislaus IRWM region and it's neighboring regions to the south, north, east, and west, the Tuolumne-Stanislaus IRWM would like to establish the following interim communications protocol for coordination between the regions:

1. The regions agree that we will send email notices of IRWM meeting, copies of appropriate agenda materials, and minutes of meetings to the Lead Agency and any other stakeholders of the other RWMG who so request such information from the Tuolumne-Stanislaus IRWM Program.

2. If there are common interests that are identified through the course of Plan development we will consider a more formal process for communications relative to those interest.

The consensus of the group was to proceed with distribution of the letter.

Carolyn Lott stated that John Mills will be providing quarterly reports on the other RWMG, unless there is a specific subject matter that needs immediate attention.

IX. IRWM Plan Development and Review

a. Plan Outline

Sachi Itagaki reviewed the Draft Tuolumne-Stanislaus IRWM Plan Outline with the group. Ms. Itagaki explained that this is the outline of the plan. Each of the items that are part of the plan requirement guidelines is detailed in the plan itself. Ms. Itagaki stated that stakeholder participation is a very important

factor of the plan. There are some specific targeted community outreach to Disadvantage Communities (DAC) and the Tribal Communities within the region. Ms. Itagaki stated that assistance will be needed with these outreach committees.

Volunteers for the DAC Committee are:
Aaron Randi
Garett Walker
Craig Case
Robert Behee

Volunteers for the Tribal Outreach Committee are:
Scot Moody
Mitch Pyle

Sachi Itagaki reviewed and answered questions on sections 1-9 of the plan outline.

John Buckley stated that under Section 5, 5.7.7 Watershed Management, that out of the categories that are under resource management strategies watershed restoration is not one of the key categories listed. Mr. Buckley would like to revisit this subject so that there is a category for watershed restoration or enhancement listed.

Garett Walker stated that he would like to see a category for wastewater incorporated into the plan outline.

Carolyn Lott reminded the group that the Plan Outline Sachi Itagaki has presented are the guidelines and requirements from DWR. Any category that the group feels has not been covered can be added at a later time if it is decided upon that it is a relevant subject matter.

b. Planning Grant Committee (PGC) Responsibilities
Sachi Itagaki stated that as sections of the plan are completed they will first be distributed to the Planning Grant Committee (PGC) for review.

X. Section One: Region Description
Sachi Itagaki stated that the kinds of information that need to be included in the Region Description include; watershed, water systems, infrastructure and land use. Ms. Itagaki stated if there is something that is not on the current Projects/Reports and Related Program Preferences/Statewide Priorities then please submit documentation by October 1, 2011. The documentation should be something that is useful to the preparation of the plan. The more accurate the documentation is, such as an already approved document, increases the chance for it to be implemented into the plan.

XI. Data Management Committee
The following members volunteered to participate on the Data Management Committee:
Ed Pattison
Tom Scesa
Mitch Pyle
Lindsay Rosasco

XII. Public Comment
No Public Comment was heard.

XIII. Meeting Recap

a. Action Items
There were no action items.

b. Next Meeting Agenda

The next meeting will be October 19, 2011 at Tuolumne Utilities District at 9:00 a.m.

Upcoming discussion for the October meeting includes; Regional Description Outline, Confirm Issue ad Conflict Categories and Sub-Categories, Resource Management Strategies, and Federal Funding Leveraging Opportunities.

c. Form and Payment Reminder

Agency/District Financial Contributions first payment is due by September 30, 2011.

Documentation relevant to the Region Description is due by October 1, 2011.

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, October 19, 2011

In Attendance:		
	Bill Airola	Union Public Utility District
	Deloris Airola	Union Public Utility District Rate Payer
	Bob Behee	Tuolumne Utilities District
	John Buckley	Central Sierra Environmental Resource Center
	Jerry Cadagan	Tuolumne County resident
	Craig Case	Amador-Tuolumne Community Action Agency
	Rebecca Cremeen	Central Sierra Environmental Resource Center
	Pat Davies	Murphys Sanitary District
	Renee' Hendry	Tuolumne County Community Development Department
	Sachi Itagaki	Kennedy/Jenks Consultants
	Alex Janicki	USFS-Stanislaus
	Pete Kampa	Tuolumne Utilities District
	Carolyn Lott	Center For Collaborative Policy
	Sean Maguire	Kennedy/Jenks Consultants
	Melissa McMullen	Tuolumne Utilities District
	Gary Mello	Groveland Community Service District
	Rebecca Miller-Cripps	U.C. Cooperative Extension
	John S. Mills	Tuolumne Utilities District Water Consultant
	Linda Millspaugh	Twain Harte Homeowners Association
	Scot Moody	Twain Harte Community Services District
	Frank Oyung	Tuolumne Group Sierra Club
	Tom Parrington	Central Sierra Audubon
	Ed Pattison	Calaveras County Water District
	Mitch Pyle	Utica Power Authority
	Charise Reeves	Lake Don Pedro CSD
	Ron Ringen	TUD rate payer
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Emily Stevens	Tuolumne Me-Wuk Tribal Council
	Jon Sturtevant	Tuolumne Group Sierra Club
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions
Introductions began the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda and answered any questions or concerns from the group.

c. Member Identification Form
Carolyn Lott reminded the group of the importance of designating who their signing member will be and also the selection of an alternate.

d. Homework/Binder Reminder
Carolyn Lott reviewed the homework and explained the importance of maintaining a binder with the information distributed at each meeting. Mrs. Lott informed the group that there will be copies of new meeting materials provided at each meeting but to save on cost it was asked of the members to please bring any applicable documents provided from prior meetings, as they will not be reprinted.

II. Welcome

a. MOU and Payment Update

Pete Kampa stated that collection of contributions toward the IRWMP program have been very successful as of date. Mr. Kampa stated that the only issue that has arisen is with the United States Forest Service-Stanislaus (USFS). In the MOU it states: For all non-governmental organizations or those agencies that cannot contribute substantial financial resource the contribution of "in kind" services, such as technical assistance, public affair, outreach, data and information may serve to meet their proportional share of the program costs for the period of the FA, along with a minimum $100 contribution. Mr. Kampa stated that the USFS is unable to contribute the $100 due to USFS procedures.

John Buckley stated that the USFS has been contributing in-kind donations such as GIS and they plan to continue with those services.

John Buckley moved to adopt a motion to allow the USFS, due to their specific legal constraints concerning contribution, have their in-kind services as the USFS contribution for participation in the IRWMP.

Bill Airola from Union Public Utility District seconded the motion and the motion carried.

b. Collect In-Kind Tracking Sheets

In-kind tracking sheets were collected from the group for the month of September 2011. Members were reminded to submit in-kind spreadsheets on a monthly basis.

III. Approval of Meeting Summary

The minutes from the September 21, 2011 IRWMP meeting were approved as presented.

IV. Regional Description Discussion

a. Regional Boundaries Map Review

Sachi Itagaki reviewed the Regional Boundaries Map, stating this map is a watershed based map and represents our specific planning region. Also, this is the region that the IRWMP group will be preparing the regional description for.

Sachi Itagaki reported that from a grant perspective there is funding set aside under Proposition 84 for Disadvantage Communities (DAC). Under the Grant program the matching requirements are greatly reduced. So when it comes time to apply for a grant if there are projects specifically targeted at DAC, the projects can be funded up to 100%.

Ed Pattison commented that this map came from the Forest Service and that the map is limiting. Mr. Pattison stated that moving forward data exist to move to a GIS map which would be more beneficial to the group.

b. Draft Glossary

Sachi Itagaki reviewed the Draft Glossary and reminded the group that it is a working document.

John Buckley stated that on page 6, Water Management Area does not discuss area. Also on page 1 under item A, Adopted IRWM Plan and on page 2 under item F, Final IRWM Plan definitions are in conflict with the IRWMP MOU.

Sachi Itagaki stated that the definitions do have to be consistent with the IRWMP MOU and asked the group to identify at the highest level which terms they want to work on and which terms they would like to see added.

The group felt after reviewing the California Water Plan Update 2009 Glossary, that this document contained more accurate definitions. The group decided to use this document as a basis for the design of

the IRWMP Glossary. Per John Mills, Melissa McMullen will email the California Water Plan Update 2009 Glossary to all members. Sachi Itagaki stated that once members are done reviewing, please email all suggestions or additions to her.

c. Draft Regional Description Outline

Sachi Itagaki stated that Kennedy/Jenks is trying to finish compiling documentation from members that help portray the region accurately. The documentation should accurately describe the description of the region.

Carolyn Lott suggested that the Data Committee review and see what documentation they have and what is still missing. Then decide on a way to gather the information needed from agencies.

Carolyn Lott stated that the group will have time to review the draft regional description but as of now sending all documentation to the consultants so they can develop the description is the most important task that needs to completed as soon as possible.

Ed Pattison suggested that the FERC EIS's for the projects within the region would be a good comprehensive source of information for providing the background hydrology and water quality for the IRWMP region.

Sachi Itagaki asked the group to develop ideas on how to accurately explain Water Export for the description and submit them to her for consideration.

d. Draft Regional Water Demand and Population Projections

John Buckley stated that after three years, the group is now getting into discussions of different views where some end or goal should be. The group needs to find wording and objectives that the entire group can agree on. Mr. Buckley stated for example: in handout 5 there is no debate that statistics for 2010 are factual however in 2035, 33,507 acre feet for ag use by CCWD could be argued. There needs to be a way for language to be in this document that helps get to a goal and is not controversial.
Mr. Buckley stated that the focus needs to be setting a goal to provide adequate water for current and future planning needs. Mr. Buckley stated that his two main concerns were:
1. There seems to be a lot of non-factual information in projections and description
2. Page 3 of handout 3, item 4.1, the natural infrastructure of the water sheds, is a term used by utility districts.

It was noted that handout 5 is based largely on Urban Water Management Plans (UWMP) which are adopted by the respective water agency boards. The UWMP presents an agency's best estimate of future water uses and may, in some cases,represent a worst case scenario water demand. Some of the demand increase is associated with individual groundwater wells for urban/agricultural users that are failing and those users are now approaching agencies for service. It was also noted that the cost-effectiveness of water conservation is based on the marginal cost of water.

Carolyn Lott inquired from Sachi Itagaki where the language and headings were acquired from. Ms. Itagaki stated that the source came from planning grant information. Headings were an effort to align with resource management strategies and was an attempt to put this in a framework so that it has a context within the IRWMP.

John Mills suggested that the group consider rephrasing "Increase Water Supply" to "Water Supply Reliability".

Gary Mello suggested adding footnotes to the documents to help with clarification. The group agreed that when there are areas of disagreement by the group there should be footnotes added for clarification.

V. Resource Management Strategies Discussion

a. Non-applicable Strategies/Confirm

Sachi Itagaki reviewed Resource Management Strategies:

Non-Applicable/Applicable Strategies:

5.9.1 Increase Water Supply: Conveyance-Delta will not be discussed
5.9.2 Increase Water Supply: Ocean Desalination will be left in but the question was presented; Do we leave in strategies or is not Appropriate to the Region?
5.9.3 Other Strategies: Dewvaporation or Atmospheric Pressure Desalination-leave out
5.9.4 Other Strategies: Fog Collection-leave out
5.9.5 Other Strategies: Waterbag Transport/Storage Technology-leave out
5.4.2 Groundwater Desalination-leave in
5.5.2 Groundwater Remediation/Aquifer Remediation-leave in
ADD: 5.10 Inter-regional Concerns
ADD: Under 5.7.7 a sub-category for Watershed Restoration and Enhancement

Garett Walker requested a category for wastewater.

VI. Federal Funding Leveraging Opportunities Overview
Sachi Itagaki stated that she recently met with Larry Cope and Beth Hartline, with Central Sierra Economic District and they are also employees of the Tuolumne County Economic Authority. Ms. Itagaki stated that Mr. Cope is a very valuable asset pertaining to federal funding and before project selection criteria begins Ms. Itagaki would like Mr. Cope to come speak to the IRWMP group.

VII. Committee Reports

a. DAC Outreach
Sachi Itagaki stated that the DAC Outreach Committee had it's first conference call a few weeks ago and they are in the process of identifying the need of the DAC communities.

b. Tribal Outreach
Sachi Itagaki stated that the Tribal Outreach Committee had just received the list of contacts for the tribal groups from DWR and will begin contacting them.

c. Data Management
Sachi Itagaki stated that the Data Management Committee would be meeting today for the first time and discussion will be held to establish the committee's objectives.

VIII. DWR Comment
No one from DWR was present for comment.

IX. Public Comment
No formal public comment was heard.

X. Meeting Recap

a. Action Items
Sean Maguire reported the following action items;
1. Add federal mileage rates to the in-kind tracking sheet, will be available next month
2. To use the California Water Plan Update 2009 Glossary, amend as applicable. Will be emailed by Melissa McMullen to all members
3. Data Management Committee will review data gaps, identify actions and information needs that will be incorporated into the regional description
4. John Mills will contact the City of Sonora to obtain information
5. Utica Power Authority is preparing demand projections and collecting information from their various agencies

6. Kennedy/Jenks will revise the needs and challenges document as presented today and reissue via email for comment to the group
7. Add an Inter-regional Resource Management Strategy section to the outline

b. Next Meeting Agenda

Sachi Itagaki stated that at the next meeting some items that will be discussed will be:
1. Resolution on needs and challenges
2. Specifics on region description

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, November 16, 2011

In Attendance:		
	Bill Airola	Union Public Utility District
	Bob Behee	Tuolumne Utilities District
	John Buckley	Central Sierra Environmental Resource Center
	Jerry Cadagan	Tuolumne County resident
	Merita Callaway	Calaveras County Board of Supervisors
	Rebecca Cremeen	Central Sierra Environmental Resource Center
	Kirk Ford	Tuolumne County Resource Conservation District
	Tom Harrington	Central Sierra Audubon
	Renee' Hendry	Tuolumne County Community Development Department
	Sachi Itagaki	Kennedy/Jenks Consultants
	Patrick Koepele	Tuolumne River Trust
	Carolyn Lott	Center For Collaborative Policy
	Sean Maguire	Kennedy/Jenks Consultants
	Melissa McMullen	Tuolumne Utilities District
	John S. Mills	Tuolumne Utilities District Water Consultant
	Scot Moody	Twain Harte Community Services District
	Tom Orvis	Tuolumne County Farm Bureau
	Tom Parrington	Central Sierra Audubon
	Ed Pattison	Calaveras County Water District
	Mitch Pyle	Utica Power Authority
	Aaron Randi	Groveland Community Service District
	Charise Reeves	Lake Don Pedro CSD
	Ron Ringen	TUD rate payer
	Deb Romberger	USFS-Stanislaus
	Tom Scesa	Tuolumne Utilities District
	Don Stump	Calaveras County Water District
	Jon Sturtevant	Tuolumne Group Sierra Club
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Larry Thompson	Union Public Utility District
	Garett Walker	City of Angels Camp
	Tim Williams	Kennedy/Jenks Consultants

I. Meeting Opening

a. Introductions
Self introductions started the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda and answered any questions or concerns from the group.

c. Member Identification Form
Ms. Lott reminded the group of the importance of designating who their signing member will be and also the selection of an alternate. Ms. Lott also distributed the Member Identification forms to any member who still needed one and collected completed forms.

d. Homework/Binder Reminder
Ms. Lott reviewed the homework and explained the importance of maintaining a binder with the information distributed at each meeting. Ms. Lott explained to the members that as documents are updated they may want to purge the old documents so they only have the current information and also to save room in their

binders.

II. Welcome

a. MOU and Payment Update
Tom Scesa reminded the group of the importance of signing the MOU and timely payments for each agencies contribution for participating in the IRWMP. Mr. Scesa reported to the group each agency that still needed to sign the MOU or whose payment had still not been received.

Supervisor Merita Callaway addressed the group and stated that Calaveras County has currently paid $5,404 for participation in the Tuolumne-Stanislaus IRWMP and that they also contribute to the Mokelumne IRWMP. Supervisor Callaway stated Calaveras County only budgeted for $5,404 for participation in the Tuolumne-Stanislaus IRWMP and will not be able to pay the full contribution of $10,808. Supervisor Callaway stated Calaveras County is requesting that the $5,404 be sufficient for Calaveras County's participation in the Tuolumne-Stanislaus IRWMP.

Ms. Lott suggested that addressing the Calaveras County contribution issue be postponed and added to the January 2012 agenda for consideration. The group concurred.

Tom Scesa suggested Calaveras County write a letter to the IRWMP group explaining the circumstances for why Calaveras County has requested a reduction in their contribution.

b. Collect In-Kind Tracking Sheets
Sean Maguire stated Kennedy/Jenks updated the in-kind tracking sheets to include mileage.

In-kind tracking sheets were collected from the group for the month of October 2011. The group was reminded the next IRWMP meeting will not be until January 2012. At the January meeting in-kind tracking sheets will be collected for the months of November and December 2011.

III. Approval of October Meeting Summary
The meeting summary of the October 19, 2011 IRWMP meeting was approved as presented.

IV. IRWM Plan Development Process Review
Mr. Maguire reviewed the IRWMP Plan Development Process handout and answered any questions from the group. The handout contained:

Planning Process Overview
-Develop Regional Vision
-Align to Local Needs
-Project Synthesis Approach
-Identify Projects
-Develop Implementation Framework

Plan Section Development
-Prepare topic
-Introduce, Discuss and Frame Topic
-Develop Content
-Present and Discuss Draft Content
-Review and Comment
-Discuss Comments
-Refine Content
-Park Draft

V. Regional Description Discussion

a. Major Water-related Needs and Challenges

Sachi Itagaki stated the first three pages of the Major Water Needs/Challenges and Conflicts document are summary pages. The high level topic areas are in alignment with Prop 84 guidelines.

Ms. Itagaki stated item 2.5 in the Major Water Needs/Challenges and Conflicts document had been revised since it was originally distributed to the group and corrected copies were available.

Ms. Lott stated Kennedy/Jenks is trying to keep the templates mirroring DWR templates.

The group reviewed the Major Water Needs/Challenges and Conflicts document and there were suggested revisions given by the group. Also, John Buckley distributed a document with his suggested changes for the group to review.

Below are some of the suggested changes to the document:

Pages 1, 2 & 3

Changing the word "urbanization" in section 4.2 to "urban runoff."

Under 2.4 the statement "inadequate surface storage capacity for agencies within the region" needs to be clarified to show if the storage is needed considering current water demand conditions or only in consideration of projected population growth and development.

A reference needs to be provided for 2.4 and 3.3 showing where this information was obtained.

Under 5.1 natural processes and events needs to be added in the description.

Under 2.1 it references water recycling leaving out wastewater reuse. Wastewater reuse should have it's own bullet point in the detail. The group agreed to this.

Page 4 & 5

Under Water Supply Reliability, 4th bullet remove TUD.

Ms. Itagaki inquired from the group if anyone had examples of effects on local resources to provide her with the information.

Under 2.3, the 2nd bullet states "401 water quality certification of Pinecrest Reservoir." Either give examples or remove this bullet.

Page 6

Under 3.4 clarification and examples need to be given for "hillslopes". Hillslopes subsurface storage is questionable.

Page 7

Under 4.2, the 2nd bullet, needs to be revised. There is no evidence forest burning is contaminating water ways. If there is a source it needs to be sited and validated, if not then this bullet needs to be deleted.

Under Water Quality there needs to be a bullet for stormwater and water quality.

Page 8 & 9

Under 5.2 there needs to be a push for the need of restoration but do not put a number on the amount of areas.

b. Data Gaps and Information Needed
Mr. Maguire stated when submitting information, specific locations as to where to look for backup would be greatly appreciated since it will help save time and resources. Also, Mr. Maguire asked the group to please submit any pertinent information to Kennedy/Jenks by the Monday, November 28th.

c. Updated Region Water Demand and Population Projections
Ms. Itagaki stated some of the gaps from agencies on the Region Water Demands and Population Summary had now been filled in.

Mr. Maguire stated previously estimates for Utica Power Authority, Union Public Power Authority and City of Angels had been added however Kennedy/Jenks has recently received updated information and the Region Water Demands and Population Summary will be updated.

It was suggested under General Note, in the paragraph where it states Urban Water Management Plans to add the word Projections so it reads: Urban Water Management Plan Projections.

VI. Data Management System Committee Update and Demonstration
Ms. Itagaki stated the Data Management Committee had a meeting after the last IRWMP meeting in October. The committee did a demostration of the initial web-based GIS data management system and incorporated the baseline data already obtained and will continue to gather information. The updated site building on feedback obtained from the meeting will be launched to the Data Management System Committee in the next couple of weeks.

VII. Federal Funding Leveraging Opportunities Overview
Due to time constraints, the report on Federal Funding Leveraging Opportunities Overview will be given at the January 2012 IRWMP meeting.

VIII. Interregional Coordination
Due to time constraints, the Inter Regional Coordination report will be given at the January 2012 IRWMP meeting.

IX. Committee Reports

a. DAC Outreach
Garrett Walker, DAC Outreach Committee Chair, reported currently the committee is developing questions for potential agencies for the DAC. Mr. Walker stated one of the committee's biggest challenges is mapping the DAC areas.

2010 Census median household income data is expected to be made available in early December for the Census block level; this data will be used for identifying DAC areas within the region. A PGC member noted within the 2000 census the DAC Community boundary was redone and some communities previously designated disadvantaged were included with nondisadvantaged communities and thereby lost their status. Caution was urged when using the 2000 census as accurate information. A voluntary income survey can be completed to re-establish DAC status.

Bob Behee, committee member, stated one of things the committee has identified are the mobile home park areas outside the census block area. Mr. Behee stated he also met with the Tuolumne County Environmental Health officer who also informed him the state septic rule AB885 is moving through the legislature which will likely affect Sullivan Creek and Woods Creek which are designated impaired bodies of water. With the new regulations, condition and performance surveys will be required for septic systems within 600 feet of an impaired waterbody.

b. Tribal Outreach
Ms. Itagaki stated currently members of the Tribal Outreach Committee have had individual discussions with tribal representatives, but the committee has yet been able to meet. In Ms. Itagaki's discussions with

Reba Fuller from the Me-Wuk Tribal Council, there has been an offer for representatives from the Tribal Outreach Committee to give a presentation for tribal leadership from both the Tuolumne Me-Wuk and the Chicken Ranch.

Stephanie Suess, Enviromental Project Manager for the Tuolumne Me-Wuk Tribe, stated she was going to encourage the tribe to participate in the IRWMP or at least be aware of what is taking place.

X. Public Comment

No formal public comment was heard.

XI. Meeting Recap

a. Action Items

Mr. Maguire reported the following action items:

1. Kennedy/Jenks will re-work and submit for member consideration, the Major Water Needs/Challenges and Conflicts for the Tuolumne-Stanislaus IRWM document with the suggestions received from the group at today's meeting and will continue to take input on the document
2. Kennedy/Jenks is still requesting documentation to provide backup or examples for the Current Projects/Reports. Stakeholders to provide reports and examples including section references backing up the needs/challenges within 2 weeks (11/30)
3. Stakeholders to provide summary and detail level feedback on the major needs/challenges document by 11/30.

b. January Meeting Agenda Topics

Ms. Itagaki stated some items will be:

1. Finalize Needs and Challenges
2. Introduction of Plan Objectives
3. Demonstration on the Data Management System

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, January 18, 2012

In Attendance:	Bill Airola	Union Public Utility District
	Nick Baird	Central Sierra Audubon Society
	Bob Behee	Tuolumne Utilities District
	Jerry Cadagan	Tuolumne County Resident
	Craig Case	Amador-Tuolumne Community Action Agency
	Rebecca Cremeen	CSERC/Alternate
	Rebecca Miller-Cripps	U.C. Cooperative Extension
	Julio S. Guerra	Murphys Sanitary District
	Beth Hartline	Tuolumne County Economic Development Authority
	Reneé Hendry	County of Tuolumne
	Sachi Itagaki	Kennedy/Jenks Consultants
	Patrick Koepele	Tuolumne River Trust
	Carolyn Lott	Center for Collaborative Policy/Facilitator
	Laura Lucas	Tuolumne Utilities District
	Sean Maguire	Kennedy/Jenks Consultants
	Gary J. Mello	Groveland Community Services District
	John S. Mills	Tuolumne Utilities District Water Consultant
	Scot A. Moody	Twain Harte Community Services District
	Tom Orvis	Tuolumne County Farm Bureau
	Tom Parrington	Central Sierra Audubon
	Ed Pattison	Calaveras County Water District
	Mitch Pyle	Utica Power Authority
	Charise Reeves	Lake Don Pedro Community Services District
	Ron W. Ringen	TUD ratepayer
	Deb Romberger	U.S. Forest Service-Stanislaus National Forest
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Tom Scesa	TUD/Alternate
	Jennifer Sorensen	Tuolumne Band of Me-Wuk
	John M. Sturtevant	Tuolumne Group Sierra Club
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions

Carolyn Lott asked all the members and alternates to sign the appropriate sign-in sheet (one for members and one for other interested stakeholders).

b. Agenda Review

Ms. Lott reviewed the agenda and reminded the members to take a copy of the handouts. Self introductions followed. Ms. Lott reminded the group of ground rules before proceeding with the meeting.

c. Member Identification Form

Ms. Lott reiterated the importance of filling out the Member Identification Form and named the few agencies that have not yet done so.

II. Welcome

a. MOU and Payment Update

Tom Scesa stated there have not been any changes in the status of signatures on the MOU because Tuolumne County has not yet returned it. Mr. Scesa named the agencies that still need to sign the MOU and those whose payment has still not been received. It was noted the discussion regarding Calaveras County will be taken up at a future meeting.

b. Collect In-Kind Tracking Sheets

Sean Maguire clarified when to submit the tracking sheet forms and what to put on them. Mr. Maguire explained the completion of these forms is important to assure all members' contributions count and also to meet the 25% minimum required by DWR for the project. A table with the information registered from previous meetings was circulated so all members could confirm the information registered and make any changes as necessary.

In-kind tracking sheets were collected from the group for the month of November and December of 2011.

III. Approval of November Meeting Summary

The meeting summary of the November 16, 2011 IRWMP meeting was approved as presented.

IV. Regional Description Discussion

a. Draft IRWM Plan Objectives (Handout #1)

Sachi Itagaki explained that the IRWM Plan objectives should reflect the needs and challenges of the region that were discussed at meetings in October and November The objectives need reflect planning targets that are measurable and customized to the individual watershed needs. Mr. Maguire added the objectives should be attainable, and can be accomplished within the timeframe of the plan (20 years). Mr. Maguire also stated a connection between the projects and how they will benefit the region should be presented. Ms. Itagaki said within the next 2 meetings, it is hoped objectives can be agreed upon and prioritized. The objectives will also support the project prioritization efforts.

Mr. Maguire reviewed and explained Handout #1 and reminded the members nothing is set in stone. Mr. Maguire encouraged members to voice any changes to the draft objectives table as they feel appropriate.

John Mills started the discussion of the draft objectives table saying it is important to think about the use of water efficiently throughout the hydrologic cycle and not just gallons per minute. Mr. Mills suggested a broader approach for Objective A.

It was agreed alternative water supply, which include recycled water should include graywater, captured rain water, and conserved water.

A member inquired about the difference between objective A and C. Ms. Itagaki explained A is more focused on end users and C is intended to address the systems, for example, the transfer of water meeting the regional need. Ms. Lott clarified with C, all the systems of the region should be operating more efficiently, but that cannot happen without addressing Objective A. John Mills encouraged the group to look at the objectives with an "outside of the box" approach where objectives transcend these categories.

Ms. Lott explained the sub-categories for the objectives are the guidelines for a course of action that would help the achievement of that objective. They can be looked at as policy statements.

A member voiced concerns about objective A because tertiary treatment is very expensive. He asked if there is a goal that by a certain time all secondary treatment is treated to a tertiary level to maximize reuse by providing unrestricted use recycled water. Ms. Itagaki reminded the group the beneficial reuse of wastewater is a statewide goal. Another member noted tertiary treatment is more expensive but that many agencies throughout the state already do it. However, there should be a balance, that is, source water supply should be addressed, as well as, recycled water.

A member pointed out using recycled water could create a balance because of the state's request for using less surface water. Recycled water applications are not limited to tertiary. It was noted TUD is currently using secondary treatment and it has been successful in reusing 100% of its wastewater.

Ms. Lott explained the objective table can be restructured to best display information in a way that makes sense and is most useable by the group. The goal is to create a plan as useful and usable as possible.

Members offered a number of suggestions such as including energy efficiency in water efficiency. Ms. Itagaki stated using water more efficiently will save energy at the same time and there may be opportunities for energy recovery. Mr. Maguire explained one of the state priorities in the California Water Plan is energy reduction in the water systems.

A member suggested subcategory A3 should the moved to C since it relates more with the districts than with the consumers. Also, subcategory A2 should be mentioned in Objective C, as well. It was also noted public relation considerations should be included in the objectives.

Additional suggestions were made such as:

- Different wording was proposed in order to convey consumers are being brought into the plan through Objective A.
- Objective C should include "increase susceptibility and potential use scenario".
- A2, A3 and E2 should be included in Objective A.
- Objective A could be "Alternatives for Water Supply" and include a narrative mentioning the three methods available for consumer use.

- Subcategory A1 should be rewritten in order to address a residential/consumer level of water conservation.

Ms. Itagaki observed, according to the discussion, Objectives A and B are end-user/consumer focused, Objectives C and D are systems focused, and Objective E is watershed focused. Mr. Mills clarified subcategory A1 is a subset of the efficient use of water and not the only efficient use of water.

A member raised the issue that, so far, nothing seemed to be directly addressing the community and rate payers who cannot afford higher rates that could be caused by implementation of these objectives. Ms. Lott explained there is specific funding designated for projects that assist disadvantaged communities. A member noted disadvantaged communities are, in some way, more advantaged in receiving project funding because they are more apt to receive government grants. Another member mentioned unfortunately, the way state policies are organized, districts need to be in violation of some policy in order to get more help.

After receiving comments, Ms. Itagaki proposed restructuring the table in order to accommodate the opinions of members. Ms. Itagaki stated members should, throughout the month, think about how the narratives should be presented and examples that can be used to help illustrate the narrative content. Ms. Itagaki also requested ideas about measurable targets be emailed to Mr. Maguire or her in order to help the stimulate discussion at the next meeting. Ms. Itagaki asked the members to think about how to connect their management plans with the IRWM plan and how this would fit in the Prop 84 funding. Ms. Itagaki and Mr. Maguire will send new draft information to members for review.

Ms. Lott noted two "Measurable Task" ideas from the discussion:

- Develop educational efforts for the public on the need for and benefits of water conservation
- Develop recommendations to address state regulations that interfere with projects benefiting DACs

b. Review Updated Draft Regional Description Outline (Handout #2)

Mr. Maguire reviewed and explained Handout #2. He asked the members to give suggestions if they feel something needs to be changed. The suggestions are to be emailed to K/J.

V. Data Management System Demonstration

Mr. Maguire showed the members how to navigate within the data management system and what type of information can be found by using it. Mr. Maguire added they are currently working with the data management team in order to make the map accessible to the group. Ed Pattison, from the Data Management Committee, noted it is very expensive and time intensive to maintain a data management system and the committee will be

making recommendations to the membership regarding how this might be done on an ongoing basis. Ms. Lott noted the data management system demonstration will be on the agenda again so members can ask questions additional questions.

VI. IRWM Plan Preparation Schedule Review (Handout #3)

The current IRWM Plan preparation schedule was reviewed, including changes since the beginning of the process and a lookahead towards upcoming meetings. Ms. Itagaki explained there is a higher priority given to going through objectives. Ms. Itagaki added that there is still a commitment to the end date but things are going to be done a little differently due to the importance of defining the objectives first.

John Mills encouraged members to start thinking about projects in order to not miss any deadlines.

VII. Funding Leveraging Opportunities Overview

a. Tuolumne River Trust

Patrick Koepele said the Tuolumne River Trust is interested in meadow restoration opportunities. Mr. Koepele added this project supported the IRWMP funding and is able to bring bigger state and federal funding.

Mr. Mills encouraged the group to bring project and funding ideas to the membership and ask for support of the group when needed.

A member stated federal grants are used for leverage for the state and communication between agencies is important so agencies can assist one another.

VIII. Interregional Coordination

Mr. Mills affirmed the San Joaquin Groundwater Banking Authority agrees with all the interregional protocols. He noted the East Stanislaus IRWM group is still in the process of organizing their effort. Mr. Mills added all the regional protocols are in place. It is just a question of following up with the agencies.

Beth Hartline stated the Central Sierra Economic Development District (CSEDD) has federal funding that can be matched with state funding for water/wastewater infrastructure projects. These projects are due in June. Ms. Hartline urged the members to contact the CSEDD to get more information. If they are interested in being considered for funding, they need to provide a narrative of the projects soon so the projects will be in line to be funded.

IX. Committee Reports

a. DAC Outreach

Ms. Itagaki stated there a number of issues to tackle. First it is important to understand who the disadvantaged community is, where they are, and understand their needs before coming back to the group.

b. Tribal Outreach

Ms. Itagaki stated she is going to be meeting with the tribes on February 14th and will report back to the membership at the next meeting.

X. Round 2 IRWM Planning Grant Application

Ms. Itagaki stated the IRWM planning grant application is due on March 9th. Mrs. Itagaki also explained members should look at existing facilities with an efficiency perspective and put together ideas on how to best use those to better benefit the region.

A member explained the California Water Plan outlines a number of strategies to implement throughout the state to ensure water supply reliability and regional self-sufficiency. Moreover, TUD and CCWD do not have a diversity of water supplies like Southern California or the Bay Area. Those areas of the state have portfolios of different water sources that provide better protection against climate changes, population increase, etc. TUD and CCWD are a source water area but the water rights are held outside the region. Therefore, there is a need to diversify the portfolios and focus on water supply, conservation, recycling water, and storing water. This region needs to explore the opportunity of the interregional conjunctive use effort in order to gain the benefits outlined in the bullets from 1 to 6 and eventually have opportunities for water banking exchanges.

Mr. Mills added everyone is going to lose if water agencies keep doing just enough to get by and do not take advantage of additional opportunities.

Ms. Itagaki stated assuming the group is supportive of developing a draft proposal, the consultants need to immediately begin working on the application because the deadline is fast approaching. She explained the timing of the grant release made it impossible to bring it to the group earlier. Ms. Itagaki added a draft is going to be put together before next meeting so it can be analyzed and further discussed by all the members. The group agreed to the preparation of a draft application for member discussion and comment. A decision about submittal will be made after release and discussion of the draft proposal.

XI. Public Comment

Ms. Lott asked for comments from the public. No public comments were offered.

XII. Meeting Recap

a. Action Items

Mr. Maguire reported the following action items:
1. Kennedy/Jenks will re-structure the IRWM Plan Objectives based on the discussion;
2. Kennedy/Jenks will review the Region Description Outline comments;
3. Kennedy/Jenks will work on the IRWM Planning Grant Application along with Mr. Mills.

Ms. Itagaki stated KJ can help members develop and structure projects so they can be more concrete and feasible.

Mr. Maguire reminded members of their homework:
1. Submit comments on the Draft Region Description Outline to KJ.
2. Review the revised Draft Objective Table.
3. Develop a draft list of "Measurable Targets."
4. Begin developing a list of projects to be considered within the context of the IRWM plan development discussions.

b. January Meeting Agenda Topics

Ms. Itagaki shared some items to be discussed at the next meeting:
1. Region description
2. Objectives
3. IRWM planning grant application

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, February 15, 2012

In Attendance:	J. Richard Arndt	TUD rate payer
	Rick Baird	Central Sierra Audubon
	John Buckley	Central Sierra Environmental Resource Center
	Jerry Cadagan	Tuolumne County resident
	Merita Callaway	Calaveras County Board of Supervisors
	Rebecca Cremeen	Central Sierra Environmental Resource Center
	John B. Davids	Oakdale Irrigation District
	Tom Harrington	Central Sierra Audubon
	Renee' Hendry	Tuolumne County Community Development Department
	Sachi Itagaki	Kennedy/Jenks Consultants
	Pete Kampa	Tuolumne Utilities District
	Patrick Koepele	Tuolumne River Trust
	Joone Lopez	Calaveras County Water District
	Carolyn Lott	Center For Collaborative Policy
	Sean Maguire	Kennedy/Jenks Consultants
	Melissa McMullen	Tuolumne Utilities District
	Gary Mello	Groveland Community Service District
	Rebecca Miller-Cripps	U.C. Cooperative Extension
	John S. Mills	Tuolumne Utilities District Water Consultant
	Scot Moody	Twain Harte Community Services District
	Cindy Nugent	Murphys Sanitary District
	Tom Parrington	Central Sierra Audubon
	Ed Pattison	Calaveras County Water District
	Mitch Pyle	Utica Power Authority
	Vern Pyle	Utica Power Authority
	Scott Ratterman	Calaveras County Water District
	Ron Ringen	TUD rate payer
	Deb Romberger	USFS-Stanislaus
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Jon Sturtevant	Tuolumne Group Sierra Club
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Larry Thompson	Union Public Utility District
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions
Introductions began the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda and answered any questions or concerns from the group.

c. Member Identification Form
Ms. Lott reminded the group that any agency who has not yet completed their member identification form needs to please do so and return to her as soon as possible. Member identification forms were also collected.

d. Homework/Binder Reminder
Ms. Lott reminded the group to keep all current materials in their binders and to bring any applicable

documents provided from prior meetings.

II. Welcome

a. MOU and Payment Update
Pete Kampa stated that collection of contributions toward the IRWMP program have been very successful as of date.

John Buckley inquired about addressing the request by Calaveras County to reduce their IRWMP contribution amount. It was decided by the group to address Calaveras County and also the possible withdraw of the City of Sonora from the IRWMP program at the next PGC meeting in March.

Gary Mello requested that an informational document be distributed to the group stating exactly what it means for an entity to withdraw from the IRWMP process.

b. Collect In-Kind Tracking Sheets
In-Kind tracking sheets were collected from the group for the month of January 2012. Members were reminded to submit in-kind spreadsheets on a monthly basis.

III. Approval of January Meeting Summary
The meeting summary from the January 18, 2012 IRWMP meeting were approved as presented.

IV. Round 2 IRWM Planning Grant Application Discussion

a. Concept Description (Handout #1)
Ms. Itagaki reviewed the Draft Tuolumne-Stanislaus IRWMP Phase 2 Planning Grant Concept which included:

1. Concepts to be Evaluated-conjunctive management of surface water and groundwater
2. T-S IRWM Region and Interregional Challenges
3. T-S IRWM Region and Interregional Opportunities
4. Benefits of the Concept Plan
5. Surface Water Diagram of the Upper Stanislaus and Upper Tuolumne River Watersheds

b. Task Outline (Handout #2)
Ms. Itagaki reviewed the Tuolumne-Stanislaus IRWM Program Water Resources Reconnaissance Level Optimization and Conjunctive Use Evaluation which included the following proposed tasks:

Task 1: Collect and Review Baseline Information
Task 2: Stakeholder Outreach
Task 3: Planning-level Analysis of Potential Opportunities and Desired Future Conditions Through Task 2
Task 4: Water Supply Availability for the Program
Task 5: Define Potential Program Elements
Task 6: Evaluation of Potential Program Elements
Task 7: Prepare Draft and Final Report for IRWM Appendix
Task 8: Project Management and Quality Assurance/Quality Control

John Buckley stated that he felt the $300,000 proposal before the group was primarily to fund planning studies and research related to water rights and to fund analysis of possible over-irrigation of farmland in the Oakdale region in order to get more water during certain years for TUD and possibly other utility districts in the IRWM region. Mr. Buckley said the group was being asked to vote for full IRWM support of the proposal even though the group has never discussed or agreed that water rights or conjunctive water use and water trades with OID are desirable objectives. He also noted the group has not yet agreed on criteria for project selection. He expressed concern that the proposal bypasses

the agreed-upon planning process.

Mr. Buckley stated his key objection is for numerous NGO's, if the planning grant gave Kennedy/Jenks and John Mills $300,000 to do the planning analysis for conjunctive water use and water rights research, the outcome would mean more water for CCWD and TUD to provide to customers. From the point of view of conservation groups, this would provide CCWD and TUD more water for more development, which will further degrade the region's natural environment and more importantly, mean even more water coming out of local rivers. He noted if the proposed planning grant went forward, it not only primarily benefits the main utility districts, but it would actually negatively impact the goals of the environmental community.

Mr. Buckley stated concerning the climate change vulnerability assessment, John Mills had described it as a smaller grant proposal opportunity that would provide some funds for work that will have to be done at some point. On behalf of CSERC, Mr. Buckley stated he could support a smaller planning grant proposal for just doing the climate change work if it was $20,000 or so. Mr. Buckley urged that a cap limit be put on any such study of perhaps $30,000 or $40,000 at most.

Joone Lopez stated she agreed the process could be better but felt that the group needs to be objective and concentrate on the final project. Ms. Lopez stated this is a very valuable opportunity for everyone participating in the IRWMP process.

Pete Kampa stated as this water year has evolved, the group would be remiss if it did not discuss New Lyons and felt if this was proposed as a project going forward with 100% consensus it would fall off the map right away. Mr. Kampa stated he would then come back and negotiate and ask where would future water supply come from. Mr. Kampa stated that even though the conservation community fights for no growth to occur or no water supply to be available for growth, it is only reasonable to plan for the next 50 years of water supply for future generations. Mr. Kampa stated that he could not think of a better opportunity to validate the water supply assumptions and for all participating conservation groups to be involved in a process that develops water supply assumptions and options.

Ms. Lott noted that because there were several agencies that "could not stand aside," there was no consensus. Therefore, the proposal, as presented, cannot be submitted on behalf of the T-S IRWM.

Discussion continued and support for planning grant proposal that would focus on climate change work was verbalized by a number of members. A member suggested consideration of moving forward with just the climate change element, but there was concern raised regarding whether preparation and management of a small grant was feasible from a business perspective for Kennedy/Jenks.

Ms. Itagaki indicated Kennedy/Jenks management would likely not approve proceeding with a small proposal as it would not provide enough funds to cover the time expended preparing the application, managing the grant, and actually conducting the work. However, it might be possible to expand the proposal with enough additional climate change work that would ultimately be useful to the IRWM process to provide a feasible proposal for Kennedy/Jenks from a business perspective. It was noted the turn-around time set by DWR for the proposal requires a very quick decision regarding the alternative proposal content and whether to submit the newly drafted climate change proposal. Ms. Lott suggested that Kennedy/Jenks and John Mills develop a proposal concept that would address climate change issues and meet the threshold necessary to make submission, management and conducting the work feasible from a business perspective. To meet the constrained time frame, the proposal with associated costs would be transmitted by email to the Planning Grant members for consideration. The governance principles are to be applied to the mail process. Members were in agreement with Ms. Lott's suggestion.

V. Draft IRWM Plan Objective Discussion (Handout #3)
This item was tabled until the March meeting.

VI. Committee Reports

a. DAC Outreach
None was heard at this time.

b. Tribal Outreach

None was heard at this time.

c. Data Management
None was heard at this time.

d. Plan Review Committee Formation
None was heard at this time.

VII. Public Comment
None was heard at this time.

VIII. Meeting Recap

a. Action Items
None was heard at this time.

b. March Meeting Agenda Topics
Items for discussion:
1. Request by Calaveras County for contribution reduction
2. The possible withdrawal of the City of Sonora from the IRWMP program process

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, March 21, 2012

In Attendance:	Bill Airola	Union Public Utility District
	Bob Behee	Tuolumne Utilities District
	John Buckley	Central Sierra Environmental Resource Center
	Jerry Cadagan	Tuolumne County Resident
	Craig Case	Amador-Tuolumne Community Action Agency
	Bob Dean	Calaveras County Water District
	Michelle Dooley	Department of Water Resources
	Sasha Farkas	Tuolumne County Farm Bureau
	Julio S. Guerra	Murphys Sanitary District
	Tom Harrington	Central Sierra Audubon
	Renee Hendry	Tuolumne County Community Resources Agency
	Sachi Itagaki	Kennedy/Jenks Consultants
	Pete Kampa	Tuolumne Utilities District
	John Kingsbury	Mountain Counties Water Resources Association
	Patrick Koepele	Tuolumne River Trust
	Joone Lopez	Calaveras County Water District
	Carolyn Lott	Center For Collaborative Policy
	Melissa McMullen	Tuolumne Utilities District
	Sean Maguire	Kennedy/Jenks Consultants
	Gary Mello	Groveland Community Services District
	Rebecca Miller-Cripps	U.C. Cooperative Extension
	John Mills	Tuolumne Utilities District Water Consultant
	Lindsey Myers	Central Sierra Environmental Resource Center
	Tom Orvis	Tuolumne County Farm Bureau
	Tom Parrington	Central Sierra Audubon
	Robert Perry	Twain Harte Community Service District
	Vern Pyle	Utica Power Authority
	Daniel Richardson	Tuolumne County Administrators Office
	Ron W. Ringen	TUD Rate Payer
	Deb Romberger	U.S. Forest Service - Stanislaus National Forest
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Evan Royce	County of Tuolumne
	Michelle Selmon	Department of Water Resources
	Don Stump	Calaveras County Water District
	Jon M. Sturtevant	Tuolumne Group Sierra Club
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Gary Tofanelli	County of Calaveras
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions
Introductions began the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda and answered any questions or concerns from the group. Ms. Lott reminded the group of the importance of staying on schedule to meet up-coming deadlines.

c. Member Identification Form
Carolyn Lott stated the Department of Fish and Game and the Yosemite National Park are the only two

agencies that have not delegated a member and an alternate at this time, all other agencies have submitted their member identification forms.

II. Welcome

a. MOU and Payment Update
No update was given at this time.

b. In-Kind Tracking
Sean Maguire stated one of the key aspects of the project is the funding; a large part of the funding is the in-kind contributions that are received from the IRWMP members being involved in the meetings, participation outside of the meetings, and committees. Up until this point, some of the IRWMP members have been filling out an in-kind tracking form on a monthly basis. In looking at the tracking so far, there are certain targets that need to be met in order to meet the match contribution for the grant agreement. Currently, we are not on target possibly due to not receiving the in-kind forms from all members, so a new system of tracking will be established that has been agreed to by DWR. Starting next month there will be a single form used with the attendee sign-in sheet from today's meeting being used as a guide for the base number of hours each member is participating. Each member will also have an opportunity to indicate any additional time spent outside the meeting in preparation or participation on various aspects of the plan.

Garrett Walker inquired if it would still be possible to use the current in-kind tracking forms. Sean Maguire responded the current in-kind forms are still acceptable, the important factor is that all time spent by the members is accounted for.

III. Approval of February Meeting Summary
The meeting summary from the February 15, 2012 IRWMP meeting was approved as presented.

IV. Sierra Water Workgroup Support Request
Don Stump stated he is currently the Sierra Water Workgroup alternate but due to other obligations a new alternate needs to be designated. Mr. Stump distributed a letter drafted by the Sierra Water Workgroup to Mark Nechodom- Director Department of Conservation, State of California Natural Resources Agency regarding support for the Watershed Coordinator Grant Program. If anyone is interested and can help support the Watershed Coordinator Grant Program please get back to Pete Kampa before the next PGC meeting. Mr. Stump stated the first Department of Water Resources Mountain Counties Regional Forum on Water Management and Planning is scheduled for Monday, April 2, 2012 from 10:00 a.m.-3:30 p.m.. The primary meeting location will be in El Dorado Hills, with satellite locations in Oakhurst and Sonora for anyone that is interested. It was suggested that the PGC act to support the issuance of the letter at the April PGC meeting.

Bob Behee stated he is interested in becoming the alternate member for the Sierra Water Workgroup.

V. Calaveras County/City of Sonora
Carolyn Lott distributed a Consensus Voting Options handout to the group. Ms. Lott explained to the group the Tuolumne Stanislaus Governance Principles state: In reaching consensus, some Planning Grant Committee members may strongly endorse a particular proposal, while others may accept it as just "workable." Others may be only able to "live with it." Still others may choose to "stand aside" by verbally noting a disagreement, yet allowing the group to reach a consensus without them if the decision does not affect them or compromise their interests. Any of these actions still constitutes consensus. Based on the Tuolumne-Stanislaus governance guidelines, the following are voting options:
Endorse
Workable
Live with it
Stand Aside
Conditional Endorsement

Pete Kampa reviewed the budget worksheet and explained due to the fact that the City of Sonora has been non-

responsive and shown no interest in participating and Calaveras County has issued a letter requesting a 50% reduction in their contribution amount, there is a $9,141 planning grant funding shortfall to redistribute to PGC members. The original IRWMP Memorandum and Finance Agreement that was adopted by the IRWMP members prior to the grant application being awarded redistributed any cost shortfalls based on the percentage in the initial budget. In the updated version of the IRWMP Memorandum and Finance Agreement it was agreed to make this decision by consensus versus distributing the shortfall by original formula. Mr. Kampa stated his suggestion would be to use the redistribution method, which redistributes the $9,141 by the percentages back to each entity proportionally based on the initial formula.

Joone Lopez stated CCWD will not be able to pick up additional funding if the $9,141 is redistributed among the participating agencies.

John Buckley stated one of the main goals of the IRWMP is fair disbursement of projects. Mr. Buckley noted that the heritage of the cost distribution was project eligibility and that the non-governmental organizations (NGOs) would not likely have projects in the IRWMP. If one agency pays a higher amount to participate in the IRWMP than another agency then will it affect the agency that contributes less during project eligibility. Mr. Buckley stated the IRWMP needs to look at project eligibility and contribution amounts from agencies.

Pete Kampa suggested developing a project ranking criteria that reflects a 1.0 multiplier if an agency complies with the MOU Finance Agreement and a lower multiplier if they do not.

John Buckley suggested accepting Calaveras County at the reduced contribution amount but during project ranking the reduction in contribution is considered.

Gary Tofanelli stated he would present to the Calaveras County Board for consideration of possibly increasing Calaveras County contribution amount to the IRWMP.

Stephanie Suess asked whether an entity that is not a signatory to the MOU could be a financial contributor. It was agreed that an entity that is not a signatory to the MOU could be a financial contributor and Ms. Suess suggested that possibly the tribe could participate financially.

Don Stump asked for clarification on whether NGO projects were ineligible for implementation grant funding. Mr. Stump also noted that in the Mokelumne/Amador/Calaveras IRWM, NGO projects scored high in the project ranking but could not provide sufficient matching funds for implementation grants. It was discussed by the group and agreed that the NGO's may sponsor implementation projects but they would not be owned by the NGO or an asset belonging to an NGO.

Carolyn Lott suggested that a committee be developed to review and discuss Calaveras County's request in contribution reduction and the shortfall created by the City of Sonora's non-participation.

The following members volunteered to be on the Budget Review Committee:
Pete Kampa
Gary Mello
Joone Lopez
Patrick Koepele

VI. IRWM Plan Preparation Schedule Status
Sean Maguire reviewed the IRWM Planning Process Overview:

Develop Regional Vision
Align to Local Needs
Project Synthesis Approach
Identify Projects
Develop Implement Framework
Adopt IRWM Plus Phase 2

Mr. Maguire responded to questions from the IRWM members.

VII. Draft IRWM Plan Objectives Discussion

Sachi Itagaki reviewed Handout 2: Draft IRWM Plan Objectives:
A. Improve water supply sources and/or distribution within DAC and urban areas that have declining groundwater quantity/quality or other water supply reliability issues
B. Reduce the negative impacts of stormwater, urban runoff and nuisance water
C. Reduce contamination in natural streams and reservoirs
D. Protect groundwater from surface source contamination
E. Improve infrastructure to meet wastewater discharge/disposal requirements and drinking water that meets drinking water standards and customer expectations
F. Optimize the forest and watersheds function of the forest to delay timing of runoff and increase restore water yield to that common to natural systems
G. Improve the condition and ecosystem function of meadows closer to their natural potential
H. Assist in the protection for listed and endangered native fish and amphibian species in the region
I. Identify, preserve and promote the regeneration and restoration of native plant riparian habitat
J. Reduce the risk of localized flooding in urban areas
K. Increase green energy production and energy efficiency of water system infrastructure
L. Improve efficiency of surface water conveyance systems
M. Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users
N. Develop sufficient reliable and affordable water supplies to meet regional demands to meet existing and projected water supply needs under a multi-year drought now and into the future
O. Improve integrated land use planning to support watershed management

John Buckley distributed suggested edits or changes for Measurable Planning Targets for Objectives to the group for review and consideration.

The objectives and potential measurable planning targets were discussed by the PGC and stakeholders. Suggestions and modifications were received on objectives A through M. Revised objectives and measurable planning targets will be distributed for discussion at the April PGC meeting. Additionally, it was decided by the group objectives:

A-M: All feedback or suggested wording changes shall be given to Kennedy/Jenks by April 1, 2012

N-O: Will be tabled until the next IRWMP meeting in April for further discussion and review

VIII. Committee Reports

a. DAC Outreach

Sachi Itagaki stated the DAC Outreach will be meeting again; currently the group is putting their mapping together with some guidance from the Department of Water Resources.

b. Tribal Outreach

Sachi Itagaki stated the group needed to make contact with Stephanie Suess again but as previously reported the meetings have been very successful.

c. Data Management

Sachi Itagaki reported the Data Management system will be going live with a public portal and there will be an email distributed to the IRWMP members within a few days containing information on how to access the system.

d. Plan Review Committee Formation

Sachi Itagaki explained to the group that in order to stay on track with the IRWM plan development schedule, it will be helpful to have a committee that can provide feedback to Kennedy/Jenks in between regular meetings. The purpose of the committee will be to share initial reactions to draft materials, offer additional ideas, comments, and concerns and provide other review activities. Members agreed to the usefulness of this approach and volunteers to the committee included:

John Buckley
Deb Romberger
Tom Parrington
Evan Royce
Tom Scesa
Bob Dean

IX. Public Comment
None was heard at this time.

X. Meeting Recap

a. Action Items
Provide input on draft objectives by April 1, 2012

b. April Meeting Agenda Topics
-Act on Sierra Water Workgroup letter
-Budget Review Committee action
-Complete draft objectives/planning metrics

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, April 18, 2012

In Attendance:	Bob Behee	Tuolumne County Resident
	John Buckley	Central Sierra Environmental Resource Center
	Jerry Cadagan	Tuolumne County Resident
	Merita Callaway	Calaveras County Board of Supervisors
	Craig Case	Amador-Tuolumne Community Action Agency
	Bob Dean	Calaveras County Water District
	Tom Harrington	Central Sierra Audubon
	Renee Hendry	Tuolumne County Community Resources Agency
	Sachi Itagaki	Kennedy/Jenks Consultants
	Pete Kampa	Tuolumne Utilities District
	Patrick Koepele	Tuolumne River Trust
	Joone Lopez	Calaveras County Water District
	Carolyn Lott	Center for Collaborative Policy
	Sean Maguire	Kennedy/Jenks Consultants
	Melissa McMullen	Tuolumne Utilities District
	Gary J. Mello	Groveland Community Services District
	Rebecca Miller-Cripps	U.C. Cooperative Extension
	John Mills	Tuolumne Utilities District Water Consultant
	Scot A. Moody	Twain Harte Community Services District
	Lindsey Myers	Central Sierra Environmental Resource Center
	Cindy Nugent	Murphys Sanitary District
	Glen Nunnelley	Tuolumne Utilities District
	Tom Orvis	Tuolumne County Farm Bureau
	Tom Parrington	Central Sierra Audubon
	Mitch Pyle	Utica Power Authority
	Ron W. Ringen	TUD Ratepayer
	Deb Romberger	U.S. Forest Service-Stanislaus National Forest
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Evan Royce	County of Tuolumne
	Jon M. Sturtevant	Tuolumne Group Sierra Club
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Larry L. Thompson	Union Public Utility District
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions
Introductions began the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda and answered any questions from the group. Ms. Lott reminded the group to sign-in for verification of their attendance and also of the importance of staying on schedule to meet up-coming deadlines

c. Member Identification Form
At this time all Member Identification Forms have been submitted.

II. Welcome

a. MOU
No update was given at this time.

b. In-Kind Tracking - New Form
Sean Maguire stated it is very important to account for all members in-kind services so the IRWM can meet the commitment of the grant. In order to meet these commitments Kennedy/Jenks (K/J) has gone over a new procedure with DWR that should simplify the in-kind tracking process and allow for K/J to account for everyone's time who might not have submitted their in-kind forms on a regular basis. What will be done from this meeting forward will be to use the sign-in sheets from every meeting as back-up for in-kind services. Mr. Maguire distributed a form that showed the members attendance and hours for the past three months and requested that each member review the document to make sure their attendance and hours were correct. Mr. Maguire stated there is a column on the form that says "Volunteer Rate" if the members name has an X next to it, K/J is using the default volunteer contribution amount of $26.00 per hour. If your pay through your business/agency is higher than $26.00 per hour and you have an X by your name then that means K/J has not received any back-up to support the higher rate of pay.

X. Meeting Recap

a. Action Items
Carolyn Lott stated the following items would be discussed at the next IRWMP meeting:
-Report from the sub-committee regarding language concerning consensus in the governance principals
-June 12/13 budget

b. May Meeting Logistics and Agenda Topics
It was the consensus of the group to change the May 16, 2012 meeting time from 9:00 a.m. to 1:00 p.m. due to the AMGEN bike race.

III. Approval of March Meeting Summary
Carolyn Lott stated she had distributed a document at the March meeting that was to help clarify the consensus process, voting options available to the group and what the voting options meant. Ms. Lott explained since the March meeting she has reviewed the governance principals and found that the governance principals do not explicitly indicate what the votes mean in the consensus process. Ms. Lott stated to her understanding the governance principles implied that there were some other action that could be taken besides the four options listed. So, for clarity she used the traditional explanations of consensus votes. There was no issue raised concerning this matter at the March meeting, so Ms. Lott stated she assumed these terms were acceptable. However, recently there was a concern brought up about the term "block" and its explanation, and when to use a block or stand aside.

John Buckley stated in an email he sent previously this week (April 13, 2012), when he reviewed the Governance Principles, page 6 states under the Definition of Consensus that categories are shown as: endorse, workable, live with it, and stand aside. There is nothing about "conditional endorsement" nor is there any use of the word "block." Mr. Buckley stated all the years of discussions about decision making have revolved around the wording under VIII. Planning Grant Committee Decision Making on page 5, that Consensus is the Fundamental Principle of the T-S IRWM Program process. Assuming for the moment that the vote that he/she "cannot live with it" is a vote by a Planning Grant Committee member that can be defined as "block," it has never been discussed or agreed upon at any meeting of the IRWM that someone can only vote against a project only when the member believes the action "is immoral, unethical, or violates the core of the organization's mission/purpose." Mr. Buckley stated instead, the four years of discussions related to this point have been that a member can choose to not support consensus on a controversial action when their organization "cannot live with" the proposed action moving forward on behalf of the IRWM. That is very different from alleging that the proposed action is "immoral or unethical or that the action violates the core of the organization's mission/purpose." It simply means that the organization disagrees that the action is either positive for the outcome of the IRWM or that it is inconsistent with good watershed management or water resource protection or any other valid reason for opposing an action. Mr. Buckley stated that he believes Ms. Lott's personal choice of wording for what defines a vote to "block" an action may come from her many years of experience with collaborative processes, but to his knowledge Ms. Lott's definition has never been a part of the T-S IRWM governance principles or approved as the wording in any copy of the principles. Mr. Buckley suggested either the following entire sentence describing Ms. Lott's opinion needs to be removed from the meeting summary, or placed on the agenda at an upcoming IRWMP meeting for discussion. (The sentence

that would need to be removed is: A "block" is rarely used and is reserved for an action which the member believes is immoral, unethical, or violates the core of the organization's mission/purpose.

Carolyn Lott clarified "conditional endorsement" is referred to on page 5 of the Governance Principles. Ms. Lott noted the intention of clarifying language to help ensure all voting members clearly understand the meaning of the terminology and the context within which it is used for voting. A number of the people who are now the official PGC members for their organizations were not participants during the discussions leading up to the adoption of the Governance Principals so may not be clear regarding implied terms and term definitions.

John Mills stated on page 6 of 8, number 4, in the governance principals it states: Check-Ins: Throughout the process, in order to determine if the group is moving in a productive direction, the program consultant may also ask for an informal "read" of the group's perspective. Answers to this type of program consultant's request are used for the purpose of developing the dialogue and are not in any way binding. Mr. Mills stated that he quoted this paragraph so the group would understand that there appears to be confusion of the meaning of the terminology regarding the various standards and reaching consensus.

Other PGC members indicated a lack of clarity regarding the voting language so Pete Kampa recommended that a small workgroup be developed to review the language in the governance principals concerning consensus and help provide clarification. The workgroup would then bring back to the IRWMP group for review. The following members volunteered:
Pete Kampa
John Buckley
Joone Lopez
Gary Mello
Bob Dean

John Mills volunteered to staff the committee.

Members agreed to strike from the March meeting summary which referred to the word block and the definition of block (see above). The meeting summary for March 21, 2012 was approved as amended.

IV. Discuss Sierra Water Workgroup Support Request

a. Approve Final Draft Support Letter
Bob Behee distributed a letter of support for the Watershed Coordinator Grant Program for the group to review. Mr. Behee asked for clarification of the Sierra Water Workgroup membership in the letter.

The consensus of the group was to list in the letter the Sierra Water Workgroup membership.

b. Report on April 2, 2012 Workshop
Bob Behee reported that the Department of Water Resources (DWR) held a forum for Mountain Counties Water Resources Association (MCWRA) on April 2, 2012 that he attended and discussion was concerning the current California Water Plan. The California Water Plan addresses 8-9 watersheds,
the Sierra's are not a watershed instead considered an overlay. The discussions were concluded in break out groups, with the topic being "Land Use Planning for the Future and how IRWMP groups will address this issue."

V. Planning Grant Budget Subcommittee Report
Pete Kampa stated that the Planning Grant Budget Subcommittee met and had a detailed discussion about the status of the budget for the IRWM and with regards to the fact that the IRWM has one participant who cannot fund the full contribution amount and another participant that has shown no interest participation. The subcommittee has determined that IRWM expenses are significantly under budget and expect by the end of the fiscal year to come out just a little over 50%, so a second bill for the remaining contribution amount will not be sent out.

Merita Callaway stated Calaveras County will not sign the MOU until there is an agreement by the group that their original contribution amount of $5,404 is sufficient for full participation in the IRWMP for 11/12. Ms. Callaway

stated if the group is not able to accept Calaveras County contribution amount then Calaveras County will be withdrawing from the IRWMP. Also, Calaveras County will be budgeting the same amount ($5,404) for the 12-13 IRWMP contribution.

Pete Kampa stated that with the current budget, Calaveras County contribution amount is a non-issue at this time and Calaveras County contribution amount of $5,404 would be sufficient for full participation in the IRWMP for 11/12. Merita Callaway requested a letter from Mr. Kampa stating the above. Mr. Kampa agreed to composing the letter. However, it is not clear how this will affect the 2012-2013 budget. It was recommended the budget subcommittee meet prior to the next meeting to discuss the upcoming fiscal year budget. The group was in agreement.

VI. IRWM Plan Preparation Schedule Status

Sachi Itagaki stated at the March IRWM meeting a revised IRWM Plan Preparation Schedule had been sent out. Discussions will begin on the Local Land Use Planning and the Local Water Planning relationship topics. Also, there will be discussion on Project Selection Criteria.

VII. Draft IRWM Plan

a. Objectives and Planning Targets Discussion

Sachi Itagaki reviewed the following Draft IRWM Plan Objectives with the group:
a. Improve water supply sources and/or distribution within DAC and urban areas that have declining water quantity/quality or other water system reliability issues. (e.g. fire flow, contamination, etc.).
b. Reduce the negative impacts of storm water, urban runoff and nuisance water.
c. Reduce non-point source contamination in groundwater, natural streams and reservoirs.
d. Objective removed.
e. Improve infrastructure to meet wastewater discharge/disposal requirements and drinking water that meets drinking water standards and customer expectations.
f. Improve watershed health in support of increased water yield closer to that common to natural systems.
g. Improve the condition and ecosystem function of meadows closer to their natural potential.
h. Assist in the protection and recovery of sensitive listed and endangered native aquatic species in the region.
i. Identify, preserve and promote the regeneration and restoration of wetlands, native plant riparian habitat, and reduce invasive species.
j. Reduce the risk of localized flooding in urban areas.
k-1 Increase green energy production for water management.
k-2 Improve energy efficiency of water system infrastructure.
l. Improve efficiency and reliability of surface water conveyance systems.
m. Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users.

Suggestions were made by the group on objectives A-M. Objectives N-O will be reviewed at the next IRWMP meeting.

b. Relationship with Land Use Planning

Relationship with Land Use Planning will be discussed at the next IRWMP meeting.

c. Relationship with Water Planning

Relationship with Water Planning will be discussed at the next IRWMP meeting.

VIII. Committee Reports

a. DAC Outreach

Sachi Itagaki reported that a DAC Outreach conference call is scheduled for next week.

b. Tribal Outreach
Sachi Itagaki reported she has spoken with Stephanie Suess and they are currently completing work off-line.

c. Data Management
Sachi Itagaki reported the Data Management system is now live and all members should have received an email with a link to the site. The link is http://aims.kennedyjenks.com/ts-irwm/

d. Plan Review Committee Convening
Sachi Itagaki reported that the Plan Review Committee will be convening within the next few weeks, currently the committee is working on the regional description.

IX. Public Comment
None was heard.

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, June 20, 2012

In Attendance:		
	Rick Baird	Central Sierra Audubon
	Bob Behee	Tuolumne County Resident
	Jerry Cadagan	Tuolumne County Resident
	Merita Callaway	County of Calaveras
	Craig Case	Amador-Tuolumne Community Action Agency
	Bob Dean	Calaveras County Water District
	Dennis Dooley	Calaveras County Water District
	Michelle Dooley	Department of Water Resources
	Julio S. Guerra	Murphys Sanitary District
	Renee Hendry	Tuolulmne County Community Resources Agency
	Pete Kampa	Tuolumne Utilities District
	Patrick Koepele	Tuolumne River Trust
	Carolyn Lott	Center for Collaborative Policy
	Melissa McMullen	Tuolumne Utilities District
	Gary J. Mello	Groveland Community Service District
	Jeffrey Meyer	Calaveras County Water District
	John Mills	Tuolumne Utilities District Water Consultant
	Lindsey Myers	Central Sierra Environmental Resouce Center
	Tom Orvis	Tuolumne County Farm Bureau
	Tom Parrington	Central Sierra Audubon
	Robert Perry	Twain Harte Community Services District
	Vern Pyle	Utica Power Authority
	Ron W. Ringen	TUD Ratepayer
	Deb Romberger	U.S. Forest Service-Stanislaus National Forest
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Jon M. Sturtevant	Tuolumne Group Sierra Club
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Larry L. Thompson	Union Public Utility District
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions
Introductions began the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda.

II. Welcome

III. Approval of April Meeting Summary
The meeting summary of April 18, 2012 was approved as presented.

IV. Report by the Governance Subcommittee regarding IRWM Consensus standard/governance
The Governance Principles Subcommittee was formed to review the language in the governance principles concerning consensus. Members of the subcommittee included Pete Kampa, John Buckley, Joone Lopez, Gary Mello, and Bob Dean. Pete Kampa stated there has been a concern about what consensus means, why it was chosen as the governance model and how it will affect the decision making process. Under the current voting structure, one member can block a strategy and/or project from being included in the plan based on an individual member's personal beliefs or the beliefs of the organization represented

by the member. Mr. Kampa said that because of these concerns, the subcommittee is proposing a super majority voting process, which would require a 2/3's vote to move an issue forward for inclusion in the IRWM plan. Mr. Kampa stated the Governance Principles will have to be amended if the group agrees to the subcommittee's proposed changes. It was noted Mr. Buckley was not able to join the subcommittee at the designated time, but did meet with Mr. Kampa to discuss the subcommittee recommendation.

Some members questioned why the subcommittee recommended a change in voting methods rather than a clarification of the existing voting format. Also, some of the public agency representatives indicated the current threshold of one member being able to block a proposal is too low of a threshold. Other members stated they did not have a problem with the current voting structure. After much discussion regarding the merits and challenges of the current consensus process, Ms. Lott asked if there was any member who "could not stand aside" and allow the current consensus language to remain within the governance principles. A number of members indicated they "could not stand aside" and therefore would block utilizing the governance principles as they currently are written.
An alternative to the current threshold for consensus was offered by Lindsey Meyers on behalf of John Buckley and CSERC. Mr. Buckley's recommendation for consideration was a threshold of "cannot stand aside" of two or more rather than the current threshold of one. This suggestion was met by opposition from some of the members who indicated it was not much different than allowing one member to block a proposal.

A member read from the IRWM planning grant application, stating the current governance principles were included in the planning grant application and therefore part of the basis for the award of the grant. Concern was expressed about how DWR would react to the group deviating from what was in the application. Michelle Dooley, from DWR, said the important thing to the department is that the process is collaborative. Consensus is not necessary, but the governance must be collaborative. She used project selection criteria as an example saying the criteria should enable development of multi-benefit projects. Decisions should be based on what is in the best interest of the region and for the purpose of managing water in an integrated way.

A member stated he thought projects everyone can agree on can be in the plan and controversial projects can be promoted within another venue by the agency/agencies who want to pursue such projects. Ms. Lott noted for projects to receive implementation funds through Prop 84, projects must be contained within the IRWM plan. Ms. Dooley added the plan can be amended over time to include additional projects as desired by the group.
Deb Romberger suggested consideration of a two-tiered approach incorporating CSERC's suggestion. She offered if a proposal cannot meet the two or more threshold for consensus, then the proposal can be referred to a subcommittee to try to find a resolution that can be brought back to the Planning Grant Committee (PGC). Then the PGC can utilize a 75% threshold to vote on the issue.

Ms. Lott said whatever voting process is utilized should be very clear with a mutual understanding of what the voting options mean. For example, if someone "cannot stand aside" is there a threshold for taking that position? Clarity is important so the facilitator can properly guide the discussion, all members have the same understanding regarding the language, and the process is transparent. Ms. Lott stated she is comfortable with whatever definitions the PGC agrees to as long as they agree on the definitions and the definitions are clearly stated within the Governance Principles. This enables mutual understanding and written definitions for future referral.

Members continued the discussion asking for clarification of how many voting members there are and how many members are non-governmental organizations. One member said he thought it made things much clearer to either vote yes or no. He thought it could make it difficult for an organization if they "stood aside" on an issue that contradicts their organization's values. A member offered there should be an objective evaluation process to vet projects. No project should be excluded from consideration. Project consideration should be inclusive of all types of potential solutions.

Ms. Dooley said consensus should never result in a project being killed. Consensus may be the ideal way to make decisions, but may not work in practice. She questioned how the group was going to move forward with plan development if a subcommittee needs to meet just to try to get to consensus. She wondered what was at risk if the group moved from consensus to a majority vote. She said the focus of the planning process was to plan for the future water supply for the region. If the agenda of an organization is something else, maybe the organization should not be participating in this planning venue.

Concern was voiced regarding incorporation of the workgroup idea indicating it could be very time consuming and be utilized frequently.

A break was called. After the break, Jon Sturtevant suggested consideration of consensus with a threshold of three or more necessary to block a proposal from moving forward.

Ms. Lott reviewed suggestions brought forward by members of the group. She asked if there was consensus on considering

alternative voting options. She noted this was not a vote to commit to any particular voting option, but rather to determine whether there was consensus on considering other voting options as an alternative to the current governance principles. She proceeded to a roll call vote. The question posed to members was: ***Are you willing to entertain alternative voting options as the threshold within the IRWM process?***

The results were as follows:

Amador-Tuolumne Community Action Agency-Endorse
Calaveras County Water District-Endorse
Central Sierra Audubon-Endorse
Central Sierra Environmental Resource Center-Stand Aside
City of Angels Camp-Endorse
County of Calaveras-Endorse
County of Tuolumne-Absent
Department of Fish and Game-Absent
Groveland Community Services District-Endorse
Lake Don Pedro Community Services District-Absent
Murphy's Sanitary District-Endorse
Tuolumne County Resource Conservation District-Conditional Endorsement
Tuolumne County Farm Bureau-Endorse
Tuolumne Group Sierra Club-Stand Aside
Tuolumne River Trust-Live with It
Tuolumne Utilities District-Endorse
Twain Harte Community Services District-Endorse
Union Public Utility District-Endorse
United States Dept. of the Interior-Yosemite National Park-Absent
United States Forest Service-Stanislaus National Forest-Endorse
Utica Power Authority-Endorse

There was consensus to consider alternative voting options.

Members continued to discuss their concerns about, support of and opposition to various voting options. Some members stated forming a subcommittee can be cumbersome. Other members shared moving to a simple or 2/3 majority can cause an imbalance among members. Based on the comments, Ms. Lott observed it seemed as if there were diverse views as to which alternatives were acceptable as modifications of the current governance principles. She noted, in preparation for this meeting, she asked for clarification as to how the process would move forward if there was no consensus on keeping or amending the governance principles.

Ms. Lott called on John Mills to explain what the alternatives are if the group cannot come to consensus on the governance process. He stated in order to change the current process consensus members will have to come to consensus on amending the current governance principles as the group is still operating under the current governance principles. Since there are members who say they cannot continue under the current structure, they can withdraw from the MOU. The remaining members can continue on with development of the IRWM plan if, per DWR's funding requirements, there are two or more public agencies still participating in the process. Additionally, since the contract for the funds to develop the plan is with T.U.D., T.U.D. will have to be willing to continue on under the current MOU.

Ms. Lott asked Mr. Kampa if T.U.D. will be willing to continue on under the current governance principles and he said T.U.D. will not be willing to do so. He indicated he has already been told by a member of the IRWM group that certain things are "off the table." T.U.D. needs everything "on the table" in order to adequately plan for the future of its water users.

Mr. Mills stated in researching the alternatives if there is an impasse <u>and</u> T.U.D. is not willing to continue on under the current governance principles, then those wishing to be governed by a different set of governance principles will have to withdraw from the current MOU and a new MOU, with the desired governance principles, will need to be developed and signed. It will be open to membership to any agency/organization willing to abide by the new governance principles.

A member asked for clarification regarding whether a voting option can be utilized to block even considering a particular proposal. It was noted voting is for decision-making regarding what is actually included in the plan. It is not to be used to prevent initiating a discussion about an idea.

Additional comments were made regarding the options up for consideration. A member noted a simple majority is way too low

a threshold. Another member noted water districts and or counties can override environmental concerns if a simple majority of 2/3's is the threshold. It was noted by two members that a simple majority is not collaborative enough. The options of 75% vote, 70% vote, simple majority vote, and a threshold of three or more being unable to "stand aside" were all tested by straw vote. Votes of "cannot stand aside" were registered for each option.

Questions were raised regarding the idea of a workgroup. Ms. Lott noted a Plan Review Committee (PRC) already exists and can be utilized as the subcommittee that has been suggested today. Membership of this subcommittee consists of John Buckley, Deb Romberger, Tom Parrington, Evan Royce, Bob Dean, and Tom Scesca. Assuming the governance principles are amended to include the potential for referral to the PRC, it was noted the PRC will have the option of either reporting they were unable to agree on a recommendation or deliver their agreed upon recommendation to the PGC for consideration.

The amendment to the current governance principles on the table was clarified as follows:

1. The default for the Planning Committee is to utilize consensus as the default when considering a proposal.

2. If a member or members "cannot stand aside" and therefore choose to block the proposal from moving forward, the "blocking" member/members will indicate whether they believe, in good faith, there is sufficient potential for compromise to recommend referral to the PRC. The Planning Committee will then determine whether the proposal should be referred to the PRC, using a roll call vote with a 2/3's majority threshold, if necessary.

3. If a proposal is referred to the PRC, the committee can either develop a modified proposal for recommendation to the Planning Committee or, in the case this is not possible, report back that no modified proposal is being recommended.

4. If the PRC has no modified proposal to recommend, the Planning Committee will vote on the original proposal using the 2/3's threshold. If there is a modified proposal, the Planning Committee will vote on the modified proposal using the 2/3's threshold. If the vote to accept the modified proposal fails, the group will move to a vote on the original proposal.

Ms. Lott called for a straw vote on the subcommittee recommendation for a 2/3's majority threshold to move a proposal forward. It appeared there was not consensus and some members indicated there was nothing that could be done to the proposal that would enable them to support it or stand aside. Ms. Lott proceeded with a roll call vote for the record. The results of the vote were:

Amador-Tuolumne Community Action Agency- Live with It
Calaveras County Water District- Endorse
Central Sierra Audubon-Cannot Stand Aside
Central Sierra Environmental Resource Center-Cannot Stand Aside
City of Angels Camp-Workable
County of Calaveras-Endorse
County of Tuolumne-Absent
Department of Fish and Game-Absent
Groveland Community Services District-Endorse
Lake Don Pedro Community Services District-Absent
Murphy's Sanitary District-Endorse
Tuolumne County Resource Conservation District-Conditional Endorsement
Tuolumne County Farm Bureau-Endorse
Tuolumne Group Sierra Club-Cannot Stand Aside
Tuolumne River Trust-Live with It
Tuolumne Utilities District-Endorse
Twain Harte Community Services District-Endorse
Union Public Utility District-Workable
United States Dept. of the Interior-Yosemite National Park-Absent
United States Forest Service-Stanislaus National Forest-Live with It
Utica Power Authority-Workable

Ms. Lott reiterated to the group that currently it appears there is no consensus to either continue with the current governance principles or to amend them. It was noted of there is a new MOU developed, the same membership will be encouraged, but others organizations can request membership if they are willing to abide by the MOU.

Ms. Lott asked if there were any other voting processes the group wished to consider before declaring an impasse and moving to withdrawal from the current MOU.

The proposal put on the table was: ***Utilize the same proposal components as voted on within the 2/3's threshold considered above, but substitute a 70% voting threshold for the 2/3's threshold previously considered.***

Ms. Lott called for a roll call vote on this governance principles amendment. The result of the roll call vote was:

Amador-Tuolumne Community Action Agency- Workable
Calaveras County Water District- Stand Aside
Central Sierra Audubon-Live with It
Central Sierra Environmental Resource Center-Live with It
City of Angels Camp-Endorse
County of Calaveras-Stand Aside
County of Tuolumne-Absent
Department of Fish and Game-Absent
Groveland Community Services District-Absent
Lake Don Pedro Community Services District-Absent
Murphy's Sanitary District-Endorse
Tuolumne County Resource Conservation District-Stand Aside
Tuolumne County Farm Bureau-Stand Aside
Tuolumne Group Sierra Club-Live with It
Tuolumne River Trust-Live with It
Tuolumne Utilities District-Stand Aside
Twain Harte Community Services District-Stand Aside
Union Public Utility District-Stand Aside
United States Dept. of the Interior-Yosemite National Park-Absent
United States Forest Service-Stanislaus National Forest-Workable
Utica Power Authority-Workable

There was consensus to amend the governance principles as stated. The full explanation of the governance principles amendment is as follows:

The initial effort will be to arrive at consensus for any given proposal utilizing the existing consensus process and consensus voting options. If consensus does not exist, those who voted "cannot stand aside" will indicate whether they believe, in good faith, there is sufficient potential for compromise to recommend referral to the PRC. PGC members will, if necessary, determine through a roll call vote, whether there is a minimum of 70% of those present who wish to send the proposal to the Plan Review Committee (PRC) for further consideration. If the vote indicates the PGC does not believe the potential exists to develop a modified proposal, members will utilize the 70% voting threshold to determine the fate of the proposal on the table.

If a proposal is referred to the PRC, the PRC will diligently strive to develop an acceptable proposal to present to the PGC at the next regularly scheduled meeting. If the PRC cannot come to consensus on a modified proposal, the PGC will vote on the original proposal utilizing the 70% threshold. If the PRC recommends a modified proposal, the PGC will attempt to come to consensus on the PRC recommendation. If the PGC cannot come to consensus on the modified proposal, the PGC will vote on the PRC recommendation utilizing the 70% threshold. If the vote to accept the modified proposal fails, the group will move to a vote on the original proposal. Mr. Mills will write up the amendment to the governance principles and present it at the next meeting.

The following clarifications were noted during the discussion:

1. The Plan Review Committee members are:
   John Buckley
   Deb Romberger
   Tom Parrington
   Even Royce
   Pete Kampa
   Bob Dean

2. The 70% threshold is of the PGC members present at the time the vote is taken.

3. Voting is intended to be utilized to make decisions on proposals that have been presented and vetted. It is not intended to be utilized to prevent a proposal from being presented or vetted.

4. A proposal should only be considered for referral to the PRC if all members of the PRC can state, in good faith, that they believe it is possible for the PRC to develop a modified proposal and they are each willing to work toward that end.

V. Budget Committee Report

Pete Kampa distributed an email to the group with a graph showing current expenses to date and projected expenses through June 2012. Mr. Kampa noted that the shortfall of $8,152 will be billed proportionally to the participants pursuant to the finance agreement. Currently, the IRWM program is significantly under budget and is billing only for expenses incurred rather than the entire 50% of the total budget as shown in the fiscal agreement. The revenue received is the total of all receipts for the first billing, with the City of Sonora being the only non-paying entity.

Pete Kampa also reviewed the Tuolumne-Stanislaus IRWM Program Locally Funded Budget for 2012-2013. Mr. Kampa stated the 2012-2013 budget was proportioned out the same as the current finance agreement. The 2012-2013 budget will be discussed at the next meeting and will include a discussion regarding the status of Calaveras County.

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, July 18, 2012

In Attendance:	Chastity Bailey	Tuolumne Me-Wuk Tribal Council
	Rick Baird	Central Sierra Audubon
	John Buckley	Central Sierra Environmental Resource Center
	Craig Case	Amador-Tuolumne Community Action Agency
	Julio S. Guerra	Murphys Sanitary District
	Renee Hendry	Tuolumne County Community Resources Agency
	Sachi Itagaki	Kennedy/Jenks Consultants
	Pete Kampa	Tuolumne Utilities District
	Carolyn Lott	Center for Collaborative Policy
	Sean Maguire	Kennedy/Jenks Consultants
	Melissa McMullen	Tuolumne Utilities District
	Gary J. Mello	Groveland Community Service District
	John Mills	Tuolumne Utilities District Water Consultant
	Tom Parrington	Central Sierra Audubon
	Vern Pyle	Utica Power Authority
	Ron W. Ringen	TUD Ratepayer
	Deb Romberger	U.S. Forest Service-Stanislaus National Forest
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Evan Royce	County of Tuolumne
	Bev Shane	County of Tuolumne
	Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
	Jon M. Sturtevant	Tuolumne Group Sierra Club
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Larry L. Thompson	Union Public Utility District

I. Meeting Opening

a. Introductions
Introductions started the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda.

c. In-Kind Tracking
Sean Maguire updated the group on In-kind tracking and responded to any questions.

II. Funding Update
Sachi Itagaki reviewed the following Tuolumne-Stanislaus IRWM Planning Grant Committee (PGC) Meeting Funding Update PowerPoint:

Draft 2012 Proposition 84 and 1E IRWM Guidelines
-Public Comment Meetings 8/14/12 - Santa Rosa. 8/15/12 - Sacramento; 8/16/ - Lancaster
-Comments due 8/24/12
-Alternative Benefits and costs analysis
-Climate change vulnerability analysis with prioritized vulnerabilities and further data and analysis of priority vulnerabilities
-More explanation on IRWM Plan Requirements

Prop 84 Round 2 Implementation PSP

-$8.3 million funding target for San Joaquin river funding area
-Public comment meetings 8/14/12 - Santa Rosa 8/15/12 - Sacramento 8/16/12 Lancaster
-Comments due 8/24/12
-Implementation Grant applications expected due dates is March 2013
-25% minimum funding match
-More eligibility requirements and alternative benefit cost analysis

Prop 1E Draft PSP for Storm water Flood Management
-$92 million with up to $30 million per project
-Final PSP in October 2012
-Grant applications due December 2012
-Projects must manage storm water runoff to reduce flood damage and yield multiple benefits
-50% minimum funding match
-More eligibility requirements and alternative benefit cost analysis

Draft eligibility requirements include:
-Reduce dependence on Sacramento/San Joaquin Delta Water Supply
-Prioritized climate change vulnerabilities
-Adoption of IRWM Plan per 2012 Guidelines by RWMG by final grant award date
-UWMP/AB1420/AWMP/GWMP/CASGEM Compliance
-Surface Water diversion reporting

Sachi Itagaki and Sean Maguire responded to questions from the group.

III. Approval of June Meeting Summary

John Buckley raised process issues regarding the June meeting. He stated the Governance Subcommittee was charged with defining the governance principles, but their recommendation to the PGC was to change the governance principles. Secondly, Mr. Buckley noted he provided a number of times when he was available for the subcommittee meeting, but the subcommittee meeting was held when he was unable to attend resulting in no NGO representation during the subcommittee discussions. Additionally, he stated he believes the subcommittee should have sent out materials reflecting their recommendation prior to the June meeting of the PGC as the PGC had previously agreed materials should be sent out prior to a meeting for consideration whenever there was going to be a vote on an important matter.

There were no additional comments and the meeting summary for June 20, 2012 was approved as presented.

IV. IRWM Plan Preparation Schedule Status

Sachi Itagaki stated that the IRWM Plan Preparation Schedule Status will be put on the website for members' information. Ms. Itagaki stated that work will begin on the Project Selection Criteria Development (CCP Grant Work) in August, 2012 will a call for projects approximately in September, 2012. Ms. Itagaki stated that with the current schedule, the IRWMP should be completed on the timeline given.

John Mills noted that the Project Selection Criteria Process would probably take two or three PGC meetings. This would translate into a call for projects by the October meeting and not September.

V. Draft IRWM Plan

a. Objectives and Planning Targets Discussion

The latest version of the IRWM Plan Objectives and measurable planning targets were reviewed and discussed. The discussion focused on updates to Objectives N – "Develop sufficient reliable and affordable water supplies…", and Objective O – "Improve integrated land use and natural resource planning…". The objectives and measurable planning targets language were discussed, and it was agreed that the proposed changes would be distributed to the PGC for review and comment. The revisions were to be distributed by K/J with any comments provided by 7/25. K/J was to then issue final proposed objectives including changes proposed at the April PGC meeting by 7/30 for review and comment by 8/1. Changes received by 8/1 would be incorporated into the final draft objectives document.

b. Relationship with Land Use Planning
Sachi Itagaki reviewed Handout 3: Draft Relation to Local Use Planning for the Tuolumne-Stanislaus IRWM. Ms. Itagaki stated that the questions on Page 1 presents key questions that must be addressed within the IRWM Plan to address the plan standard "Relation to Local Land Use Planning". A summary of local land use planning documents developed by the jurisdiction agencies in the region is provided in Table 1. Figure 1 enclosed provides a map of the jurisdictional agencies in the Region, and Figure 2 provides an overview of current land use as summarized by DWR's statewide summary of General Plan land use data. DWR also conducts land use surveys which focus on agricultural land use. This data is presented in Figure 3.

Per group discussion it was decided that Figure 3 would be deleted.

Sachi Itagaki asked that the group review and answer the questions on Page 1.

c. Relationship with Water Planning
Sachi Itagaki reviewed Handout 2: Relation to Local Water Planning for the Tuolumne-Stanislaus IRWM. Ms. Itagaki stated the following water demand data was derived from the local water agencies Urban Water Management Plans and other available public documents. Though this data will be used for the purposes of this IRWM Planning Process, it is understood that not all agencies and entities that are IRWM stakeholders agree with the accuracy of the values presented.

Sachi Itagaki asked that the group review and answer the questions on Page 3 & 4 and respond within a two week period.

d. Climate Change Vulnerability Checklist
Sachi Itagaki reviewed Handout 4: Tuolumne Stanislaus IRWMP Climate Change References and Vulnerability Assessment Questionnaire.

Sachi Itagaki stated that while reviewing the climate change vulnerability checklist questionnaire, please consider the following questions:

-Is there adequate information available to respond to the checklist questions? How can the information be used to portray a representative picture for how the Region may react to changing climatic conditions?

-Are there additional information, data, or facts that could be included to respond to the questions?

-Can you provide additional information to support areas of the checklist in addition to the references listed below?

Sachi Itagaki asked if there were references or resources that the group thought may be valuable, please forward to her.

VI. Committee Reports

a. DAC Outreach
None was heard.

b. Tribal Outreach
None was heard.

c. Data Management
None was heard.

d. Plan Review Committee Convening

None was heard.

VII. Planning Grant Budget Subcommittee Report

Pete Kampa stated in the existing Finance Agreement the group had agreed to a total budget amount with a 50% billing in September, 2011 and a 50% billing in January, 2012. The 50% billing was done in September, 2011 but there was not a need to do the 50% billing in January of 2012, it was postponed until the end of the fiscal period which was June 30, 2012 to do a final accounting. Instead of having to fund 50% of the budget, the amount needed to close out the fiscal year was $8,152. Invoices were sent out to each agency for their proportional share. The proportional share is the agreed upon percentage by each agency from the last fiscal year. The $8,152 closes out the budget for the 2011-12 fiscal year. The numbers for the proposed 2012-13 budget were presented to the group and expenses will continue to be paid from the 2012-13 budget. Mr. Kampa stated that the fiscal agent for the IRWM is Tuolumne Utilities District (TUD) and TUD had to wait for several months to receive reimbursement from the State. TUD has committed to many hours of work and carried expenses that were not originally anticipated.

Pete Kampa stated that the Finance Agreement wording was updated to reflect the fiscal year 2012-13 and an updated budget was included, which did include the City of Sonora. Mr. Kampa stated that the County of Calaveras was billed their portion of the $8,152 and if payment is not received then the group will have to decide how to proceed. For the new fiscal year of 2012-13 the County of Calaveras has already stated they will only be paying what they paid last year, which is a little over half of what is expected to be billed this year. The County of Calaveras has already stated they will pay for the first six months, however if the County of Calaveras chooses not to pay the second billed amount for 2012-13, a policy decision can be made now or postponed until after the first six months of the fiscal year 2012-13 has occurred.

The consensus of the group was to send the County of Calaveras a letter explaining what the expected contribution amount will be for the County of Calaveras to continue participation in the IRWMP for the 2012-13 fiscal year as stated in the Finance Agreement.

VIII. Public Comment

None was heard.

IX. Meeting Recap

a. Action Items

Sachi Itagaki stated Kennedy Jenks (K/J) will be working on updating the objectives and sent to the PGC by July 25, 2012. PGC members are then to review and get their comments back to K/J by July 30, 2012. K/J will then develop and send out "final draft" Objectives to the PGC by August 1, 2012. This will allow the final objectives to be incorporated into the Project Selection Criteria materials being prepared by John Mills and they in turn can then be sent out in advance of the August PGC meeting.

b. August Meeting Agenda Topics

Pete Kampa requested that the Governance Principles be added to the August IRWM agenda so that the group may review the added language.

Meeting Summary of the
Tuolumne - Stanislaus
Integrated Regional Water Management Plan Meeting
Wednesday, August 15, 2012

In Attendance:	John Buckley	Central Sierra Environmental Resource Center
	Jerry Cadagan	Tuolumne County Resident
	Wayne DeJong	Tamarack Springs Mutual Water Company
	Dennis Dooley	Calaveras County Water District
	Michelle Dooley	Department of Water Resources
	Julio S. Guerra	Murphys Sanitary District
	Tom Harrington	Central Sierra Audubon
	Renee Hendry	Tuolumne County Community Resources Agency
	Sachi Itagaki	Kennedy/Jenks Consultants
	Patrick Koepele	Tuolumne River Trust
	Carolyn Lott	Center for Collaborative Policy
	Melissa McMullen	Tuolumne Utilities District
	Rebecca Miller-Cripps	University of California Cooperative Extension
	John Mills	Program Consultant
	Scot A. Moody	Twain Harte Community Services District
	Frank Oyung	Tuolumne Group Sierra Club
	Tom Parrington	Central Sierra Audubon
	Laura Peters	Dept. of Water Resources
	Vern Pyle	Utica Power Authority
	Ron W. Ringen	TUD Ratepayer
	Deb Romberger	U.S. Forest Service-Stanislaus National Forest
	Lindsay Rosasco	Tuolumne County Resource Conservation District
	Evan Royce	County of Tuolumne
	Bev Shane	Director of the Tuolumne County Resources Agency
	Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
	Stephanie Suess	Tuolumne Me-Wuk Tribal Council
	Larry L. Thompson	Union Public Utility District
	Garett Walker	City of Angels Camp

I. Meeting Opening

a. Introductions
Introductions began the meeting.

b. Agenda Review
Carolyn Lott reviewed the agenda with the group.

II. Approval of July Meeting Summary
The July 18, 2012 meeting summary was approved as presented.

III. Financial Agreement
John Buckley inquired how the County of Calaveras contribution amount will be distributed to other agencies, if the County of Calaveras decides they can no longer participate.

Carolyn Lott explained that the County of Calaveras contribution amount would be sent to the Budget Review Committee for discussion and a possible recommendation to the group.

John Mills reminded the group that the Finance Agreement will be revised as other agencies join or leave the IRWMP.

Merita Callaway, County of Calaveras, stated that the County of Calaveras did receive the letter written by Pete Kampa concerning their contribution amount and the County of Calaveras Board discussed continuing participation in the IRWMP and the Boards recommendation was to withdraw from the IRWMP. Ms. Callaway stated when the County of Calaveras Board gives a formal recommendation a letter would be sent to the IRWMP.

The Finance agreement was approved as amended.

IV. Draft Proposal Selection Criteria Discussion

John Mills reviewed with the group; Project Selection Criteria Background Information and the Draft Project Selection Criteria. Mr. Mills stated that the Application Worksheet is what the applicant will be asked to fill out. Each application filled out will be for a specific proposal. However, only one implementation project funding applications may be submitted per IRWM region. That application can contain a number of proposals. Individual implementation proposals would be submitted to the Tuolumne-Stanislaus IRWM Program through the worksheet forms. Mr. Mills suggested the creation of a Project Technical Review group. This technical group need not be members of the PGC, or even come from entities that are participating in the program and signed the MOU. The Technical Review Group would be chosen for their technical expertise from various disciplines. Their job would be to review and score the worksheets. The Technical Review Group would be appointed by the Planning Grant Committee. Mr. Mills explained that if the Planning Grant Committee also wanted to score the individual applications they could either in combination with the technical groups help or just have the PGC as a committee of the whole score each worksheet to avoid creating selective voting to skew scoring.

Garret Walker inquired what was a realistic time frame before funding for projects will be disbursed. Michelle Dooley stated the next round of funding will be 3/13, award 9/13, plus four months for the grant agreement.

John Buckley noted that although the checklist prepared by John Mills included lots of criteria, it wasn't consistent with the criteria that came out of the prior IRWM discussions about project selection in November 2009 and January 2010. The minutes from those meetings show that the group supported evaluating whether a project would result in (1) a number of beneficiaries rather than only one or two, (2) would produce multiple benefits, and (3) would aid water quality and water supply. He also read from the meeting minutes to underscore that (4) balance, fairness, and equity, and (5) flexibility in decision-making were additional criteria identified by the group as being important.

Garret Walker expressed concern over the time period that has been spent working on the IRWMP and how much funding is now available for everyone to share. Mr. Walker explained that he needs to explain to the City of Angles why continued participation in the IRWMP is important.

John Mills noted that much of the early delays in the IRWM Program were associated with the State's fiscal and budget challenges. Schedules from DWR were extended and this region could not be held responsible for those larger problems. Mr. Mills stated that DWR has proposed additional implementation project funding rounds under Proposition84 funds. Additionally there may be additional bonds passed and that virtually all water bonds in recent decades have included funding to that benefit the IRWM Program for the State.

Rebecca Miller-Cripps inquired if DWR accepted proposals that were not part of an IRWMP. Michelle Dooley stated that DWR did not except proposals that were not part of the IRWMP for each region.

Draft Introduction and Worksheet questions and suggested revisions by the group:

Page 4
Carolyn Lott inquired who can be a proponent of a project. John Mills stated that it could be anyone who brings a project forward and has adopted or will adopt the IRWM Plan. The group asked Mr. Mills to get more information on this issue from DWR regarding clarifying what "adoption" would mean.

#6 Change to read: Federal and/or other public or private lands upon which project will be carried out. ADD: Indicate a expression of support for the proposal from the land-owner or manager.

Page 6
#1 Eligibility - "This project is being submitted by one or more organizations that are currently members in good standing of the Planning Grant Committee." Change to "members in compliance with the financial agreement."

Item #2 page 6-7
Michelle Dooley stated that the more project priorities that are met, the more competitive the project.

Page 15
7B - Remove "within the context of climate change."

ADD: N. Has the applicant considered funding with internal funds? If not, has the applicant attempted to secure other funding sources? If so please explain?

V. Public Comment

Stephanie Suess stated that she still believes that the group needs to put each organization's or persons individual interests aside and focus more on what is good for the community, the county and the region.

Sachi Itagaki stated that there are several grant opportunities that are upcoming:
1. SWRCB's 319 Non-Point Source Grants,
2. DWR's Storm Water Flood Management (Prop 1E) – currently in draft
3. DWR's Agricultural Water Use Efficiency - also in draft.
Ms. Itagaki stated an email will be sent to the group with more information.

VI. Meeting Recap

a. Action Items

b. Next Agenda

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for September 19, 2012

ACTION ITEMS:

1. Kennedy Jenks (KJ) will provide technical refinements to the Project Selection Criteria Worksheet and send it to PGC members in PDF form no later than 9/28.
2. KJ will convene the Plan Review Committee[1] to provide final review of the Regional Description and Plan Objectives sections of the draft IRWM plan.
3. KJ will send an electronic reminder to the PGC members and other interested parties regarding the due date for the initial "call for projects" for inclusion within the IRWM plan. Relevant documents will be attached.
4. John Mills will send an electronic notification to PGC members and other interested parties alerting them to the change in date and time for the November, 2012 meeting.

PGC MEMBER HOMEWORK:

1. Review in advance of the October meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Submit any additional comments on Handout 3 (Relation to Local Planning) to KJ by close of business (COB) Wednesday, September 26.
3. Submit completed Project Selection Worksheets by COB October 17.

MEETING GOALS:

1. Refine Project Selection Criteria Worksheet (Possible Action)
2. Identify Project Selection Committee

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY:

1. Opening Remarks

Carolyn Lott, Facilitator, opened the meeting, asked for self-introductions, and reviewed the agenda. She also provided a short presentation on the responsibilities and expectations of PGC members including a reminder that the premise of the plan development process is the region will see a better outcome if interests work collectively rather than individually and there is a benefit to having varying interests at the table. Ms. Lott also reminded members of the commitments they made when they signed the MOU to include abiding by groundrules and

[1] The Plan Review Committee members are: John Buckley, Deb Romberger, Tom Parrington, Evan Royce, Tom Scesa/Pete Kampa & Bob Dean

following through on offline work and preparedness. She emphasized trust can only be built if groundrules are adhered to outside the meeting room, as well as, during the meetings. She underscored PGC members' role is high level policy and strategy advice for the plan and more detailed work takes place through the work of the subcommittees.

2. Approval of August Meeting Summary:
Ms. Lott noted no substantive comments were received from PGC members after the electronic mailing of the meeting summary. The August summary was accepted by the members. She noted Ms. Melissa McMullen will not be responsible for meeting summaries any longer. The IRWM staff team will compile the summary. Correspondence should now be directed to Mr. John Mills. It was clarified Mr. Mills' role is an administrative one only.

3. Schedule Review (Handout 1):
Mr. Sean McGuire presented a slide and reviewed the remaining schedule for the IRWM plan development process. He noted the completion date for the plan is August of 2013 and adherence to the schedule is necessary to meet the deadline.

In regards to applying for a Round 2 Implementation Grant, the suite of projects for the application should be identified by the January, 2013 meeting. It will then be necessary for the applicant/s to begin the application preparation process in order to meet the March, 2013 submission deadline.

It was suggested having one or more day-long meetings might enable the PGC to better adhere to the schedule. The PGC agreed to this idea in concept.

4. Project Selection Criteria Discussion (Handout 2):
Mr. Mills stated the first order of business should be to agree upon the interests to be represented on the Technical Review Committee (TRC) (Handout 2D) and identify individuals to represent each interest. It was stressed the project selection and scoring process referred to at this time is for the purpose of project inclusion within the IRWM plan and to support ranking of said projects to include how they are depicted and displayed within the plan. Some examples of rankings and displays include projects that best meet T-S IRWM plan objectives, state objectives, Disadvantaged Communities (DAC) needs, and readiness to proceed. TRC members will discuss options and recommend ranking displays for the IRWM plan.

It was noted members of the TRC should be individuals with technical skills and they do not necessarily have to be members of the PGC. <u>It was suggested and agreed upon that TRC members should not participate in scoring their own organization's/agency's projects.</u> However, members must score all other projects or they will be eliminated from participation in scoring. Also, the time necessary to complete the task is dependent upon the number of projects submitted and the process agreed to by the TRC. <u>Only fully completed project applications may be considered by the TRC.</u>

Ms. Lott underscored this is not the process that will determine projects to be considered for implementation grants. Projects will not be excluded for implementation grant consideration based solely on their ranking in the plan. Additionally, projects can be added to the plan at a later date. Phases of projects can be submitted. The term "projects" does not apply solely to capital projects.

After discussion, the following categories were agreed upon by the PGC as those to include within the TRC. Names of the representatives were solicited as available during the meeting.

Note: Large and small water districts are defined by the State Water Code definitions which includes whether or not the district is required to prepare an Urban Water Management Plan.

- Agriculture Mr. Tom Orvis
- DAC Mr. Craig Case
- Environmental Mr. Jon Sturtevant
- Forest Service TBD and communicated by FS to Mr. Mills
- Land Use Tuolumne County-TBD and communicated by TC to Mr. Mills
- Large Water District Mr. Bob Dean
- Small Water District Mr. Scot Moody
- Sewer District Mr. Gary Mello
- RCD Ms. Lindsay Rosasco
- Tribe Ms. Stephanie Suess

Mr. Mills stated an orientation meeting will be held for the TRC during which guidelines for process will be suggested and members will have an opportunity to confirm a process to be utilized by the group. They will also have input into suggested display categories. He then turned the group's attention to the Project Selection Worksheet (Handout 2A).

The worksheet has been reordered to match the order of items on the score sheet (Handout 2C). Both forms have also been colored coded as an additional visual queue in matching up worksheet information with corresponding scoring items. The main categories within the documents are:

1. Eligibility
2. T-S IRWM Objectives
3. Prop 84 Program Preferences
4. Prop 84 Statewide Priorities
5. Mandatory Selection Components

Participants complimented the team on the improvements to the documents and there was consensus to accept the templates for project selection and scoring for the IRWM plan. KJ will make any necessary technical adjustments and convert the files into fillable PDF format. KJ will distribute the files electronically to members and interested parties no later than September 28. The forms will also be available online.

5. Relation to Local Planning (Handout 3):

KJ solicited comments regarding the handout. The document was distributed electronically prior to the meeting, so some members came prepared with comments for submission to KJ. The group was given ten minutes during the meeting to provide written comments. The option of providing comments offline was also given with a due date of C.O.B. September 26.

A number of comments were offered regarding the broader topic of land use and its relationship to water planning. It was noted, based on other experiences, providing detailed recommendations is a timely proposition and not one that fits within the IRWM plan development schedule. Ms. Lott clarified that KJ will be returning with a draft narrative on this topic for discussion by the group. Some high level recommendations may be in order to include suggesting what efforts might be taken in the future given additional time and funding.

Other comments included that the land use maps displayed by KJ as Figures 1 and 2 lack soil profile mapping which will be useful for identifying the most productive groundwater recharge

areas. A guide produced by the Sierra Nevada Alliance was cited as a good resource for future water and land use planning efforts. It can be found at: http://www.sierranevadaalliance.org/publications/db/pics/1218735464_22191.f_pdf.pdf It was noted the Tuolumne Utilities District (TUD) has embarked on a joint effort with Tuolumne County Board of Supervisors to explore land use/water issues.

6. Topics for Plan Review Committee (PRC):
KJ stated they will be convening the PRC in the coming weeks to review the final drafts of the Region Description and the Plan Objectives. If there are substantive changes recommended by the PRC, they will be brought back to the PGC for consideration. Otherwise, these two sections will be brought back as milestones of completed draft sections of the plan. KJ will contact PRC members regarding this work. Ms. Lott reminded the group of the PRC membership and asked if there were any PGC members who wished to be considered for membership in the PRC. None were put forward for consideration.

7. Call for Projects and Review Process:
The initial call for projects opened as of the PGC meeting on September 19 and ends at COB October 17. Project selection will be revisited in 2013 to determine if there are changes to current projects or additional projects for consideration. This may occur as interested parties see the implementation grant guidelines and determine some changes may make the project suite more competitive within the funding process. It was also noted projects can be added to the IRWM plan in the future with approval of the PGC.

Because the November meeting of the PGC will be dedicated to consideration of the TRC's recommendations regarding project inclusion, scoring, and plan display of projects it was agreed to lengthen the November meeting. Additionally, the date was changed to avoid conflicting with the Thanksgiving holiday. The November meeting date and time is now: Wednesday, November 28, from 9 am until 4 pm. Participants are to bring their own lunch. It was noted the January meeting may also need to be lengthened to accommodate project selection for the implementation grant process. KJ offered to discuss the implementation grant process offline with interested parties, if requested.

It was noted some participants may have conflicts with the change in dates for November. However, the group agreed to keep the later date.

It was requested a straw poll be conducted to determine the potential number of projects for submission to the TRC. Approximately 40-50 projects were offered during the informal poll.

8. Public Comment:
Ms. Lott opened the public comment period. Ms. Michelle Dooley related the recent comments by DWR Deputy Director Gary Bardini acknowledging the State's commitment to the future of Integrated Water Management (IWM) in California. She said he also highlighted the necessity of water managers articulating to the general public the importance of IRWM as a long-term, multi-benefit, broadly supported, community-generated and collaborative process and program.

Ms. Dooley clarified that Tribal entities who have not yet signed the MOU may choose to do so and/or adopt the IRWM plan sometime in the future.

Ms. Lott closed the public comment period.

9. Meeting Recap:
A member noted today's meeting was productive and objectives were met.
Next Meeting:
Wednesday, October 17, 2012
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	
Garrett Walker	City of Angels Camp	Present
Michael McHatten	CAC/Alternate	
Merita Callaway	County of Calaveras	
Tom Tryon	CC/Alternate	
Evan Royce	County of Tuolumne	
John Gray	TC/Alternate	
	Department of Fish and Game	
	DFG/Alternate	
Gary J. Mello	Groveland Community Services District	Present
Jon Sterling	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	
Cindy Nugent	MSD/Alternate	Present
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	Excused
Pete Kampa	Tuolumne Utilities District	Excused
Tom Scesca	TUD/Alternate	
Scot A. Moody	Twain Harte Community Services District	Present
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	Present

Bill Airola	UPUD/Alternate	
	US. Dept. of the Interior – Yosemite National Park	
	USDI/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	
Alex Janicki	USFS/Alternate	Present
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	Present

IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	Present
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present
John Mills	Office of John S. Mills	Present

OTHER INTERESTED PARTIES

Name	Organization
Renee Hendry	Tuolumne County Community Resources Agency
Ron W. Ringen	TUD Ratepayer
Rick Baird	Audubon
Jerry Cadagan	Resident
Stephanie Seuss	Tuolumne Me-Wuk Tribal Council
Bob Behee	Tuolumne Utilities District
Rebecca Miller-Cripps	University of CA Cooperative Extension

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for October 17, 2012

ACTION ITEMS:

1. KJ will convene the Plan Review Committee[1] to provide final review of the Regional Description and Plan Objectives sections of the draft IRWM plan.
2. KJ will make available online completed project application worksheets, TRC score sheets, and in-kind tracking spreadsheet.
3. KJ will send today's Prop 84 IRWM Implementation Grant Preparation Power Point to PGC members and other interested parties.
4. KJ will send an electronic reminder to PGC and TRC members and other interested parties regarding the revised schedule for the initial round of project solicitation and scoring.

PGC MEMBER HOMEWORK:

1. Review in advance of the November meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for October, and bring to November meeting.
3. Submit completed Project Selection Worksheets to KJ by midnight, Monday October 22.
4. Submit any additional comments on Handout 1 (Relation to Local Planning) to KJ by close of business (COB) Thursday, November 1.
5. Submit any additional comments on Handout 2 (Climate Change Vulnerability Checklist by COB Friday, November 16.
6. Submit any additional comments on the Region Description by COB Monday, December 3.

MEETING GOALS:

1. Present Relation to Local Planning and Climate Change Vulnerability Checklist
2. Summarize Status of Region Description

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY:

1. Opening Remarks

Carolyn Lott, Facilitator, opened the meeting, asked for self-introductions, and asked if there were questions on the agenda. She noted both for purposes of voting and for calculating in-kind

[1] The Plan Review Committee members are: John Buckley, Deb Romberger, Tom Parrington, Daniel Richardson, Tom Scesa/Pete Kampa & Bob Dean

hours, Member ID Forms must be up-to-date. Only individuals indicated as official representatives on the ID Form are eligible to vote. She said she had contacted those with out-of-date forms offline and all had submitted updated forms.

2. Approval of September Meeting Summary:
Ms. Lott noted no substantive comments were received from PGC members after the electronic mailing of the meeting summary. A few minor corrections were offered and will be integrated into the summary. The September summary was accepted by the members.

3. Schedule Review and In-Kind Tracking:
Ms. Itagaki stated that in-kind tracking is a very important component in meeting the local match requirement within the current IRWM planning grant. While attendance records verify time spent at meetings and subcommittee meetings, they do not account for time spent outside of meetings. Meeting preparation time for reviewing and commenting on documents, filling out project application forms and the like were all components of the in-kind local match calculations submitted to Department of Water Resources (DWR) within the planning grant application. KJ will post the spread sheet for those who would prefer to use that method of documentation.

It was noted plan preparation will continue in parallel with project evaluation and discussion. Projects are a major portion of the plan and therefore this is just the initial call for projects. The timing of this effort is to align with the DWR Implementation Grant due date estimated to be March 2013 to submit for this grant. The submitted projects must be contained within the IRWM plan. Ms. Michelle Dooley, from DWR, stated there will be future implementation rounds.

Mr. Mills encouraged interested parties to review the DWR grant guidelines, the DWR Proposal Solicitation Package and other relevant documents as competition will be keen and getting a head start on compiling needed information is imperative.

A member asked what will happen if all of the planning metrics are not somehow addressed by project submittals. Ms. Itagaki said there is an ability to brainstorm additional projects, improve projects through discussion, and submit additional projects for inclusion at a later date. She also stated all project submittals will be available in an on-line file repository called Dropbox.

4. Relation to Local Planning (Handout 1):
Ms. Itagaki provided an overview of the document and asked members to first comment on whether the outline looked complete. A member suggested wastewater reclamation as a separate topic under section 7.2. Ms. Itagaki stated that would be fine and asked if there existed stand-alone reclaimed water documents. Mr. Garett Walker said while the City of Angels did not have a specific document, there is an existing agreement with Greenhorn Creek to take reclaimed water. Mr. Tom Scesa offered TUD does have a separate document and reclaimed water is used mainly for agricultural purposes. Mr. Julio Guerra stated the Municipal Service Review has references. DWR has recycled water goals. KJ will check on reclaimed water policies within General Plans. A member stated he believes utilizing reclaimed water is part of the efficient use of water.

A member commented on Question 2, Page 3. There were various opinions about whether water districts in the region have the ability to serve water to new developments. A member clarified the question asked of water districts is, “Can you serve?” The answer is usually, “Yes, with enough time and money.” The discussion covered items such as the expense to a developer to provide water line and sewer connections versus serving the development through wells and septic systems. Concerns were raised regarding extending lines to non-adjacent

properties as vacant properties along the extension can more easily be served resulting in potential growth inducement. It was noted land use decisions are within local government jurisdiction and it is difficult for a water agency to mediate in this arena with the local jurisdictions. In regards to developing ideas of how to address these concerns, it was suggested KJ refer to the Calaveras County Draft Water Element as guidance. There are a number of suggestions within that document that took considerable time to develop; time which the group does not have within the parameters of the IRWM plan development process.

Additional mechanisms were suggested for addition to Question 3, Page 3. Additions included:

- Working with local governments on a Blueprint process
- Joint meetings with water districts/county boards
- Calaveras County Integrated Waste Management Committee
- Tuolumne County Regional Sewer Committee (Jamestown/Twain Harte/TUD) quarterly meetings
- Stanislaus Forest Service Leadership meetings
- Local Economic Summit
- Forest Service Yosemite-Stanislaus Solutions Collaborative

On Page 4, Question 4, Statement f, members voiced concerns on the way the issue is stated. It was noted the Forest Plan discusses water, particularly water quality, within the forest. Ms. Dooley stated availability of water should drive the General Plan. Another member stated there is no desire to put in a water line to nowhere. Mr. Mills offered that local jurisdictions identify future development based on potential future supplies as it is reasonable to assume future supplies would be developed by water suppliers as needed. Capital Improvement Plans by all public agencies are to be reviewed for consistency with the General Plans, however this requirement may not always be adhered to. Urban Water Management Plans and General Plan timetables are often not the same, further complicating the issue. Urban Water Management Plans are to be updated every 5 years (2015, 2020, 2025 etc.) while City and County General Plans may not undergo significant updates for a decade, or more.

A member suggested changing the wording from “should” to “is” in the phrase, “Land use should be controlled by a county or city General Plan…” Mr. Mills stated the document needs to be based on facts backed up by data. Opinions may vary, but this group agreed in the initial meetings of the Planning Grant Committee that the PGC would not serve as an appellate body and pass judgment on land use plans that have been adopted by local agencies or resource plans by state or federal agencies. Ms. Itagaki clarified this document will be a narrative which portrays the range of views regarding land use.

Ms. Itagaki moved to the table within Section 3, “Summary of Land and Water Management Planning Documents.” The following were noted:

- Copperopolis is an old, unfinalized plan
- Oak Canyon Ranch is a specific plan
- City of Angels Water Master Plan should be finalized by December
- City of Angels completed their water audit which led to completion of the Wastewater Master Plan
- CCWD’s Water and Wastewater Master Plan was completed in 2005
- Forest Service completed a Wastewater Treatment Plan for Pinecrest
- Emergency Response Plans are available and updated every five years
- Calaveras County Water and Wastewater Municipal Service Review includes the smaller districts and they should be called out

- CCWD is getting ready to finalize their Groundwater Management Plan and CASGEM Monitoring Program

5. Climate Change Vulnerability Assessment Checklist (Handout 2):
Ms. Itagaki provided an overview of the checklist indicating it is based on the DWR Climate Change Handbook. Questions and comments were raised regarding a number of issues. It was noted, for process purposes, major concerns should be raised today and detailed comments submitted offline for a rewrite of the first draft.

- Under 1.1 it was noted the hospital and mill were both major industries that should be noted.
- Under 1.2, after bullet 3, the answer should be "Yes."
- Under 1.3 the number of acres was questioned as being too low. It was suggested the County Ag Commissioner be consulted for data. It was noted this data may include dry farming and that in Calaveras County, only some of the data is pertinent to the T-S IRWM planning region. The definition of grains was questioned as there are fodder crops grown. CCWD is working on an update to their Water Management Plan. Phase one is an agricultural study and they are working with Natural Resource Conservation Service on phase two. A member questioned whether ranch land is included as this exists on the forest. It was also noted water is used in the dry seasons to support tourism through sustaining the aesthetic nature of landscape features.
- It was suggested PG&E should be added to page four as a major water user.
- Under 2.6 the Forest Service can provide additional information. Ms. Deb Romberger will provide the report to KJ.

Members were encouraged to provide more detailed comments offline. The deadline for comments on this draft is November 16.

6. Plan Status and Present Region Description (posted):
Ms. Itagaki stated the deadline for submission of comments on the Region Description is December 1. A member requested KJ send confirmation of receipt of comments to submitters. Several members complimented KJ on the readability and structure of the document. KJ will schedule a meeting with the Plan Review Committee ASAP to review the Plan Objectives.

7. Project Review Process:
Mr. Mills clarified all projects with completed applications will be included in the IRWM plan. There is no intention to use this process to eliminate projects. Ms. Itagaki said PDFs of the applications will be posted, as will the scoring spreadsheets.

Members discussed having project presentations during the November meeting and agreed this will be helpful. The amount of time and the organization of the presentations will be determined after the submittal deadline. Ms. Lott emphasized the need to have presenters hold to the allotted time and have members support her in calling time limits out to be fair to all presenters.

Mr. Garett Walker shared a concern regarding projects that address a compliance issue. He questioned whether this could expose the agency to greater risk of litigation. He said there is a desire to come into compliance, but no desire to shine a negative light on the agency. He noted sometimes management and/or policy makers have concerns regarding this issue. Ms. Dooley said the bond is designed to help fix water quality and environmental problems. She suggested agencies in this situation might want to consult with their legal counsel. She added it will be

difficult to get funding for a project without the backing of management and policy makers. Mr. Mills pointed out that in other IRWM Programs local agencies sought and received funds to construct facility improvements so as to comply with existing non-compliance problems.

A member underscored the importance of having time to facilitate integration and collaboration among project proponents.

The members of the TRC were verified as:

- Agriculture — Mr. Tom Orvis
- DAC — Mr. Craig Case
- Environmental — Mr. Jon Sturtevant
- Forest Service — Ms. Deb Romberger
- Land Use — Mr. Daniel Richardson
- Large Water District — Mr. Bob Dean
- Small Water District — Mr. Scot Moody
- Sewer District — Mr. Gary Mello
- RCD — Ms. Lindsay Rosasco
- Tribe — Ms. Stephanie Suess

<u>There was a reminder that members of the TRC cannot score projects submitted by their own agency/organization.</u>

Mr. Scesa asked the group to consider a time extension of one month for project submittals. Mr. Jeff Meyer asked for a two week extension. Ms. Romberger affirmed she would like additional time. It was noted this is the first call for projects and the group needs to keep this moving ahead if anyone is going to be able to qualify for submittal of an implementation grant in Round 2. Ms. Itagaki said entities who are interested in applying need to be identified in January as the application process is extremely time consuming and laborious and the grant package is due in March. She stated she did not believe it would be possible to meet the deadline if the submittal process was extended for any substantial amount of time. One of the TRC members reminded the group he has a full-time job outside of this planning process and that job has its own deadlines for him and those who work for him. He has already scheduled in the dates and times for the review process and cannot alter them significantly. If the date is changed significantly enough to move back all the TRC meetings, he will need to drop off the committee.

Tom Scesa said there had been a lot of good input and he would work to have his project applications complete by Friday or Monday. Monday at C.O.B. was suggested, but a member requested midnight, Monday, November 22. Mr. Meyer agreed he could comply with this schedule. There were no objections to the change to this time and date. Ms. Itagaki said, to be fair to those who have already submitted project applications, she will accept amended submittals during this same timeframe.

Members asked about integration and refinement of projects. Ms. Itagaki said some of this may take place with those projects which are part of the implementation grant package. For others, it may take place in between or during the second call for projects. Ms. Dooley said the upcoming grant opportunity might be good for a regional DAC effort such as a feasibility study, etc. She also noted project screening is useful for other agencies' grant opportunities – not just DWR.

Ms. Itagaki said the change in submittal date will cause a slight tweak in the TRC schedule. She suggested changes and said she will send the dates out electronically this week.

8. Public Comment:
Ms. Lott opened the public comment section. Ms. Dooley announced the upcoming DWR Water Management Leadership Exchange meeting on November 14, 8:30 a.m. – 4:00 p.m. at the Fresno County Farm Bureau. The cost is $25 which includes lunch. The other three venues are listed on the DWR website.

Mr. Sturtevant announced the Tuolumne County Greywater in California workshop on November 15 and 16.

Mr. Jim Grinnell shared the Bay Area/Palo Alto pitch session for venture capitalists, stating this might be a way for interested parties to fund their projects. He said audience members pay $100 per person to attend and there are usually around 250 attendees. Entities pitching a project pay $600. Pitchers start by giving a 2 minute elevator speech and 15 pitchers are chosen for the second round. Over $300 million dollars has been given to finance projects in five years. He suggested perhaps this might work here.

Ms. Lott closed the public comment period.

9. Meeting Recap:
Ms. Lott asked if there were additional items Ms. Itagaki wished to address. Hearing none, Ms. Lott reiterated that dates for document review and TRC meetings will be going out electronically. She invited interested parties to stay for the informal Prop 84 IRWM grant preparation discussion.

10. Prop 84 IRWM Implementation Grant Preparation Primer (optional):
As this was not a formal part of the IRWM PGC meeting, notes were not taken. However, Ms. Itagaki stated she will send the Power Point presentation out electronically.

Next Meeting:
Wednesday, November Wednesday, November 28, 2012
9:00 a.m. – 4:00 p.m.
Attendees are to bring a lunch with them.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Bob Dean	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	
John Buckley	Central Sierra Environmental Resource Center	Present

Lindsey Myers	CSERC/Alternate	
Garett Walker	City of Angels Camp	Present
Michael McHatten	CAC/Alternate	
Merita Callaway	County of Calaveras	
Tom Tryon	CC/Alternate	
Evan Royce	County of Tuolumne	
John Gray	TC/Alternate	
Gary J. Mello	Groveland Community Services District	
Jon Sterling	GCSD/Alternate	Present
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	Present
Cindy Nugent	MSD/Alternate	Present
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	
Tom Orvis	Tuolumne County Farm Bureau	
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	Present
Pete Kampa	Tuolumne Utilities District	
Tom Scesca	TUD/Alternate	Present
Scot A. Moody	Twain Harte Community Services District	Present
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	Present
Bill Airola	UPUD/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	Present

IRWM Plan Staff

Name	**Organization**	**Attendance**
Michelle Dooley	CA Department of Water Resources	Present
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Bob Behee	Tuolumne Utilities District
Wayne DeJong	Tamarack Springs Municipal Water Company
Jim Grinnell	
John Maciel	TUD Ratepayer
Rebecca Miller-Cripps	University of CA Cooperative Extension
Tom Quincy	Utica Public Utility District
Daniel Richardson	County of Tuolumne
Ron W. Ringen	TUD Ratepayer
Jennifer Sorenson	Tuolumne Me-Wuk Tribal Council

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for November 28, 2012

ACTION ITEMS:

1. John Mills to contact DWR and inquire the remaining funds available for DAC implementation grants.
2. Kennedy Jenks (KJ) to change spelling to Mi-Wok within USFS projects per ranger district naming.
3. KJ to develop IRWM Plan language regarding the "preliminary/prequalification" scoring step.
4. KJ to define schedule and steps for 2nd T-S Project Solicitation.
5. KJ to provide list of entities interested in grants and grant information to Tom Scesa.
6. KJ to provide estimate of lesser grant application support and estimate for grant contract administration to interested parties.
7. KJ to upload consultant PPT presentations, sample of successful Prop 84 grant applications, and November meeting materials to website.
8. KJ to upload project Power Points to Dropbox.

PGC MEMBER HOMEWORK:

1. Review in advance of the December meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for November, and bring to December meeting.
3. Submit any additional comments on the Region Description by COB Monday, December 3rd.
4. Grant Application Workgroup to meet and outline components of proposal and next steps.

MEETING GOALS:

1. Project Presentations
2. Adopt Recommended Projects for Inclusion in the IRWM Plan
3. Adopt Project Scores for Inclusion in the IRWM Plan
4. Discuss Implementation Grant and Authorize Grant Work Group

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****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:
Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda, reminded members to sign-in, and clarified one voting member for each Planning Grant Committee (PGC) organization/agency present should be seated at the table.

2. Approval of October Meeting Summary:
Ms. Lott indicated one minor change had been submitted and incorporated into the meeting summary. The meeting summary for October 17, 2012 was accepted by the PGC.

3. Schedule Review and In-Kind Tracking:
KJ reviewed the schedule and indicated there has been no change in the grant date. They reminded members and other participating parties that time spent outside of formal meetings and KJ led conference calls needs to be accounted for on the in-kind tracking sheets. When there are activities where roll is taken or there are sign-in sheets, these mechanisms are used for tracking in-kind time. This detail is necessary to conform to DWR requirements.

4. Project Presentations Opening Steps, process and Recommendations for Inclusion in the Plan:
Clarification was provided that DWR does not offer grant assistance for interested parties to prepare DWR grant applications. The assistance was provided to help support the development of Project Selection Criteria and the process for including projects within the IRWM plan. Negotiating the suite of projects for submission for an implementation grant and completing and packaging the grant application needs to be done outside IRWM plan development meetings. If consultant assistance is desired, that must be arranged through a separate agreement and budget.

The purpose of today's consideration is to identify a set of projects that, if implemented over a period of time, will help meet the needs of the region. Projects that are included in the plan may be implemented as originally proposed, phased, modified, integrated with other projects, or ultimately removed from the plan. Additional projects can be added to the plan over the course of plan life.

An organization/agency must commit to adopting the IRWM Plan to qualify for Prop 84 grant funds. DWR is still determining how that requirement can be addressed by organizations without governing boards and how it applies to tribes.

Ms. Lott walked the group through a Power Point which recapped the decision-making history which led to the project application process and subsequent project scoring. It was noted the purpose of scoring projects is to demonstrate projects are included in the plan as a result of an objective analysis.

There continued to be concern about the threshold a project must meet in order to get into the plan. It was clarified there is a different bar for including projects in the plan as compared to submitting projects for implementation funding. Because a project is included in the plan, does not automatically mean it can/will be submitted for implementation funding. When submitting a funding package, the PGC will have to determine if there is support for the funding proposal.

Mr. John Mills reiterated that DWR sees new water supply and reliability as priorities for the IRWM Program as defined by Proposition 84. DWR expects there will be conflicts within a region and intends the IRWM process as one way to resolve these issues.

There was still concern about the threshold to be met regarding the inclusion of projects within the IRWM Plan. Ms. Lott stated what was discussed during the October IRWM meeting was that for a project to be included in the plan, the proponent had to submit a completed application and commit to adoption of the IRWM Plan when the IRWM Plan is completed. However, an actual application for funding will need to be vetted by the PGC and the decision to support any project funding application to DWR arrived at through the T-S voting process.

Ms. Lott continued her presentation indicating some projects scored highly in certain categories and not as highly in others. Significant time was spent by the Technical Review Committee in reviewing all the projects. (Proponents did not score their own projects.) Aside from overall scores, projects were also sorted by how well they met IRWM Program Preferences and Statewide Priorities, by Mandatory Selection Components, by Readiness to Proceed, and by how well they met T-S IRWM Objectives.

Ms. Lott suggested members reflect on the following in regard to how projects scored:

- How can a project be improved in areas where the score was lower than desired?
- How can the proponent tell a better “story” so as to better convey information?
- What is it about projects that solicited higher scores?
- Which projects seem suitable for pairing/integrating to better meet IRWM objectives?
- Are there gaps in the suite of projects resulting in some objectives not being met or fully met?

In thinking about a solicitation package, it needs to be competitive not just within the region, but also across the state. It needs to tell a story that helps explain how the needs and objectives of the region will be addressed and how the projects within the package complement one another.

In regards to the presentations, Ms. Lott reminded the group these are high level presentations. If more detailed information is desired, individuals should feel free to contact the project proponent to further discuss the project. She also stated Mr. Sean Maguire will be tracking the issues she asked presenters to address in their opening comments. Those are:

- Identify that this is a project you wish to promote for the March funding application.
- Indicate if you already have policymaker support for the proposal and for submission of the grant.
- Indicate if you have identified the local match.
- Identify the projected amount of grant funds you wish to seek for this project.
- Indicate if your agency is willing to be considered as the grant administrator.
- Identify, if known, who will be developing your agency's portion of the grant proposal.
- Characterize this project's "readiness to proceed."

Ms. Sachi Itagaki gave a presentation on project integration. She noted there is integration of separate attributes such as stakeholder integration with institutional integration. There is also integration of knowledge, data sharing, expertise, and resources. Consideration should be given to human-made and natural infrastructure. There should be a pooling of resources. Additionally, when projects are integrated, the way components complement each other should be clear so there is seamlessness to the integration.

A member of the TRC shared how much he learned through the scoring process. He suggested compiling suggestions for how the process might be improved in the future. It was noted this will be a topic of a later agenda item.

Members continued to raise questions regarding the implementation grant process. Some members indicated they were not aware DWR releases grant funds on a reimbursement basis, which means proposal participants must have enough cash flow to operate on a reimbursement basis. There was also concern expressed that some project proponents may not have fully understood the DWR definition of DACs and therefore some projects may have been mischaracterized regarding the nexus to DACs and/or the percentage of the project benefitting a DAC. There was some confusion regarding the dollar costs of projects proposed to include in the plan and the funding available for implementation.

Mr. Mills stated the number of projects included in the Plan need not be limited to any funding cycle, but should be a long-term priority list. He pointed out there are some IRWM programs that have IRWM plans with over 200 projects. Funding for a region's projects will occur over many years. Furthermore, the funding sources may not all be DWR funds. Mr. Mills pointed out the inclusion of projects within the Plan gives the region an inventory of projects that can be funded in the future. Ms. Lott added the IRWM Plan should include as many projects as are necessary to meet the Plan objectives. Determining which projects or project phases should be included in a solicitation package for project funding is a separate process for the Planning Grant Committee to resolve at another time.

A member voiced the opinion the region should submit for as many projects as believed to be worthwhile, regardless of how much money that adds up to for the grant package. Ms. Lott reminded the group the funding package will be scored as a package. If there are less well defined projects in the application it can bring down the score for the whole funding application. Also, if partial funding is awarded, DWR will expect the applicant to determine, and submit to DWR, how the partial funding will be distributed and where the remainder of the funding will come from to carry out the projects proposed within the package, or what projects or elements of projects will be eliminated from those submitted. Therefore, caution should be used in assembling a package so as to present an application with strong projects and within a dollar range feasible for funding.

5. Project Presentations – Part 1

Project presentations were made by:

- Julio Guerrra, Murphys Sanitary District (1)
- Patrick Koepele, Tuolumne River Trust (2)
- Garett Walker, City of Angels (2)
- Ted Allen and other staff, Tuolumne Utilities District (5)
- Gary Ghio, Union Public Utility District (1)
- Gary Mello, Groveland Community Services District (3)

Note: As it is not practical to include the multiple project presentations within the plan, it is suggested parties interested in the presentations refer to the video recording of the meeting which is posted on the TUD website listed on the first page of the meeting summary or the powerpoint presentations/additional materials for those projects that are also available on the TUD website. Additionally, limited information can be gleaned from the project master score sheets. For complete information on proposed projects, interested parties should contact project proponent staff

6. Brown Bag Lunch

7. Project Presentations – Part 2

After a short lunch break, project presentations were given by:

- Scot Moody, Twain Harte Community Services District (1)
- Craig Case, Amador-Tuolumne Community Action Agency (1)
- Jeff Meyer, Calaveras County Water District (1)
- Lindsay Rosasco, Tuolumne County Resource Conservation District (2)
- Wayne DeJong, Tamarack Springs Mutual Water Authority, Inc. (1)
- Deb Romberger, US Forest Service (7)

8. Break

9. Action item to Accept Projects for Inclusion in the IRWM Plan:

It was noted that no incomplete applications were received. Ms. Lott asked for a show of hands by project proponents who do not believe the agency/organization they represent will adopt the IRWM plan, once completed. No hands were raised. After clarifying the criteria for inclusion in the plan had been met by all project proponents, i.e. all were complete and all agencies/organizations intend to adopt the IRWM plan, Ms. Lott asked if there was consensus to include all the projects submitted in the IRWM plan.

<u>There was consensus by the members of the PGC present that while each member may not support implementation of every individual project submitted for inclusion in the plan, members supported including all projects submitted in the IRWM plan</u>.

10. Project Review Process and Scoring Results, Action Item to Accept project Scores for Inclusion in the IRWM Plan:

It was noted by KJ that the scores will be included as an appendix within the IRWM plan. All 14 of the proposed draft objectives were addressed in some way through the submitted projects. However, there may still be planning targets that are not fully met through the projects submitted to date.

KJ also clarified that feasibility studies for DAC projects or multi-benefit flood projects are the only feasibility studies eligible for funding through the upcoming DWR Prop 84 Round 2 Implementation Grant solicitation.

The Forest Service clarified they use a spelling of Miwok for projects of that name, which is different than the tribal spelling of the name.

Members indicated some of the ideas they had for improving the project selection and scoring process. Some of the suggestions heard during the meeting include:

- Scheduling project presentations before the TRC scores the projects
- Enlisting the consultant team to provide an initial review and score for the projects prior to TRC review
- Clarifying DWR's definition of Disadvantaged Communities (DACs) in writing within the project application form
- Adding a compliance category to the project application form
- Providing clearer guidance on when a box should be checked

- Requesting information regarding potential project phasing and a detailed budget, when available, within the application form
- Speaking to method of sustaining a project, if implemented

There was discussion regarding the language of the action as some members were concerned about how scores included in the plan might be used in the future. Ultimately, language was crafted that stated scores from the scoring process will be included in the plan with the understanding these scores provide a foundation for project analysis. The scores provide a preliminary ranking and are subject to change as projects are better defined in the future. There was consensus to accept the scores into the plan with these conditions.

It was noted that while there are concerns about the scores, no Technical Review Committee member present thought they would substantially alter the scores they gave to projects based on information revealed today. One committee member noted that the scoring process would help her improve future project submittals.

11. Considerations for Implementation Grant Applications and Integration Opportunities:
This item was combined with Item 12.

12. Discussion – Potential Prop 84 Application Package, Next Steps, and Action Item to Authorize Proposal Work Group:
KJ presented an overview of the requirements of the Prop 84 Round 2 PSP and the steps suggested to be followed between the November and December meetings.

Ms. Lott reminded the group of the things they need to work through:

1. DWR requires there be a fiscal agent for a proposal. Some entity will need to volunteer to be the fiscal agent.
2. A 25% match, or some proportion thereof, needs to be identified unless the proposal has a 100% DAC benefit.
3. Agencies/organizations party to the proposal need to determine if appropriate cash flow levels exist to support a reimbursement type grant, especially for a DAC project.
4. A proposal comprised of multiple projects needs to be integrated in a fashion that tells a story and demonstrates how the projects fit together. In other words, multiple project proposals put together by multiple agencies/organizations need to be integrated into one cohesive proposal. Who will do this and what it will cost needs to be identified, as well as, the source of funding for development of the solicitation package.
5. Funding proposals are funded as a package. If partial funding is awarded, the capacity to apply partial funding in a way that still makes sense needs to be identified by proponents and approved by DWR.
6. Resolutions of support need to be acquired by entities party to the package and any PGC member required to do so to support the submission of the proposal.

Some members shared their organizations' experiences in administering DWR Prop 84 grants and observed that few, if any, of the region's organizations/agencies have the staff capacity to administer a grant of this type. It was suggested a consultant might need to be hired to administer the grant, if awarded. (KJ indicated they have done this for clients.) Tuolumne County Resource Conservation District (TCRCD) offered to help with administration of the grant. Some members voiced skepticism that the TCRCD had sufficient staff to do this. CCWD said

they might be willing to be the fiscal agent if compensated, but they are not willing to be the administrator of the grant.

Concern continued to be voiced regarding how administration of a grant, if awarded, could be paid for by grant participants. KJ agreed to provide an estimate of what their firm might charge.

Ms. Lott said the group should authorize a Grant Application Workgroup (GAW) to immediately begin work on the proposal. She asked if any of the project proponents who voiced interest in submitting in March do not want to participate. None indicated such. Mr. John Buckley volunteered to participate in the workgroup, as well. Mr. Tom Scesa was nominated as the lead convener for the workgroup.

Workgroup members as of today's meeting are:

John Buckley	David Myers
Craig Case	Scot Moody
Wayne DeJong	Deb Romberger
Gary Ghio	Lindsay Rosasco
Julio Guerra	Larry Thompson
Patrick Koepele	Tom Scesa
Gary Mello	Garett Walker
Jeffrey Meyer	

Ms. Lott observed, at a minimum, the workgroup initially needs to negotiate which projects will be part of the funding proposal, which agency will be the fiscal agent, how grant administration will be handled, and how and by whom the overall proposal be packaged. The workgroup is to provide a status update to the PGC at the December 19th meeting.

It was suggested the PGC hold its regular IRWM plan development meeting from 9-12 on the 19th with the GAW to meet immediately thereafter, from 12-1. It was suggested by a member that project proponents only put forward projects the region can support and are non-controversial within the PGC. Another member suggested interested parties begin brainstorming how they can reduce their projects' costs and/or phase projects.

KJ agreed to upload the Power Point presentations and provide links to Prop 84 PSP samples and the actual Prop 84 grant application.

13. Funding – Calaveras County Budget Request:
Mr. Pete Kampa gave a brief report on the situation with Calaveras County. They sent a letter of withdrawal from the PGC. They paid the additional invoice sent out for the close of the 2011-2012 fiscal year. They have since requested to be reimbursed for the $1,538 they paid on that invoice indicating it was paid mistakenly. It was noted by a member that the newly elected supervisors will be sworn in prior to the January PGC meeting and it might be advisable for the PGC to wait until then to make a decision. <u>There was consensus to agendize this on the January, 2013 agenda.</u>

14. Public Comment:
Ms. Lott opened the public comment period. Hearing no comments, she closed the public comment period after thanking newly elected Councilwoman Williams, from the City of Sonora, for attending the meeting.

15. Meeting Recap:
Mr. Sean Maguire recapped the action items. Ms. Lott thanked members and interested parties for staying engaged during a lengthy meeting.

Next Meeting:
Wednesday, December 19, 2012
9:00 a.m. – 12:00 p.m. with GAW meeting to follow.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Bob Dean	CCWD/Alternate	Present
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	Present
Garett Walker	CAC/Alternate	Present
Evan Royce	County of Tuolumne	
John Gray	TC/Alternate	
Gary J. Mello	Groveland Community Services District	Present
Jon Sterling	GCSD/Alternate	Present
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	Present
Cindy Nugent	MSD/Alternate	Present
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	Present
Pete Kampa	Tuolumne Utilities District	Present
Tom Scesca	TUD/Alternate	Present

Scot A. Moody	Twain Harte Community Services District	Present
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	Present
Bill Airola	UPUD/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	Present
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	

IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Tom Quincy	Union Public Utility District
Connie Williams	City of Sonora City Council
Jim Goodrich	Yosemite Gardens Park
Wayne DeJong	Tamarack Springs Municipal Water Company
Ted Allen	Tuolumne Utilities District
John Maciel	TUD Customer
Rebecca Miller-Cripps	University of CA Cooperative Extension
Glen Nunnelly	Tuolumne Utilities District
Erik Johnson	Tuolumne Utilities District
Jerry Cadasan	Resident
Daniel Richardson	County of Tuolumne
Ron W. Ringen	TUD Ratepayer
Lucas Wilkinson	Stanislaus National Forest
Ron Koff	Tuolumne County Business Council
Tracy Weddle	Stanislaus National Forest

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for December 19, 2012

ACTION ITEMS:

1. KJ to develop IRWM Plan language regarding the "preliminary/prequalification" scoring step.
2. KJ to upload December meeting materials to website.
3. KJ to upload project Power Points to Dropbox.
4. KJ to prepare email requesting comments on all materials (including specifics by handout as appropriate) by Jan 9, 2013 with a link to the Region Description. John Mills to send email to distribution list by Friday, December 21st.
5. KJ to update objectives for January meeting.
6. John Mills to distribute January meeting materials by January 10th.

PGC MEMBER HOMEWORK:

1. Review in advance of the January meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for December, and bring to January meeting.
3. Submit any additional comments on handouts and Region Description by COB, Wednesday, January 9th.
4. Grant Application Workgroup to meet and outline components of proposal and next steps.

MEETING GOALS:

1. Review Final Draft objectives
2. Consider Impacts and Benefits of Proposed Projects
3. Project Integration/Refinement Discussion and Updated Schedule

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****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:

Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda, reminded members to sign-in, and clarified one voting member for each Planning Grant Committee (PGC) organization/agency present should be seated at the table. She again explained the necessity of keeping Member ID Forms updated.

2. Approval of November Meeting Summary:
Ms. Lott indicated no changes had been submitted. None were voiced.

Action: The meeting summary for November 28, 2012 was accepted by the PGC. Ms. Lott noted the action.

3. In-Kind Tracking:
KJ reminded members and other participating parties that time spent outside of formal meetings and KJ led conference calls needs to be accounted for on the in-kind tracking sheets. When there are activities where roll is taken or there are sign-in sheets, these mechanisms are used for tracking in-kind time. KJ noted time spent on Round 2 Implementation grant application preparations and discussions are not eligible for purposes of the in-kind match for the existing planning grant, but would count toward in-kind for the implementation grant, if awarded.

4. Review Draft Final Objectives (Handout 1) Action Item:
KJ noted the objectives have been reviewed numerous times and it is time to finalize the draft section, understanding formatting and final editing will be done by KJ.

A member asked regarding Objective C III (Improve infrastructure to meet wastewater discharge/disposal requirements and deliver drinking water that meets drinking water standards and customer expectations) why the target is set at only a 20% reduction (annual wastewater collection system spill events per mile are reduced by 20 percent over 2012 levels by 2020). Ms. Lott noted if a higher percentage is desired, members should remember this is a target and there is no penalty for missing a target. The target should be realistic, however.

A member noted, from a utility perspective, realizing a reduction depends on how spills are reported. Also, there are spills caused by conditions not within the control of utility districts such as materials dislodged during pipe cleaning. Maybe it is better to target utility response to spills. There are also fiscal constraints which prohibit districts from making the level of improvements needed to dramatically reduce spills. Another member added some spills are preventable, but others are a result of situations caused by nature.

It was suggested the word “preventable” be used to define the spill events to be targeted. Ms. Lott suggested modifying the 20% with the phrase, “by a minimum of.” There was agreement to make these two changes.

A member suggested inserting “biomass” in the Objective I Planning Target (Evaluation of wind, solar, or, hydroelectric opportunities for increased green energy production by 2015). There was agreement to make this change.

A member suggested raising the priority of Objective D (Improve watershed health in support of increased water yield and ecosystem function) from medium to high. There was agreement to make this change.

A member emphasized expanding planning targets to be as inclusive as possible.

Action: Through consensus, the Draft Objectives were accepted by the PGC as the final draft for inclusion within the IRWM with the changes noted in the above sections. Ms. Lott noted the action. The group was reminded to review the Region Description prior to the January meeting

as it will be an action item on the upcoming agenda. A member asked that a link to the Region Description be resent to the PGC.

5. Impacts and Benefits of Proposed Projects in IRWM:
Ms. Lott shared with the group that if KJ did not note an objective that the proponent believes the project addresses, it is possible the narrative needs to be refined to more clearly describe how the project meets said additional objective. KJ added, for purposes of inclusion in the plan table, they are looking for responses from project proponents on the accuracy of KJ's initial assessment of objectives addressed by projects.

A member noted most Forest Service projects are assigned Objective E (Improve the condition and ecosystem function of meadows) as the primary objective. It was suggested Objective G (Identify, preserve, and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; reduce invasive species) would be the more appropriate primary objective.

KJ noted readiness to proceed means the proposal is developed enough to be ready for submission for a funding application. For some proposals, it may be necessary to further develop the proposal for consideration in Round 3 of the Prop 84 Implementation Grants.

Mr. Mills stated things such as septic abandonment, failing septics, and degrading water quality should be components of watershed projects. He also noted some secondary objectives are too narrowly defined.

The question arose regarding a second solicitation for projects for inclusion within the plan. This had been advocated by some members of the PGC during past discussions. Members voiced concern about soliciting for more projects at this time. Ms. Lott noted the group can hold a yearly solicitation for new/improved projects if that is their desire. Ms. Lott suggested this be further discussed during Agenda Item VII.

A member noted his project numbered 24 should indicate Objective B as the primary objective versus C.

6. Project Integration/Refinement Opportunities (Handout 3) with Project Description Summary (Handout 4):
In response to a question regarding the optimal size or scale of a project, Ms. Michelle Dooley said DWR likes watershed-scale projects, but all projects are considered, regardless of size - they just have to make sense in terms of IRWM. KJ noted projects can be separated as long as linkages are described in the implementation grant narrative. Ms. Lott added it is a good idea to have someone outside the proponent group review the narrative to provide objective comments. Ms. Dooley stated having a "compliant" plan sets a foundation for the region.

Mr. Mills said there are many ways of describing integration. There is integration across geographic regions, institutional/interagency integration, etc. Successful IRWM programs routinely schedule in mechanisms to enhance communication.

A member noted she will be submitting corrected language for the project description for Project 6.

There was a general discussion regarding specific integration opportunities with KJ emphasizing a purpose of holding a PGC discussion regarding project integration is to be able to describe, in

the IRWM Plan, how stakeholders imagine integration might occur. One stakeholder was able to describe the linkages between her project and downstream water quality improvements. Others were able to describe how two NGO-led water use efficiency projects could be combined together and include water districts and a watershed project. Another point was made that one of the water treatment plants could also tie to the Mokelumne-Amador-Calaveras region as an interregional opportunity.

7. Project Schedule:
KJ reviewed the updated schedule which included a second project solicitation for purposes of the plan as requested by PGC members.

Action: Through consensus, members agreed now that they realized the time and effort involved in project solicitation, there is not a desire to do a second project solicitation round during plan development.

Members discussed future efforts to continue moving forward with plan implementation and updates. Ms. Lott said there are different models utilized in different regions. She noted it is a rare occurrence when volunteers can keep the effort on track. Usually there is some level of staffing supported by financial contributions of members. She observed that the level of trust is improving within the group and relationships are building. It is important to keep the process going to maintain the momentum.

Mr. Mills added under Prop 50, plans were done and handed off to watershed coalitions of volunteers and the program evaporated. Local agencies are sustainable and tend to be the common anchor for the program. There needs to be some entity responsible for calling meetings, sending emails, preparing materials, posting information, etc. Institutional capacity has to continue when the grant funded work is completed.

It was agreed that the PGC discuss how they will shepherd the process moving forward when addressing the governance section of the plan and that this should be done sooner, rather than later.

A member asked what process could be used to reconfigure a project submitted during the original solicitation. KJ responded if it is a project that will be in the grant application, the refinement used for the proposal can also be utilized within the plan. There was also a question regarding whether a new presentation should be prepared for the PGC. Ms. Lott stated if the refinement results in a substantially different project, then it is appropriate to vet it with the PGC.

Members were asked to submit comments on the handouts to KJ by January 9th.

8. GAW (Grant Application Workgroup) Report – Prop 84 Update:
A member asked Ms. Dooley to comment on how many projects are reasonable to have within the grant application and what an appropriate dollar amount would be for submittal. Ms. Dooley responded to be funded, the proposal needs to make sense and meet Prop 84 objectives which are found in the PSP guidelines. There is no single answer. She also noted DWR does not cherry-pick individual projects for funding within an application. An application containing multiple projects might receive fewer points if one of the projects is poorly conceived and/or does not meet Prop 84 objectives. DWR does not intend to partially fund proposals. However, if it happens, the grantee and project proponents will need to figure out how best to modify the work plan, schedule and budget in order to support implementation with reduced funding.

Mr. Scesa provided a report from the GAW. He stated the RCD, pending approval from their board, agreed to be the grantee and grant administrator. Each project proponent agreed to develop their own piece of the proposal. The group has not settled on exactly which projects will be part of the application. Therefore, the amount requested is still unknown. They also have not identified who will integrate the pieces of the proposal. They will be meeting following this meeting to continue their discussions.

A member asked what would happen if one of the projects within the proposal was submitted by an agency that did not meet eligibility requirements. Ms. Dooley responded the agency would have to meet the requirements by grant execution or that particular project would be ineligible and the funds for it would have to be reallocated.

A member asked if DWR would be more likely to fund a grant proposal if the proposal arranged the projects in groups, such as having all of the projects that would benefit DACs (Disadvantaged Communities) in one group, separated from the other projects in the proposal. Ms. Dooley said no, but DWR does have a desire to fund projects that benefit DACs as that is a goal of Prop 84.

A member asked who has the final say in which projects are part of the proposal, the GAW or the PGC. Ms. Lott said the expectation is the GAW will make a recommendation to the PGC and the PGC will decide whether it can support the request.

A member asked which projects are still being considered as part of the implementation proposal. Ms. Lott asked project proponents to share with the group if they have made a decision regarding submittal.

- T.U.D. will only be submitting for Phoenix Lake related projects and probably restoration only.
- Twain Harte will likely withdraw from this round.
- City of Angels is not submitting because of the pending Water Master Plan preparation.
- Groveland believes they will be submitting for approximately $4 million, but are waiting for a board decision on January 3 regarding advancing funding.

Ms. Dooley said the driver should be the quality of the project and whether it is ready to go for Round 2 Implementation. She suggested proponents review the project selection criteria score sheet. Mr. Mills added DWR does not have separate pots of funding set aside for DACs. Ms. Dooley clarified that DWR has a statewide funding target mandating 10% of IRWM grant funds be used for planning and implementation of DAC projects. It is not based region-by-region, but rather across the state.

The GAW is to report back to the PGC during the January meeting and provide a presentation during the February meeting.

9. Public Comment:

Mr. Tom Orvis shared information about the Irrigated Lands Program. He said it includes groundwater and surface water. Tuolumne County growers are part of the Eastern San Joaquin Coalition.

Ms. Lott said she had had an inquiry regarding the process for becoming a new member of the PGC and she could not find the process described in the Governance Principles. Mr. Mills said

the group identified early on membership is open to any organization (local agency, NGO, 501 C, tribe) willing to sign the MOU and abide by the fiscal agreement.

No other comments were heard.

10. Meeting Recap:
Mr. Sean Maguire recapped the action items. Ms. Lott wished everyone happy holidays and thanked members and interested parties for their participation.

Next Meeting:
Wednesday, January 16, 2013
9:00 a.m. – 12:00 p.m. with GAW meeting to follow.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	
Bob Dean	CCWD/Alternate	Present
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	Present
Garett Walker	CAC/Alternate	Present
Evan Royce	County of Tuolumne	
John Gray	TC/Alternate	
Daniel Richardson	TC/Alternate	Present
Gary J. Mello	Groveland Community Services District	Present
Jon Sterling	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	Present
Cindy Nugent	MSD/Alternate	Present
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present

Frank Oyung	TGSC/Alternate	Present
Patrick Koepele	Tuolumne River Trust	Present
Pete Kampa	Tuolumne Utilities District	
Tom Scesca	TUD/Alternate	Present
Scot A. Moody	Twain Harte Community Services District	Present
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	
Bill Airola	UPUD/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	

IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	Present
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Tom Quincy	Union Public Utility District
Connie Williams	City of Sonora City Council
Jim Grinnell	Tuolumne Utilities District
Ron Ringen	T.U.D. Ratepayer
Karl Rodefer	Supervisor, County of Tuolumne
Stephanie Suess	Tuolumne Me-Wuk Tribal Council
Rebecca Miller-Cripps	University of CA Cooperative Extension

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for January 16, 2013

ACTION ITEMS:

1. K/J to upload January meeting materials to website.
2. K/J to prepare email requesting comments on materials (including specifics by handout as appropriate) by Jan 25, 2013. John Mills to send email to distribution list.
3. K/J to issue Notice of Intent to prepare and adopt the plan.
4. K/J to prepare plan section scorecard for February meeting.
5. K/J to amend organizational activities list to clarify #7 and add #11.
6. John Mills to distribute February meeting materials by February 13th.
7. K/J to add to next agenda formal action to accept grant application package and media release.
8. TUD board members, Jim Grinnell and John Maciel, to contact Mr. Gary Mello regarding IRWM discussion on TUD board agenda.
9. Mr. John Buckley to draft grant support letter and draft media release.

PGC MEMBER HOMEWORK:

1. Review in advance of the February meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for January, and bring to February meeting. Please keep track of and include those hours you spend on reviewing and commenting on materials submitted to you for review.
3. Submit any additional comments on Section 1 COB, Friday, January 25th.
4. Come to February meeting prepared to further discuss post-planning grant IRWM Program activities, and alternative forms of governance.

MEETING GOALS:

1. Review and discuss outline of post planning grant IRWM Governance
2. Receive update on IRWM Implementation Grant

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:

Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda and reminded members to sign-in. She requested members be especially diligent in keeping their respective boards and constituencies updated on plan sections as they come

forward for final comments to avoid potential unnecessary delays when the plan is ready for completion and final adoption.
Mr. John Mills noted when member agencies and organizations take the completed IRWM plan to their respective decision-making bodies for adoption, the plan must be adopted in its entirety. Adoption of part of the plan is not an option if an organization/agency is to be in compliance with DWR's grant eligibility requirements. He underscored the importance of keeping decision-makers in the loop, on an ongoing basis, so adopting the completed plan is a seamless process.

2. Approval of December Meeting Summary:
Ms. Lott indicated, because of the holidays, the summary had not been circulated for comments by the PGC. She asked for comments, but none were voiced.

Action: The meeting summary for December 19, 2012 was accepted by the PGC. Ms. Lott noted the action.

3. In-Kind Tracking:
K/J reviewed the in-kind hours to date and the approximate value of said hours. They estimate there is about $36,000 still needed, not including the $53,000 in PGC program contributions for the local budget. Ms. Lott requested the group continue to be diligent about turning in the in-kind documentation in case any of the match recorded to date is disqualified by DWR. KJ again noted time spent on Round 2 Implementation grant application preparations and discussions are not eligible for purposes of the in-kind match for the existing planning grant, but would count toward in-kind for the implementation grant, if awarded. Therefore, it is advised a record be kept for this purpose.

4. Revised Schedule:
Ms. Sachi Itagaki reviewed the schedule. She noted plan sections 3 and 6 are planned for distribution by the end of next week. K/J is busy preparing additional sections for review. K/J will not be at the April meeting as they will be working on writing and assembling the remainder of the plan. She added, sometime in the next few weeks, K/J will be issuing the Notice of Intent to prepare and adopt the plan.

Ms. Lott stated if the PGC has reason to meet in April, she and Mr. Mills are available to staff the meeting.

5. IRWM Plan Content:
Action: There was consensus among PGC members to approve the amended Region Description as the final draft.

The Region Description and the Objectives sections were both noted as accepted final drafts that are "parked" for now until they can be integrated into the final draft plan.

K/J noted Section 1 is out for review with comments due by COB January 25th. A member questioned the continued inclusion of City of Sonora and Calaveras County in Section 1.4.2.1.

Ms. Lott said the consultant team has discussed this issue, as well as, the status of Dept. of Fish and Game (noted name change to Fish and Wildlife) and Yosemite National Park. Because City of Sonora has begun attending and Calaveras County has new supervisors on their board, it was thought best to leave the list as is for now and revisit prior to the release of the final draft.

A member suggested trying to get in writing the status of members in question. Another member noted speaking with a representative of the National Park Service who indicated the lack of participation was a staffing constraint issue rather than an interest issue. As NPS and Dept. of Fish and Wildlife are not financial contributors to the organization, a letter of interest may be sufficient to support their signing of the MOU and participation in the Planning Grant Committee.

K/J mentioned they will be bringing a type of report card to next month's meeting to indicate where the group is with each section of the plan.

6. Introduction to Governance Options for IRWM Plan Implementation (Handouts 1a and 1b):

Mr. Mills began the presentation by providing the history of the current group. He said they started meeting in 2007 with planning money finally being awarded by DWR in 2011. During the early years, they spent time learning about participant agencies' and NGO interests, responsibilities and needs.

They made decisions about the appropriate geographic area for the region and successfully went through DWR's Regional Acceptance Process. Significant time was also spent with DWR to help understand expectations and program requirements.

Efforts took place to coordinate with neighboring regions to include setting up communications protocols to ensure ongoing communication, and when, appropriate collaboration, The MOU was developed and included governance principals and a financial agreement.

Ongoing activities include participation in a multitude of statewide efforts including but not limited to the State Water Plan and the IRWM Roundtable of Regions.

Over the course of time, much was done through volunteer efforts and pro bono work. Agencies/organizations realized the importance of the work and so made financial contributions, as well. This local budget, in conjunction with a grant from DWR through the Center for Collaborative Policy, helped support the development of project selection criteria, as one example. DWR has been impressed by the commitment of local members during extended periods of local fiscal constraints and delayed Proposition 84 funding. The PGC should be proud of all they have accomplished with very few resources over a time-period not of their own making.

Ms. Lott gave a very brief overview of the current MOU stating the purpose as stated in the MOU is to prepare a Prop 84 compliant IRWM plan and the timeframe of the MOU coincides with the planning grant timeframe. The PGC provides decision-making guidance and oversight and the consultant team provides the day-to-day management and ongoing organizational support. The MOU outlines the responsibilities of the PGC and the grant designates the responsibility of the consultant team. This form of governance is expected to be status quo until the plan is completed. Then, the management and support side will no longer have grant funds to compensate the consultant team for work efforts.

The first question posed to the group by Ms. Lott was whether there was a desire to formalize an organizational and governance structure to carry on once the plan is complete. The following comments were offered:

- There has to be a way to add projects on an ongoing basis.
- There will need to be periodic updates to the plan.

- The plan should be the basis for ongoing submissions for a wide range of grant opportunities.
- The future of water planning is integration and the real capital is teams/groups putting together integrated projects and working as a region.
- Future funding is increasingly being tied, at the state and federal level, to integration and collaboration and it is important to have a venue where these activities can be fostered and project configuration improved.
- The region, while it can be changed, has been formally approved by DWR as an accepted region and is based on ties to watersheds. It makes sense to continue working within the accepted region.
- Political resources can be leveraged to pursue grants.

Consensus: It was the consensus of the group that there is a need, desire, and benefits to continuing IRWM Program efforts through some formal type of organization.

The next question posed by Ms. Lott was what primary purposes the future organization would pursue. Ideas included:

- Monitoring funding opportunities, informing the group of these opportunities, and determining methods for pursuing additional funding.
- Being a central point of information collection and then disbursement to members and the public at large.
- Providing a forum for identifying integration of efforts and improving projects to become more oriented to integrating resources management.
- Identifying common interests and broad needs of the Region's watersheds.
- Defending the interests of the region.
- Educating others about decision-making in the context of the regulatory environment and in light of fiscal constraints.
- Developing inter-regional relationships and possibly inter-regional projects.
- Acting as guardians of the ecological plan of the region.
- Integrating traditional cultural ecological knowledge, gained from the tribes, into current planning practices and projects.
- Supporting economic development through planning and projects and improving water supply.
- Collectively share information, internally and externally, while coordinating efforts, jointly seeking funding and integrating management in the Region's watersheds.

In response to a member's comment regarding efforts being rewarded by a grant award, Ms. Lott reminded the group that DWR grant reviewers do not necessarily have any idea of the details about what the region has gone through to reach this point. That is why telling the region's story is so important. Additionally, grants are generally awarded on the merits of the projects proposed in the application and the ability of the proposal to convey necessary information. If the group is not successful with their first funding attempt, they should sit down with DWR and determine where they missed the mark and how they can improve an application for a future round.

A question was asked regarding future funding for water projects within the state. It appears there is a possibility of a new bond to be used in combination with some type of fee.

The group then discussed how long a new organization might continue to meet and address the suggested purposes.

Consensus: There was consensus the group would meet on a regular basis, in perpetuity, to pursue funding and monitor projects and progress towards meeting plan objectives.

There was some discussion about how such a group might be supported. Ms. Lott said the decision-making form, i.e. governance, and the organizational support methods are topics for future discussion.

A concern was raised regarding whether the newly constituted TUD board will remain supportive of TUD continuing in a leadership role within the IRWM group. The TUD board members present agreed to notify Mr. Gary Mello when this item is agendized for the TUD board.

K/J presented a list of potential activities in which the group could become engaged. The list of ten activities can be found in Handout 1A. A number of ideas were offered as supplemental to the list such as, publishing accomplishments, providing an annual State of the Region report, formal calls for projects and a method of incorporating projects on an "as needed" basis, inter-regional project development, finding ways to help privately owned DAC water systems, and working through Columbia College to develop regular "regional water forums".

A clarification was offered for Item #7. It was suggested in addition to promoting progress towards objectives, members need to be responsible for reporting out to other members on said progress.

An Item #11 was suggested. Opportunities need to be provided for public education to include workshops and field trips to help educate the public about the IRWM plan and increase awareness of existing agencies'/organizations' programs and operations, as well as, future needs.

Consensus: There was consensus that the activities in Handout #1A with clarification of #7 and the addition of #11 are appropriate and needed activities for the future organization.

K/J shared the information in Handout 1B. This handout referenced examples of other IRWM regions' governance and organizational structures as well as some limited information on how the other IRWM's are funded. It was noted that much of what an IRWM organization does is based on community capacity. Urban areas may be more sophisticated and have greater resources. There is a need to think about the realistic effect of the time, effort and contributions that need to be made, especially in light of shrinking staffs. It was noted capacity can be built. It was emphasized the tribe could make a contribution if they choose to become a member.

A question was raised about looking to grant funding as the primary funding mechanism for the organization. It was noted funding entities rarely, if ever, fund ongoing organizational costs over the long term. Another concern is the amount of support staff time it would take to apply for multiple grants and then comply with multiple funding requirements, assuming grant funding were even possible for day-to-day operations.

Several members agreed they were comfortable with the current level of financial support for the local budget and the method for apportioning contributions.

One member suggested it may be possible to provide ongoing support through volunteers, especially if meetings are only quarterly. Another person countered that there needs to be

some place for the phone to ring and calls to be answered and that will not come for free. However, costs have to be affordable.

Ms. Lott concluded the discussion by requesting members think about governance models suggested and come back to the next meeting with ideas for the group to consider.

7. Report – Prop 84 Implementation Grant Application:
Mr. Tom Scesa reported on the Grant Application Workgroup (GAW) progress. He said the group has had two meetings since the last PGC meeting. Calaveras County Water District (CCWD) is not moving forward with a project, nor is Me-Wuk or Twain Harte.

The project numbers that are included in the application with approximate costs are:

- #9 – USFS meadow restoration, $350,000
- #16 – TCRCD watershed Phoenix pollution control, $250,000
- #2 – MSD spray field expansion, $150,000
- #22 – TRT foothill meadow, $150,000
- #27 – GCSD Big Oak Flat sewer pump station, $600,000
- #17 – ATCAA water conservation program, $150,000

The total grant request is $3.25 million. Tuolumne County Resource Conservation District (TCRCD) will be the administrative and fiscal agent. The deadline for agencies to submit their portion of the proposal is COB February 22nd. Grant administration will be approximately 6% of the total cost. All applications must be in Times New Roman 12 pt.

Mr. John Buckley has drafted the cover letter and Ms. Stephanie Seuss is reviewing and editing it as necessary. The TCRCD will put together the integrated proposal.

Mr. Scesa asked if there is surplus money in the local budget to help compensate the TCRCD for their work in putting together the proposal. Mr. Mills said there is not.

Upcoming meetings of the GAW are on January 31st and February 13th. Additionally, some members are going to Sacramento on February 14th for an Implementation Grant workshop.

Mr. Mills provided information from DWR on the requirement of a DWR verified Urban Water Management Plan (UWMP) as it relates to Prop 84 eligibility. It was noted required UWMPs must be verified as complete by DWR prior to a grant agreement being executed.

It was suggested the question of the PGC formally supporting the grant application be added to the February agenda along with a draft press release discussing the effort. Mr. Buckley agreed to draft both documents.

8. Calaveras County Request (tabled to February meeting):
A member noted concern that Calaveras County is not participating and wishes to reach out to new board members. Mr. Bob Dean (CCWD) volunteered to speak with the new supervisors, but because of illness was unable to do so prior to today's meeting. It was suggested efforts of members be coordinated through Mr. Dean.**9. Public Comment:**
Ms. Lott opened the public comment period. No comments were heard from the public and the comment period was closed.

10. Meeting Recap:
Mr. Sean Maguire recapped the action items. Ms. Lott thanked members and interested parties for their participation.

Next Meeting:
Wednesday, February 20, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	
Bob Dean	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	
Garett Walker	CAC/Alternate	Present
Evan Royce	County of Tuolumne	
John Gray	TC/Alternate	
Daniel Richardson	TC/Alternate	Present
Gary J. Mello	Groveland Community Services District	Present
Jon Sterling	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	
Cindy Nugent	MSD/Alternate	Present
Ron Ringen	Tuolumne County Building Industry	Present
John Ferriani	TCBI/Alternate	
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	
Pete Kampa	Tuolumne Utilities District	

Tom Scesca	TUD/Alternate	Present
Scot A. Moody	Twain Harte Community Services District	
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	Present
Bill Airola	UPUD/Alternate	
Tom Quincy	UPUD/Alternate	Present
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	

IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Jerry Cadagan	Tuolumne County Resident
Connie Williams	City of Sonora City Council
Jim Grinnell	Tuolumne Utilities District
John Maciel	Tuolumne Utilities District
Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
Stephanie Suess	Tuolumne Me-Wuk Tribal Council
Rebecca Miller-Cripps	University of CA Cooperative Extension
Ron Kopf	Tuolumne County Business Council

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for February 20, 2013

ACTION ITEMS:

1. K/J to provide TUD with the February meeting materials for upload to the website.
2. K/J to prepare email requesting comments on materials (including specifics by handout as appropriate) by March 1, 2013. John Mills to send email to distribution list.
3. K/J to issue Notice of Intent to prepare and adopt the plan.
4. K/J to send Goals and Objectives section to the GAW.
5. Mr. Mills to distribute the media release in conjunction with CCWD and the FB.
6. The RCD to finalize the letter of support.
7. K/J to correct and update Plan Section Scorecard for February meeting.
8. Consultant Team to refine Handout 3 for March meeting.
9. John Mills to develop cost estimates for post plan efforts for the March meeting.
10. Consultant Team to bring back governance ideas for consideration at the March meeting.
11. John Mills to distribute March meeting materials by March 14th.
12. K/J to develop a short IRWM Plan presentation for use at board and council meetings.
13. TUD board members, Jim Grinnell and John Maciel, to contact Mr. Gary Mello regarding IRWM discussion on TUD board agenda.

PGC MEMBER HOMEWORK:

1. Review in advance of the March meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for February, and bring to the March meeting. Please keep track of and include those hours you spend on reviewing and commenting on materials submitted to you for review.
3. Submit any additional comments on Sections 1, 4, and 6 to K/J by March 11th .
4. Come to March meeting prepared to further discuss post-planning grant IRWM Program activities, and alternative forms of governance.

MEETING GOALS:

1. Review and discuss future IRWM Plan implementation
2. Receive update on IRWM Implementation Grant

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:
Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda and reminded members to sign-in. She introduced a new organization, the Tuolumne County Business Council, as a member of the PGC and welcomed Mr. Dana Mayo as the representative.

2. Approval of January Meeting Summary:
Ms. Lott noted no corrections had been submitted on the summary. However, it was brought to the group that the TUD project needs to be added to the project application section of the summary and the Tuolumne River Trust project amount should be $50,000.

Action: The meeting summary for January 16, 2013 was accepted by the PGC as amended.

3. In-Kind Tracking:
Ms. Lott reviewed the purpose of capturing in-kind time for the new member. She asked Mr. Ron Ringen to assist Mr. Mayo with the process. K/J noted the majority of the Technical Review Committee time for project review has been captured. Ms. Lott again noted time spent on Round 2 Implementation grant application preparations and discussions are not eligible for purposes of the in-kind match for the existing planning grant, but would count toward in-kind for the implementation grant, if awarded. Therefore, it is advised a record be kept for this purpose.

4. Revised Schedule:
Ms. Lott noted members should keep the April meeting on their calendars even though K/J will not be attending that meeting. She and Mr. Mills are available to staff the meeting if a meeting is necessary. A decision regarding the April meeting will be made during the March meeting.

5. IRWM Plan Content:
IRWM Scorecard (Handout 1)
Ms. Itagaki referred the group to the handout and explained the purpose of the scorecard – to keep members apprised of the status of plan development. It was noted some of the dates need correction. For example, action to park Section 2, Region Description, was taken during the January 16th meeting. K/J will make the necessary corrections.

It was noted by Ms. Michelle Dooley, DWR, that public notice is required when the IRWM Plan is agendized for acceptance by individual boards and councils. K/J offered to prepare a brief presentation for use at these meetings.

Ms. Lott emphasized the importance of members bringing final draft sections to their respective organizations as they are parked. The purpose is to determine if there are any substantive concerns before getting to the end of the planning process. This will enable groups to more easily support the full draft plan in a timeframe which works in concert with the implementation grant timeline, assuming funds are granted. Mr. Mills underscored the importance of explaining what an IRWM Plan is when bringing the information to members' respective bodies.

A question was raised regarding what nearby regions are doing in relationship to IRWM planning. Mr. Jeff Meyer from CCWD stated they are part of two IRWM regions. The Mokelumne Amador Calaveras (MAC) effort is adopting an updated plan and moving ahead with three projects within the Round 2 application. One is an East Bay Municipal Utility District

(EBMUD) joint project, one is a Calaveras County project, and one is an Amador Water Agency (AWA) project.

Ms. Lott noted the Northeastern San Joaquin County Groundwater Banking Authority (GBA) is working through an IRWM plan update and will be submitting a Round 2 application. Mr. Meyer added a joint project from the GBA and Upper Mokelumne River Watershed Authority is in the planning stages.

Mr. Tom Orvis noted the East Stanislaus IRWM process is still in flux. Mr. Mills added the Yosemite-Mariposa region in close to beginning development of their plan.

A question was asked regarding other project possibilities. Ms. Lott said it might be possible to think about an inter-regional project for Round 3. Mr. Pete Kampa said he has been discussing joint projects with agencies from the Central Valley. Ms. Lott noted the GBA and UMRWA have been working on their relationship across the two regions for approximately five years. The T-S region has been focused on intra-regional relationships.

Action Item to Park Section 1

Ms. Itagaki noted there had been a delay in posting Section 1, Introduction, to the website. Therefore action on that section will be postponed until the March meeting.

Present Sections 4 and 6

Ms. Itagaki said Section 4, Challenges and Opportunities, and Section 6, Resource Management Strategies, will be posted to the website. It is hoped action to park these two sections can also be taken during the March meeting.

6. Potential Options for IRWM Plan Implementation:

Clarify 11 Core Activities for IRWM Program (Handout 2)

Mr. Mills went through Handout 2 for the group. He noted that DWR has post-plan mandated activities that are spelled out in their guidelines. He said some of the activities in Handout 2 mirror those mandated activities, some need clarification, some are not mandated by DWR, and three mandated activities are not on the list.

Activity #4 – Identifying common interests and broad needs of the Region's watersheds is an activity, the results of which should be in the plan and be highlighted by the included projects.

Activity #5 – The meaning of "Defending the interests of the Region" was questioned. Various members voiced opinions regarding this activity. Some said it will be an important role of the group to take positions on projects in other areas that threaten resources within the region. Mr. Mills clarified that if an outside entity proposed a project within the T-S region, that project would need to be in the T-S plan in order to obtain Prop 84 funding.

A member stated he is uncomfortable with becoming an advocacy group and taking positions on matters not directly within the T-S IRWM Plan. While there will be times there is consensus on those types of issues, there will be times when utility agencies and NGOs have different positions. The agencies have other advocacy channels.

There was agreement that some of the activities could be combined. It was also mentioned keeping apprised of issues of interest, whether within or outside the region could be done through the communication item. This could become a standing agenda item. Ms. Lott noted, in her experience, IRWM groups are careful regarding when they take a position on issues. If it

seems appropriate, there is always an opportunity for a member to bring the issue to the group for consideration without it becoming a core activity.

Members continued to underscore the value of communication and maintaining relationships. It was noted the IRWM process also provides a venue for conflict resolution. It was also mentioned that while economic development can be an important benefit derived from IRWM Plan project implementation, economic development itself should not be a core activity. It was noted it is important to focus on what the group can do well with limited time and budget.

It was suggested to continue the discussion with Handout 3 as it contains the DWR mandated activities.

IRWM Plan Requirements per Guidelines (Handout 3)

It was clarified that Handout 2 was derived from last meeting's brainstorming activity. The group was asked what activities they believe are important. Now the group can look at what is required and determine if the requirements capture what they would like to focus on in the future.

Mr. Mills walked the group through the mandated activities. It was suggested monitoring be added to #7. It was also noted integration of projects and information collection be added. It was mentioned it would be important to track whether all objectives are being met by projects. Ms. Dooley clarified that plan performance and monitoring needs to include regular updates on individual project performance.

Action: Handout 3, Proposed IRWM Plan Implementation Activities, was accepted by members with additional language reflecting monitoring to be added to #7, and language reflecting the importance of integrating projects and information collection added under the appropriate activity numbers.

Discussion Regarding Potential Structure for IRWM Plan Implementation

It was noted there is a lot of applicable experience to be gained from the Grant Application Workgroup (GAW) efforts. Efforts need to be lean and tight and it will require substantial funding. The effort needs structure, not a volunteer organization. This is an opportunity to change and grow and funding should come from the organizations at the table. A member said there is a lot to do and the focus should be on mandatory activities and optional activities can be dealt with as resources allow.

Mr. Mills suggested consideration be given to the frequency of meetings as frequency drives budget. He added it may be effective to have a decision-making body that meets less frequently and a stakeholder group that meets more frequently to work through issues and develop recommendations for the decision-makers.

It was requested that Mr. Mills identify who is currently responsible for each of the items on Handout 3.

1. Foster Effective Communication
   a) IRWM Point of Contact: Mr. Mills for management and administration and Ms. Lott for process
   b) Communication with Members: Mr. Mills/Ms. Lott
   c) Communication outside Region and DWR Staff: Mr. Mills
   d) Communication inside Region, Media, Public: Mr. Mills/Ms. Lott and sometimes K/J

e) Coordinate with other IRWMs: Mr. Mills
f) Coordinate with Local, State and Federal Agencies: Mr. Mills

2. Conduct Stakeholder Meetings
   a) Schedule: Consultant Team
   b) Agendas: Consultant Team
   c) Content: Consultant Team
   d) Facilitate: Ms. Lott
   e) Summaries: Ms. Lott/Mr. Mills

3. Engage Public/DAC/Tribal Community
   a) Maintain Email List: Mr. Mills/Ms. Lott
   b) Announcements: Mr. Mills/KJ

4. Maintain Website
   a) Administer and Update: TUD with K/J providing content

5. Finance Implementation Coordination
   a) Set Budget: Mr. Mills
   b) Secure Local Budget: Members through financial agreement
   c) Manage Expenditures: Mr. Mills (cost can escalate depending on level of detail required)

6. Identify Grant Opportunities
   a) Upcoming Funding: Consultant Team
   b) Project Selection: Membership supported by format primarily developed by Mr. Mills with support from Ms. Lott and additional review by K/J
   c) Prepare Grant Applications: Project proponents (cost varies depending on volunteer/staff preparation versus consultant)

7. Promote Progress on Plan Objectives
   a) Act on Objectives not Addressed in Projects: Future
   b) Monitor Plan Progress: Future

8. Update T-S IRWM Plan
   a) Review and Update Objectives: Future
   b) Solicit New and Revised Projects: Future
   c) Revise Plan Content: Future

9. Manage and Share Related Data and Information
   a) ID Data: Mr. Mills/KJ
   b) Manage Data: K/J
   c) Provide Access: K/J

Ms. Dooley shared with the group examples of other regions and how they are organized and funded. Madera has an administrative assistant/program coordinator, outside facilitator, technical consultant for the plan update, and a small local budget. Santa Cruz is staffed by personnel from Environmental Health. Greater Monterey pays a consultant through their local budget. Monterey Peninsula engages help from consultants and contractors. San Luis Obispo County enlists help from the county and a water conservation district. Santa Barbara County uses a consultant. Pajaro River has help from an independent contractor who answers to a

three-member regional water management group. Merced has support from Merced Irrigation District and a consultant. Upper Kings Basin is supported through the Kings River Conservation District and has forty members which include the City and the County of Fresno. Poso Creek has in-house support through Semi-Tropic Groundwater Bank, a consultant and an independent contractor. Successful groups have a committed base of participants with a clear leadership structure and strong financial support.

Other examples were given. Consumnes, American, Bear and Yuba (CABY) is funded by four water agencies. Upper Feather originally had four agencies and went to forty and is shrinking because of lack of capacity to support such a large endeavor. The GBA uses local money to support efforts between grants and to match important grant opportunities for studies and activities. Most IRWM efforts have local budgets to bridge large grant funded efforts.

Mr. Mills emphasized the group needs to think through post-plan governance. Where will the effort be housed? Who will answer the phone? The post-plan structure has to be explained in the IRWM Plan. What does a meeting in February of 2014 look like?

It was also mentioned financing needs to be identified and some entity needs to provide consistency and be the driving force in organizing, etc. The governance document might change. Some groups use Joint Powers Authorities (JPAs). Tribes can be party to a JPA. Subcommittees could be helpful in dividing work by interests. There is a possibility of funding for facilitation through DWR.

The Consultant Team will prepare post-plan governance ideas discussion during the March meeting.

7. Report – Prop 84 Implementation Grant Application:
Ms. Lindsay Rosasco reported on the group's activities stating they met on 1/31, 2/8, and 2/13. She said Calaveras County Water District (CCWD) has joined the application with the submittal of a project for inclusion. The CCWD project is a scaled down Douglas Flat/Vallecito storage pond. Murphys Sanitary District increased their request to $285,000. The Tuolumne River Trust verified their project and decided to focus on the outreach and stewardship pieces. Because is it a refined version of the original project it does not need reconsideration for inclusion in the plan.

Five people attended the 2/14 DWR workshop on Prop 84 Round 2 Implementation funding. The GAW has been in communication with DWR and also has a meeting set with an economic training consultant from the Inyo/Mono area. The GAW goal is to have a first draft of the application, minus the economic section, ready on 2/25. The draft will be out from the RCD by 3/15.

The group next considered the draft support letter and draft press release. The FS comments had not been received in time to be incorporated in the current draft, but TUD agreed to make the changes today in order for the media release to go out today. There is time to make non-substantive changes to the support letter before inclusion in the grant application packet. It was noted approval for Mr. Kampa's quote had not yet been secured. The media outlets to receive the press release are: Calaveras Enterprise (through CCWD), Modesto Bee, Union Democrat, Stockton Record (through Mr. Tom Orvis), and local radio stations.

Action: Members agreed to support the project list as amended.

Action: Members endorsed the letter of support and media release as amended. (Mr. Mills will take the lead on the media release, in conjunction with CCWD and the Farm Bureau, and the RCD will follow up on the letter of support.)

8. Calaveras County Request (tabled to March meeting):
Calaveras County Water District will follow up with the Board of Supervisors.

9. Funding Update:
Ms. Itagaki shared some funding opportunities. Department of Public Health consolidation funding is coming up soon. The State Water Resources Control Board has approximately $13 million in wastewater funding opportunities. There will be a California Financing Coordination Committee (CFCC) funding fair in West Sacramento on April 10th. This fair highlights a range of funding opportunities and information can be found at www.cfcc.ca.gov.

10. Public Comment:
Ms. Lott asked for comments from the public. Mr. Kirk Ford, chair of the RCD, offered thanks to the participants in the GAW. He said the majority of the participants have committed a financial contribution to help offset the expenses of the RCD. It is a very complicated process and requires strong commitment.

Mr. Orvis alerted the group regarding Don Pedro FERC relicensing. He said Tuolumne County and Stanislaus County are both engaged in the Irrigated Lands Regulatory Program. May 13th is the deadline to decide whether to join the coalition or deal with the regulations as an individual. The Stanislaus County Farm Bureau has been coordinating the process for the coalition.

11. Meeting Recap:
Objectives were met and action items are listed above.

Next Meeting:
Wednesday, March 20, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Bob Dean	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	
Tom Harrington	CSA/Alternate	
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	
David Myers	City of Angels Camp	
Garett Walker	CAC/Alternate	

Evan Royce	County of Tuolumne	
John Gray	TC/Alternate	
Daniel Richardson	TC/Alternate	
Gary J. Mello	Groveland Community Services District	
Jennifer Flores	GCSD/Alternate	Present
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	
Cindy Nugent	MSD/Alternate	Present
Ron Ringen	Tuolumne County Building Industry	Present
John Feriani	TCBI/Alternate	
Dana Mayo	Tuolumne County Business Council	Present
Ron Kopf	TCBC/Alternate	
Darrell Slocum	TCBC/Alternate	
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	Present
Pete Kampa	Tuolumne Utilities District	Present
Tom Scesca	TUD/Alternate	
Scot A. Moody	Twain Harte Community Services District	
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	
Bill Airola	UPUD/Alternate	
Tom Quincy	UPUD/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	

IRWM Plan Staff

Name	**Organization**	**Attendance**
Michelle Dooley	CA Department of Water Resources	Present
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present

Sean Maguire	Kennedy/Jenks	
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Dennis Wann	O'Dell Engineering
Ted Allen	Tuolumne Utilities District
Jim Grinnell	Tuolumne Utilities District
John Maciel	Tuolumne Utilities District
Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
Stephanie Suess	Tuolumne Me-Wuk Tribal Council

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for March 20, 2013

ACTION ITEMS:

1. K/J to provide TUD with the March meeting materials for upload to the website.
2. K/J to prepare email requesting comments on materials (including specifics by handout as appropriate) by April 12, 2013. John Mills to send email to distribution list.
3. K/J to change the "Mandatory" category on Handout 2 to "Required by DWR Guidelines" and add a "start date" column.
4. Mr. Meyer to address PGC on MAC experience post-plan.
5. Ms. Romberger to provide language for 6.3.5.3 and 6.3.5.4.
6. Members to consider desired level of effort post-plan.
7. K/J to have funding links posted.
8. John Mills to distribute April meeting materials by April 11th.
9. K/J to issue a "call for pictures".
10. GWA to hold a debriefing session after award announcement to address lessons learned.
11. Data Management Workgroup to reconvene after March 29th.
12. K/J to develop a short IRWM Plan presentation for use at board and council meetings.
13. TUD board members, Jim Grinnell and John Maciel, to contact Mr. Gary Mello regarding IRWM discussion on TUD board agenda.

PGC MEMBER HOMEWORK:

1. Review in advance of the April meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for March, and bring to the April meeting. Please keep track of and include those hours you spend on reviewing and commenting on materials submitted to you for review.
3. Submit any comments on Sections on Section 3 by April 12th.
4. Come to April meeting prepared to further discuss post-planning grant IRWM Program activities, alternative forms of governance and local budget.

MEETING GOALS:

1. Review schedule and IRWM plan sections
2. Confirm IRWM implementation activities
3. Discuss how IRWM implementation and financing will occur
4. Receive update on ITRWM implementation grant

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:
Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda and reminded members to sign-in. She noted the agenda provided at the meeting was updated since the agenda was emailed to members.

2. Approval of January Meeting Summary:
Ms. Lott said no corrections had been submitted on the summary. It was noted Lindsay Rosasco was inadvertently left off the attendance record and should be added.

Action: The meeting summary for February 20, 2013 was accepted by the PGC as amended.

3. In-Kind Tracking:
Mr. Sean McGuire requested the in-kind sheets and reminded the group to continue recording and submitting tracking records. Ms. Lott again noted time spent on Round 2 Implementation grant application preparations and discussions is not eligible for purposes of the in-kind match for the existing planning grant, but would count toward in-kind for the implementation grant, if awarded. Therefore, it is advised a record be kept for this purpose.

4. Revised Schedule:
Ms. Lott noted members should keep the April meeting on their calendars even though K/J will not be attending that meeting. She and Mr. Mills are available to staff the meeting and a decision regarding the April meeting will be made later during today's meeting.

5. IRWM Plan Content:
IRWM Scorecard (Handout 1)
Ms. Itagaki referred the group to the handout and noted it has been updated since the last meeting. The purpose of this scorecard is to keep members apprised of the status of sections of the plan and anticipated activities.

Sections 4 and 6
Mr. Jeff Meyer asked that CCWD's use of treated reclaimed water for golf courses be included in section 4.2.2. He also took exception to the characterization that future demand for agricultural projections has a "high level" of uncertainty, but rather should be "some" uncertainty. It was suggested it should be clarified that the large increase in projected water use for higher intensity agriculture is in Calaveras County, not Tuolumne County.

Mr. John Buckley observed the strength of some of the projects could potentially be enhanced. For example, adding a sentence under forest management as to why additional forest thinning treatments could have additional value for water production could add value to this project.

A member said he has not had sufficient time to review the sections. It was clarified that while the intent is to "park" the sections today, members are still free to comment on them. It is just that the sections will not be agendized again unless there are substantive comments that need to be vetted by the PGC rather than simply incorporated into the IRWMP.

Ms. Deb Romberger said she will provide text for 6.3.5.3 and 6.3.5.4. Some of the thoughts to be incorporated are watershed restoration, hydrologically connected roads, and resilient forest.

Action: The PGC agreed to park Sections 4 and 6 with the comments added today. If there are additional comments received, another draft will be posted with tracked changes.

Ms. Itagaki said she will issue a call for pictures and those used will be credited to the contributors.

Section 3
It was noted Section 3 is now posted and K/J is receiving comments.

6. Potential Options for IRWM Plan Implementation:
Confirm IRWM Plan Activities (Handout 2)
Ms. Itagaki reviewed the changes to Handout 2.

A member of the public asked if there were any responses to the press release submitted after the February meeting. A member stated he had received a number of positive comments. Another member noted one article suggested a difficult atmosphere existed within the process. However, the member believes the process has been very good and very beneficial. While there is concern about the cost going forward, it is his belief no one should go away with anything other than that it has been a positive process.

Plan Performance and Monitoring/Data Management (Handout 3)
Ms. Itagaki said the group needs to be able to show they are meeting objectives and making progress on projects. Project specific monitoring plans have to be in place as required by DWR for up to ten years. This is distinct from IRWM plan monitoring. Some of the comments included:

- Highlight Item 4 of 2.1 – it is important to learn from experiences as projects are implemented.
- Item 2.2 – discussed the sheer number of objectives and keeping monitoring metrics for projects as simple as possible.
- Concern was voiced regarding the possibility of DWR using what is in the plan to develop new regulations. It was clarified the IRWM process is non-regulatory. A concern was also voiced by revealing the need for some projects an agency is exposing non-compliance issues.

Comments returned to the issue of post-plan activities and a question of which activities are truly mandatory. It was clarified certain activities are mandatory if the region wishes to demonstrate compliance for the purpose of applying for Prop 84 funding. There are two sets of mandatory actions – what has to be included in the plan and what needs to be done post-plan to qualify for consideration of funding. The activities post-plan are scalable. Costs are a definite consideration and identifying what the group sees as its focus is important.

It was pointed out that regional planning is the future of funding for the state and likely for the federal government, as well. This, in itself, is a big incentive to continue the program. Mr. Mills said the state bond is being rewritten and there will be an IRWM program in the next iteration. It also includes Bay-Delta Conservation Plan funding. There are discussions within the legislature for a water investment funding fee that will be for the Federal Energy Regulatory Commission and water rights for consumptive use. The Association of California Water Agencies is taking up discussions on water fees. The IRWM process is the future of water in California.

Another member noted funding is not the only reason to plan regionally. There is watershed management, policy issues, beneficial uses, etc. and the group should not lose sight of water management benefits. The ongoing requirement of biomass management needs continuous funding and there are differing pathways to implementation.

The benefit of developing projects collaboratively was sighted. The importance of better understanding one another's needs was underscored.

It was noted it might be helpful to change the category in Handout 2 from "Mandatory" to "Required by DWR Guidelines."

Ms. Itagaki said she wishes to reconvene the Data Management Committee, consisting of Deb Romberger/Jim Schmidt, Lindsay Rosasco, Mitch Pyle, Tom Scesa and John Mills. Jennifer Sorensen volunteered, as well. An invitation to participate was extended to all members of the Grant Application Workgroup.

Objectives Tracking Table

Ms. Itagaki reviewed the tracking table stating she would like to discuss order, priority, timing and the number of objectives. Comments included:

- Ms. Romberger would like to revisit dates such as meadow work in Item 7 and 8
- Completed projects should be reflected as it shows progress and tracks local investment
- Priority should reflect regulatory concerns – perhaps in project scoring criteria
- Debriefing after grant application processes can be very useful
- A "start date" column could be useful

Operational Structure and Financial Needs

Ms. Lott opened the discussion by noting for any entity taking on administration of the process post-plan, stability of funding is critical. The budget presented today is based on addressing every activity the region said it wished to address. It also takes into account the current level of effort by volunteers during the IRWM process.

Mr. Mills said the issues are post-plan governance and operations. If the region is to continue with plan implementation there are certain activities which need to take place. Once the state funding is expended, it is going to be difficult to move the process forward without a lead agency and a strong structure to provide a core of leadership and funding. A Joint Power Authority (JPA) is a strong structure and allows tribal agency participation. It is a very structured agreement and includes clarity of membership and a member has to pay as agreed to be a member in good standing. Most agencies in the room have experience participating in a JPA.

He said the consultant team is suggesting moving away from the more loose MOU structure so it will be clear who is responsible for leading the program. There are many opportunities such as meadow restoration for water supply and joint sewer projects. There could also be a technical advisory committee that deals with working through these types of issues. Volunteers can augment the process, but most IRWM organizations need some sort of administration and a budget to support it.

Mr. Mills further shared his perspective that there needs to be a more permanent and leaner governance structure. There should be an advisory group that advises what will become the Regional Water Management Group (RWMG). It will have to be locally funded. And per DWR, it needs to be open, transparent, and inclusive.

Mr. Mills further shared that the Resource Conservation District developed a budget. It is based on what members have said they want to do post-plan. It is a public agency decision, but needs sustainability which is probably not provided by an MOU because of the flexibility of an MOU, the uncertainty of commitment, and the uncertainty of funding. Priority should be given to collaboratively integrating projects and bringing funding into the region

There are certain assumptions that have been made:

1. It is a twenty year program
2. There will be a core leadership group
3. The process will be open and transparent

Ms. Lott requested as members look at the RCD budget proposal they not blame the RCD for the size of the budget. The budget provides the calculations of what the RCD believes it would take for them to support the level of effort previously defined by the group assuming no other agency will step up and provide in-kind services. The cost of facilitation is being addressed through an application to DWR for facilitation services. However, it is unknown if such funding will be awarded. Ms. Lott also noted it is not expected that decisions be made today, but rather this be a place to start the thinking process that precedes the April meeting.

Ms. Rosasco stated the RCD was interested in pursuing this as a couple of years ago they had a grant for a watershed coordinator, but decided not to pursue that direction but rather engage in the IRWM process. Therefore, they see this as aligned with a pre-existing interest of the RCD. The RCD is 100% grant funded so the budget for any project has to first establish the costs to keep the RCD functional. Also, work performed on behalf of the IRWM group cannot be supported through any funding awarded for another purpose. There has to be a stable source of funding and adequate funding for the RCD to stay in operation. If the RCD took on the administration of the IRWM post-plan process there needs to be an assurance of funding. The assumption for the RCD considering this role is that there is a JPA with a technical advisory committee. The meeting level of effort assumed quarterly meetings of the JPA, ten meetings of the TAC, and two annual workshops.

A member of the public asked if there are other funding sources aside from member agencies. Mr. Mills said they have approached the irrigation districts, San Francisco Public Utilities Commission, Tri-Dam, the Parks Service, and the Bureau of Reclamation and none are interested in funding the process. Folks are welcome to continue trying, but there has been no success to date.

Mr. Buckley raised a concern that now the highly intensive planning process is ending and meetings may be quarterly instead of monthly, the budget as proposed is many times higher than the budget up to this time. He also questioned why the budget begin promoted for consideration contained so much cost for a facilitator and consultant when the plan will have been finalized and those services may not be essential.

Ms. Lott clarified the meeting level of effort in the RCD budget assumed quarterly meetings of the JPA plus ten meetings of the TAC and two annual workshops. She also noted it was hoped facilitation would be paid for through a grant from DWR.

Mr. Mills mentioned when TUD became unable to continue in an administrative role for the planning process, he asked a number of agencies if they could provide a staff member to take notes during the meetings and develop the meeting summary. None were able to provide even

that level of in-kind service. TUD has provided the room, audio equipment and posted materials to their website, but agendas, meeting planning, invoicing, etc. has all been done by the consultants.

A member said the group really needs to hone in on what they want to accomplish. They can look at other examples for governance structure and finance. A number of members voiced support for a JPA. It was suggested it could be helpful to hear how the Mokelumne/Amador/Calaveras (MAC) is operating.

Another member said while collecting the $50,000 for the local budget has been a challenge over the years, the RCD budget represents what should be going on to keep the process on track. A very reliable mechanism is required to carry the process forward in the coming years. The NGOs and other supporters should be involved in the effort. There are always ways to incorporate advisory structures and in-kind services.

It was suggested the group look at it from a level of effort perspective and then decide how to make the investment. The JPA is a good governance vehicle. It was underscored the draft budget is for plan implementation, not grant application development and monitoring. It would, however, include project discussions, integration, and development within the context of the plan itself.

Ms. Lott suggested outlining the issues to be discussed during the April meeting.

- Mr. Meyer to provide an overview of the level of effort from the MAC experience and perspective.
- The PGC to review the governance activities assumptions as opposed to the costs.
- Agencies to consider whether they can commit to providing any in-kind services.
- Assuming a JPA configuration, how would other entities envision participating?

The governance structure going into the plan has to be settled at the next meeting. The exact level of effort and budget can be finalized later, but should be settled sooner rather than later.

Ms. Lott said if any of the members believe some type of additional information would be useful to have at the next meeting, they should let Mr. Mills know so it can be provided, if at all possible.

Action: Mr. Kirk Ford asked if the PGC supports language in the grant application that the future governance structure will be something like a JPA and the budget will be locally funded. The PGC was in agreement that this language is acceptable for the application. (Note: There was no action regarding post-plan governance.)

7. Report – Prop 84 Implementation Grant Application

Ms. Rosasco said the RCD had an economist come in to train them in doing a cost/benefit analysis. The group is on track to submit the application next week. Ms. Lott complimented the group on their tremendous efforts and hoped they would pay off in the form of funding for the application.

8. Calaveras County Request

Ms. Lott called on Mr. Meyer to report on his understanding of the Calaveras County position on participating in the IRWM process. He said the county has not fully supported the MAC and

therefore is unlikely to support the T-Stan effort, especially since they do not realize there are projects within it for Calaveras County. They also cited governance as an issue.

Ms. Lott asked the PGC to take action on the Calaveras County request to return a portion of their local funding contribution. Mr. Pete Kampa said the dollars have been spent and TUD should not undertake subsidizing an agency that wishes funds returned.

Action: The PGC authorized TUD to write a letter to Calaveras County thanking them for their past participation, encouraging future participation, and declining to return funds. It was noted 60% of the projects within the IRWMP will benefit Calaveras County directly or indirectly.

Ms. Lott said the group will need to address the status of City of Sonora, Calaveras County, Yosemite National Park, and Department of Fish and Wildlife regarding how they are characterized in the IRWMP. As a side note, DFW is following offline as they know this is an important process, but do not have staff to send to meetings.

9. Funding Update:
Ms. Itagaki shared some funding opportunities such as the wildlife conservation grants and energy efficiency through USDA. She will put links online.

10. Public Comment:
Ms. Lott asked for comments from the public and none were voiced.

11. Meeting Recap:
Objectives were met and action items are listed above.

Next Meeting:
Wednesday, April 17, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Dennis Dooley	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	Present
Garett Walker	CAC/Alternate	Present
Evan Royce	County of Tuolumne	
Karl Rodefer	TC/Alternate	Present
Daniel Richardson	TC/Alternate	

Gary J. Mello	Groveland Community Services District	Present
Jennifer Flores	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
Julio S. Guerra	Murphys Sanitary District	
Cindy Nugent	MSD/Alternate	Present
Ron Ringen	Tuolumne County Building Industry	Present
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Dana Mayo	Tuolumne County Business Council	Present
Ron Kopf	TCBC/Alternate	
Darrell Slocum	TCBC/Alternate	
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Frank Oyung	TGSC/Alternate	Present
Patrick Koepele	Tuolumne River Trust	
Pete Kampa	Tuolumne Utilities District	Present
Tom Scesca	TUD/Alternate	Present
Scot A. Moody	Twain Harte Community Services District	
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	
Bill Airola	UPUD/Alternate	
Tom Quincy	UPUD/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	Present

IRWM Plan Staff

Name	**Organization**	**Attendance**
Michelle Dooley	CA Department of Water Resources	
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Dennis Wann	O'Dell Engineering
Connie Williams	City of Sonora
Jim Grinnell	Tuolumne Utilities District
John Maciel	Tuolumne Utilities District
Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
Stephanie Suess	Tuolumne Me-Wuk Tribal Council
Robert Dean	Calaveras County Water District
Rebecca Miller-Cripps	University of California Cooperative Extension
Bill Dutra	Tuolumne Band of Me-Wuk

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for April 17, 2013

ACTION ITEMS:

1. K/J to provide TUD with the April meeting materials for upload to the website.
2. K/J to prepare email requesting comments on materials (including specifics by handout as appropriate).
3. Members to consider desired level of effort post-plan.
4. Materials for May meeting to be distributed by May 10th.
5. K/J to issue a "call for pictures".
6. K/J to develop a short IRWM Plan presentation for use at board and council meetings.
7. TUD board members, Jim Grinnell and John Maciel, to contact Mr. Gary Mello regarding IRWM discussion on TUD board agenda.

PGC MEMBER HOMEWORK:

1. Review in advance of the May meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for April, and bring to the May meeting. Please keep track of and include those hours you spend on reviewing and commenting on materials submitted to you for review.
3. Submit any comments on Sections 5, 7, and 8 by May 10th.
4. Come to May meeting prepared to further discuss post-planning grant IRWM program activities, governance and local budget.

MEETING GOALS:

1. Review schedule and IRWM plan sections
2. Discuss IRWM implementation and financing
3. Receive update on IRWM implementation grant

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:

Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda and reminded members to sign-in.

2. Approval of March Meeting Summary:

Ms. Lott said no corrections had been submitted on the summary. No comments were offered by members.

Action: The meeting summary for March 20, 2013 was accepted by the PGC as emailed.

3. Update on Scorecard and Announcement of Release of Sections 5, 7, and 8:
Mr. Sean Maguire requested the in-kind sheets and reminded the group to continue recording and submitting tracking records. Mr. Maguire noted members should be thinking about giving a presentation to their respective boards regarding adoption of the IRWM plan. K/J will develop a PowerPoint for their use. A member asked whether DWR requires that the plan be reviewed and deemed acceptable by DWR prior to adoption by individual agencies/organizations. Mr. Maguire said that is not the case, but DWR will review the plan for adequacy when submitted in September by the PGC.

4. IRWM Plan Implementation:
Mr. John Mills provided comments to open the discussion. He noted DWR is generally agnostic on plan governance. However, the PGC needs to determine what they want to do once the plan is completed. For example, will there be a stable membership or can members join and leave as desired? Will there be a formal JPA or an MOU? DWR does want to know how the plan is going to be carried out in regards to organizational structure and fiscal stability.

Ms. Lott noted the MOU, and therefore the PGC, sunsets when the IRWM planning grant ends and the IRWM plan is complete. The budget as funded through the DWR planning grant ends, as well. Ms. Lott suggested, therefore, the first item to consider is if the PGC is interested in becoming, in some form, the Regional Water Management Group (RWMG) and overseeing implementation of the IRWM plan in the future.

Action: There was consensus that the PGC wishes to oversee implementation of the IRWM plan as the RWMG.

Ms. Lott said the next issue the PGC might wish to consider is how the group will be governed moving forward post-plan. While DWR does not require a particular type of governance, it is required that there is transparency in how decisions are made and the method should be clearly stated within the IRWM plan. She noted the Resource Conservation District (RCD) has stipulated governance through a JPA as a fundamental requirement if they are to be the administrative agent for the group.

A member asked why the RCD requires a JPA form of governance. Ms. Lindsay Rosasco said she does not feel comfortable recommending to her board that the RCD take on this role without knowing there is a governance structure stable enough to assure fiscal stability and a structure and budget capable of sustaining the effort beyond one year at a time.

Mr. Mills noted the RWMG is not a land use planning group. He said the primary goals are to provide:

- A public forum for decision-making regarding water resources
- A place for discussing integration of projects/programs
- An avenue for discussing funding opportunities and future activities
- An opportunity to pursue cooperative cost-saving efforts (economies of scale) such as developing regional plans such as a regional Urban Water Management Plan
- A venue for additional “calls for projects” and plan amendments, as needed

A member observed the PGC has worked successfully, for a number of years, with an MOU. Ms. Rosasco said the RCD will participate as a member if there is an MOU, but a JPA is required if they are to become the administrative agent.

Ms. Lott noted the RCD has made an offer to provide administrative support, but if there are other offers for consideration, now is the time to step forward and share the idea/s with the group.

A member of the Grant Application Workgroup (GAW) noted without the RCD they would not have been able to submit the implementation grant. No one else has stepped up with an offer to provide post-plan support as no one else has the resources.

Ms. Lott noted the draft budget prepared by the RCD provided a dollar amount for a specific list of tasks which is negotiable based on which tasks are identified as necessary and/or desired moving forward post-plan.

Mr. Jeff Meyer provided a presentation on the model used by the Upper Mokelumne River Watershed Authority (UMRWA). He said they became the IRWM group in 2005, developing the Mokelumne Amador Calaveras (MAC) IRWM plan. Their focus is water quality, water supply, and the environment. East Bay Municipal Utility District (EBMUD) hosts the meetings. Mr. Rob Alcott is the administrative officer. Amador and Calaveras each contribute 20% of the budget with EBMUD contributing the remaining 60%. The annual budget is between $52,000 and $83,000 per year and there are in-kind contributions. They pay the EO $39,000 per year and allot $13,000 for legal and administrative costs. Funds for projects are channeled through EBMUD for grant projects. EBMUD provides treasury and accounting services, Amador County provides legal counsel, and EBMUD provides secretarial services.

The UMRWA board of directors in comprised of eight county and water agency board members. The governance structure includes the board of directors, a three member executive committee called the Board Advisory Committee (BAC), and the Regional Participants Committee which includes members of the public. The BAC makes recommendations to the board and tries to resolve any unresolved issues that have arisen at the RPC. The functional aspects are:

- Creates open and inclusive stakeholder process thru the Regional Participants Committee (RPC)
- Provides a systematic decision-making process with Board Advisory Committee the optional first venue to address MAC Plan concerns
- Makes UMRWA Board of Directors the final arbiter of MAC Plan disputes
- Provides means for efficient contracting and grant writing and fiscal accountability
- Provides opportunity for MAC Plan to fairly reflect regional needs and potential water resource solutions

Decision-making within the board is done by majority vote. Some issues come before the board when there is not 100% support from the RPC. UMRWA oversees more activities than just the implementation of the MAC IRWM plan.

Mr. Mills said UMRWA is one example of a JPA. To sit on the board of a JPA one must be a public agency or a tribe. Ms. Stephanie Seuss noted DWR is looking towards IRWMs as the future. She is involved at the state level in a focus group looking at a state strategic plan. Tribes can only be recognized in a JPA and can also leverage federal dollars.

A member noted consensus is the fundamental principle of the PGC's governance structure, although it was modified last year to include a super majority in cases when consensus cannot be reached. It the group moves to a JPA, only the agencies will be voting entities. One option would be an MOU and members cover their own costs. The members could meet 2-4 times per year with a committee of members stepping up to provide administrative support. The member

suggested a middle ground with a JPA to handle financial matters, but formally deferring to a planning group (akin to the UMRWA RPC) to make decisions such as updating the plan, communications, etc.

Another member observed it would be difficult to separate decisions on issues from financial decisions.

A member suggested consideration of a JPA board which gives formal approval to all decisions and makes financial decisions. An advisory committee could be open to all and operate under an MOU. This group would review all issues and make recommendations to the JPA board.

It was noted by a member since the JPA board would carry the burden for financially supporting the effort, they should have the ultimate decision-making authority.

Mr. Mills noted a JPA can only exercise authority that is common to all JPA members so care needs to be taken in how the JPA is formed. Rules would be set with bylaws. The board could determine the budget for operations.

It was underscored by multiple members issues should be raised first with the broader regional group and the recommendation from that group brought to the board. It was made clear there is not support for a JPA board taking up issues without first vetting them through the broader stakeholder group. There was some discussion of an appeal process to the board as recourse for a minority position.

A member noted he would need to take the concepts developed today back to his board to determine the level of support for this governance structure.

Formal action on the governance structure is slated for the May meeting. However, there was support for the following concepts:

1. Forming a JPA
2. Forming a broader stakeholder group that advises the JPA board and operates under the current governance principles
3. Bringing all issues to the stakeholder group for consideration and development of a recommendation prior to agendizing for JPA action
4. JPA board developing by-laws to reflect the governance intent and procedures (specifically regarding the process for decision-making and the role of the stakeholder group in that process)

The discussion moved on to the post-plan budget. Ms. Lott observed it will likely be necessary to have a workshop devoted to negotiating the scope of work, level of effort, and other budget detail. For purposes of the IRWM plan, the group can agree to fund the effort locally and work out the details at another time.

Action: There was agreement that post-plan efforts will be funded locally, but a specific budget will not be included in the IRWM plan.

In concluding this item, there seemed to be general support for negotiating with the RCD for provision of administrative support with other agencies determining what they might be able to contribute in-kind. The RCD would require specificity and formal commitment to any services provided through in-kind contributions. Ms. Lott noted a preliminary application for

consideration of facilitation services has been submitted to DWR. If approved in concept, a specific scope of work and budget will need to be developed and submitted to DWR.

5. Report – Prop 84 Implementation Grant Application
Ms. Rosasco said the application was submitted on time. The RCD expended many more hours than originally planned and compensated. Ms. Rosasco alone spent over 300 hours with many, many hours also spent by Mr. Kirk Ford. The USFS contributed significant time through the person they assigned to work on the application, as did the other participating agencies/organizations. The group commended the RCD on their efforts and acknowledged this as a real accomplishment of the PGC.

6. Public Comment:
Ms. Lott asked for comments from the public. Ms. Seuss noted the "Shape Water Future" conference on May 16th. She also said the Me-Wuk tribe will present at the "Tribal Water Summit."

Mr. Mills announced this meeting as his last meeting. He is resigning from his current position with the PGC. He was thanked for his many contributions to the PGC efforts.

Mr. Ford noted the RCD consent decree with the CA Sportfishing Protection Alliance.

7. Meeting Recap:
Objectives were met and action items are listed above.

Next Meeting:
Wednesday, May 15, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Dennis Dooley	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	Present
Garett Walker	CAC/Alternate	Present
Evan Royce	County of Tuolumne	
Karl Rodefer	TC/Alternate	Present
Daniel Richardson	TC/Alternate	
Gary J. Mello	Groveland Community Services District	Present
Jennifer Flores	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
	Murphys Sanitary District	
Cindy Nugent	MSD/Alternate	Present
Ron Ringen	Tuolumne County Building Industry	Present
John Feriani	TCBI/Alternate	
Dana Mayo	Tuolumne County Business Council	Present
Ron Kopf	TCBC/Alternate	
Darrell Slocum	TCBC/Alternate	
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	Present
Pete Kampa	Tuolumne Utilities District	Present
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Larry L. Thompson	Union Public Utility District	

Bill Airola	UPUD/Alternate	
Tom Quincy	UPUD/Alternate	
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
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Vern Pyle	UPA/Alternate	

IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present
John Mills	Offices of John S. Mills	Present

Other Interested Parties

Name	Organization
Dennis Wann	O'Dell Engineering
Brandon Gladysz	Tuolumne County Resource Conservation District
Jim Grinnell	Tuolumne Utilities District
John Maciel	Tuolumne Utilities District
Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
Stephanie Suess	Tuolumne Me-Wuk Tribal Council
Scott Mills	Murphys Sanitary District

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for May 15, 2013

ACTION ITEMS:

1. K/J to provide TUD with the May meeting materials for upload to the website.
2. K/J to prepare email requesting comments on materials (including specifics by handout as appropriate).
3. Materials for June meeting to be distributed by June 13th.
4. K/J to issue a "call for pictures".
5. K/J to develop a short IRWM Plan presentation for use at board and council meetings.

PGC MEMBER HOMEWORK:

1. Review in advance of the June meeting any materials distributed by the consultant team and provide comments on said materials prior to the meeting, as appropriate.
2. Fill out any past due in-kind sheets, the in-kind sheet for May, and bring to the June meeting. Please keep track of and include those hours you spend on reviewing and commenting on materials submitted to you for review.
3. Submit any comments on Section 9 by May 31st.
4. Come to June meeting prepared to further discuss any remaining substantive concerns regarding the draft IRWM plan.

MEETING GOALS:

1. Confirm IRWM Implementation Framework

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:

Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda and reminded members to sign-in. Mr. Gary Mello announced his retirement and thanked the PGC for their efforts. Ms. Deb Romberger announced her retirement commencing July 3, 2013.

2. Approval of March Meeting Summary:

Ms. Lott said no corrections had been submitted on the summary. A correction was noted pre-meeting to remove the public comment by Kirk Ford as inaccurate and not relevant to IRWMP.

Action: The meeting summary for April 17, 2013 was accepted by the PGC as corrected.

3. Update on Scorecard and Announcement of Release of Sections 5, 7, and 8:
Ms. Sachi Itagaki noted a number of sections have been reviewed and are ready for the final draft version. She thanked those who have submitted comments. She noted actual impacts potentially caused by a project is not dealt with within the IRWM plan, but rather would be handled through the regular mandated review process for project implementation. The goal is to have the public review draft of the entire plan out one week before the next meeting. There were no questions asked by the PGC.

4. Section 9 IRWM Plan Implementation Framework:
Ms. Itagaki referred the group to the nine-page document, draft Section 9, which had been emailed to the membership prior to today's meeting. The group reviewed the document page-by-page. On page two, it was suggested bullet two not include a maximum number of water agencies that can sit on the JPA (to be the Regional Water Management Group or RWMG), but rather allow for any number over the required minimum of two to participate. Also on this page, it was suggested the word "staff" be removed from bullet three as some entities might send an elected. Rather than refer to the advisory group as the Regional Advisory Committee (RAC) as it could be confused with an existing agency, the Resource Advisory Council, the group agreed to name the advisory group the Watershed Advisory Committee (WAC). It was also noted the Joint Powers Authority (JPA) model was important to maintain if tribes are to participate as they can sign onto a JPA. Bullet five had a suggested word substitution in line three from "similar governance" to "same governance."

There were some concerns raised about making sure post-plan efforts reflected an environment of responsibility to ratepayers and transparency. It was noted these and other concerns can be addressed in the JPA by-laws.

There was considerable conversation and debate regarding the scope of powers to be held by the JPA. Some agencies noted they are governed by elected boards and the electeds are responsible to the voters and ratepayers and therefore should have ultimate decision-making authority. The environmental organizations at the table voiced their desire that the JPA only have final authority over fiscal and administrative issues. It was noted they preferred to stay with the current model without a JPA component. Mr. Pete Kampa distributed a flow chart he had developed that displayed his understanding of how the governance would work post-plan development. There was disagreement as to whether the JPA should have the authority to "independently develop proposals not previously considered." Mr. Kampa clarified this is to enable the JPA to talk about ideas and concepts. However, as depicted on the flow chart, these proposals would be referred to the advisory group for consideration with a specified amount of time for the advisory group to return a recommendation to the JPA. It was noted the flow chart increased the concerns of the environmental interests at the table.

On page three, there was agreement to remove the section indicating what the advisory group would not do and insert those responsibilities as "to do" under the responsible group.

There was continued discussion regarding roles and responsibilities of the JPA and advisory group. It was stated one of the primary purposes is to facilitate grant acquisition. However, it was noted, in addition to acquiring funds, water managers wish to reduce conflict and therefore having a forum for discussing common interests and resolving issues is important.

The chart reflecting proposed roles for the JPA and advisory committee was addressed by various members. There was concern over the use of the word "lead." While it was intended to indicate where responsibility lies for scheduling an item and sheparding it through the process,

some members felt it signaled decision-making authority. To resolve this, it was suggested the word “lead” be replaced with the word “coordinate” on pages four through six.

In regards to the section on decision-making, beginning on page six, it was suggested that at the top of page seven, “decided through consensus” should be changed to “decided through consensus or 70% vote” to reflect the current governance principles. The first paragraph on page seven was amended from “using consensus” to “using consensus whenever possible.”

A member returned to the discussion about accountability. Concern was voiced regarding the importance of the JPA having the ability to identify and/or initiate opportunities or challenges and refer these items to the advisory committee. But that ultimately, the JPA has to take responsibility for financial matters and be the ultimate decision-making body.

Ms. Michelle Dooley stated the IRWM planning effort should not hold a singular purpose of acquiring state money, but rather it should be focused on fostering inter-agency and regional cooperation. The program is designed to help regions address existing problems with infrastructure, lack of water, environmental stewardship, etc. It is not designed to address issues that are the responsibility of General Plans. Part of the benefit of working regionally is to achieve economies of scale and address issues pertinent to Disadvantaged Communities. The avenue for addressing issues associated with particular projects is the California Environmental Quality Act (CEQA).

Ms. Lott noted it seemed the group was struggling with the “what if” of a worst case scenario. She noted if members attend the advisory group regularly, and if the current membership stays engaged, in order for an item not to receive 70% support would require opposition by more than the environmental community. If an issue had that quantity of diverse concerns, it might not be prudent to move ahead without resolving the challenges. If, however, the JPA determined it prudent to move ahead despite the concerns, opponents still would have legal recourse. She emphasized projects/programs cannot be implemented solely through the JPA/advisory group process. There are many other steps that have to be taken in getting to implementation.

Ms. Seuss spoke on behalf of the tribes. She underscored that tribes can only participate through a JPA. She added that Tuolumne County has no adjudicated water rights. The tribes are trying to get reserve rights and can bring federal dollars to the table. The projects they are interested in are to address failing infrastructure. She sees the tribes as a resource and a partner in leveraging funds. She stated the JPA governance model is the official preference of the Chicken Ranch and Me-Wuk Tribes.

A member of the public reminded the group that funding projects through the IRWM process, through state funds, is only one source of funding. If there is a desire to implement a project not endorsed through the IRWM process, other funding sources could be identified.

A PGC member said there is not a debate about recommending the formation of a JPA, but rather the relationship between the JPA and the advisory group. The financial contributions brought to the table by JPA members will support the effort going forward as it will not succeed as a solely volunteer effort.

Ms. Dooley said the IRWM planning effort is not intended to be one-dimensional. For example, water supply may be today’s issue, but not tomorrow’s. This is an opportunity to work as a region. The effort should be oriented towards issue resolution versus being project-centered.

DWR wants function and does not have a preference on governance. The T-Stan is doing well and DWR has committed to continuing facilitation to help manage problems.

Mr. John Buckley said the key issue is what the new governance is for the IRWM. He noted there was agreement on the key question of establishing a JPA. The point of the discussion is to define the responsibilities of the advisory group versus the responsibilities of the JPA. He said the key question is does the JPA have special authority for decision-making for projects with less than 70% from the advisory group? Failing infrastructure will get more than 70% support from the advisory group.

Concerns were raised about how a project not in the current draft IRWM might be included in the IRWM. A member of the public said there should be a process for considering projects for addition to the plan. The group was reminded that the "Project Selection Criteria Process" has been developed and was used for the current project list. This process can be utilized in the future and amended through the advisory group/JPA governance structure.

The issue of whether the JPA will have the authority to overrule advisory group recommendations was raised again. Ms. Lott said the IRWM plan needs to describe the broad desire of the group in regards to recommended governance post IRWM plan development. The PGC seems to be struggling with whether the JPA can override or make a decision based on an appeal of an advisory group decision. She noted the fundamental issue at stake is trust.

There was a question regarding support of the current project list within the IRWM draft plan. It was clarified that through 100% consensus the PGC approved the projects for inclusion within the IRWM plan, but clearly stated that did not mean all members support each project for implementation. The discussions underscored that projects will be judged on their own merits at the time of submission for funding and/or implementation.

Ms. Itagaki proposed a version of the language that represented what she thought she heard offered by several members. It was as follows:

The RWMG (Regional Water Management Group through a JPA) board defers decisions, for approval, to the Watershed Advisory Committee (WAC) for matters related to plan update and implementation including projects. Financial, personnel management, communication and outreach, and issues (including projects) that cannot be decided by the WAC through consensus or, when necessary, the 70% voting process as defined in the 2012 updated governance principles will be decided by the RWMG board.

If, within a reasonable amount of time and effort, consensus cannot be reached within the WAC as described in the updated 2012 governance principles, the items will be submitted to the RWMG board. The RWMG board, by majority vote, can determine how to proceed on such items.

Ms. Lott asked if there were any objections to the language. Mr. Tom Parrington noted that he objected to the RWMG having the ability to "override" a recommendation made by the advisory group. No additional objections were offered. Ms. Lott asked if the group would like to entertain a vote on the issue. Mr. Buckley responded that no vote was needed.

A member pointed to language on page seven of the draft directed at internal/external communication stating that communications should be designed to reflect the "good of the group." A reference was made to an article in the spring newsletter of the Central Sierra

Environmental Resource Center in which utilities were depicted as “manipulating” the watershed planning process. There were objections raised to the characterization of the change in governance principals, as well. Another member supported the idea that members of the PGC should agree not to talk poorly about the IRWM process. Mr. Jon Sturtevant said his organization will be releasing a similar article. Additional comments were heard about the need to work together and be productive.

Ms. Lott reminded the group that, for the good of the process, groundrules should be adhered to outside the meetings, as well as, during the meetings. She stated that while organizations certainly have a right to share concerns with their constituents, care should be taken to choose language that is not inflammatory.

5. Plan Adoption Discussion
This will be discussed during the June meeting.

6. Public Comment:
Ms. Lott asked for comments from the public. Ms. Dooley noted funds for Prop 84 Round 3 Implementation are currently not in the 2013-2014 state budget. It was also noted CCP facilitation has been approved by DWR for post-plan implementation assistance.

7. Meeting Recap:
Objectives were met and action items are listed above.

Next Meeting:
Wednesday, June 19, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Dennis Dooley	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	Present
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	Present
Garett Walker	CAC/Alternate	
Evan Royce	County of Tuolumne	Present
Karl Rodefer	TC/Alternate	
Daniel Richardson	TC/Alternate	
Aaron Randi	Groveland Community Services District	Present
Jennifer Flores	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
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Cindy Nugent	MSD/Alternate	
Ron Ringen	Tuolumne County Building Industry	Present
John Feriani	TCBI/Alternate	
Dana Mayo	Tuolumne County Business Council	
Ron Kopf	TCBC/Alternate	Present
Darrell Slocum	TCBC/Alternate	
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	
Pete Kampa	Tuolumne Utilities District	Present
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Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	

Bill Airola	UPUD/Alternate	
Tom Quincy	UPUD/Alternate	Present
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
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IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	Present
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	Present

Other Interested Parties

Name	Organization
Lucas Wilkinson	US Forest Service
Brandon Gladysz	Tuolumne County Resource Conservation District
Jim Grinnell	Tuolumne Utilities District
John Maciel	Tuolumne Utilities District
Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
Stephanie Suess	Tuolumne Me-Wuk Tribal Council
Jerry Cadagan	Tuolumne County Ratepayer
Gary Mello	Ratepayer/Taxpayer
Mark Drew	CalTrout/Inyo-Mono IRWMP

Tuolumne-Stanislaus Integrated Regional Water Management Planning Grant Committee (PGC) Meeting Summary for June 19, 2013

ACTION ITEMS:

1. K/J to provide TUD with the June meeting materials for upload to the website.
2. K/J to prepare reminder email requesting comments by July 22nd on draft IRWM Plan and attach adoption Power Point. The support letter and resolution are to be attached in Word format.
3. K/J to investigate possibility of using unspent planning grant funds to reimburse TUD for funds expended and not available through the local budget.
4. Mr. John Buckley to provide meadow photos to K/J.
5. FS to provide new contact for participation in the PGC.
6. JPA formation workshop to be held Wednesday, July 24th.
7. K/J to determine how to depict non-active members in the IRWMP.

HOMEWORK:

1. For those considering membership in the proposed JPA, review in advance of the July meeting any distributed materials in order to be prepared for discussion.
2. Review draft IRWMP (link on TUD website) and get comments to K/J no later than Monday, July 22nd.
3. Fill out any past due in-kind sheets, the in-kind sheet for June, and bring to the July meeting. Please keep track of and include those hours you spend on reviewing and commenting on the draft IRWM.

MEETING GOALS:

1. Present draft IRWM Plan
2. Discuss IRWM Plan adoption

****PRESENTATIONS AND MATERIALS WILL BE AVAILABLE ONLINE****
http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

SUMMARY

1. Opening Remarks:

Carolyn Lott, Facilitator, opened the meeting and asked for self-introductions. She reviewed the agenda and noted the primary purposes of the meeting as reviewing the draft IRWMP Executive Summary and discussing adoption of the IRWMP.

2. Approval of May Meeting Summary:

Ms. Lott said no corrections had been submitted on the summary. None were offered at the meeting.

Action: The meeting summary for the May 15, 2013 meeting was accepted by the PGC.

3. Presentation and Discussion of Draft IRWM Pan – Handout 1 and Confirmation of Plan review Committee Members:

Ms. Sachi Itagaki asked for comments on the draft plan prior to guiding members through the draft Executive Summary. A member said he had a question regarding inclusion of Rock Creek/Littlejohn's Creek within the T-Stan IRWMP boundaries. It was noted four landowners within the Salt Springs Valley Reservoir area formed Rock Creek Water District. It drains into the Farmington Flood Control Basin which is in San Joaquin County. The Rock Creek Water District is in Stanislaus County. The Northeastern San Joaquin County Groundwater Basin Authority did not include it in their IRWMP. Eastern Stanislaus did not want it in their IRWMP as the water source is in Calaveras County. Therefore, it was included in the T-Stan IRWMP.

A member noted the photo on page 6 of the Executive Summary (ES-6) is labeled as a meadow, but it is technically not a meadow. Mr. John Buckley offered to provide K/J with meadow photos from the IRWMP area. He also praised K/J for a well-written plan.

A member pointed to the first sentence in paragraph 3 on page ES-9 suggesting the sentence end with "Objectives of the Region." Another member suggested removing language referring to project scores. It was noted nothing precludes project proponents from advancing low scoring projects.

Ms. Itagaki asked if there were any key points missing. No one offered any for consideration. She asked that members review the draft plan, if they have not already done so, and get any comments to K/J as soon as possible, but no later than July 22nd.

Ms. Itagaki then walked the group through the draft IRWMP Executive Summary. The ES was sent electronically to members and interested parties, copies were available at the meeting, and a link to it and the full draft can be found at the TUD website address listed at the beginning of the meeting summary.

At the conclusion of the review of ES sections, Ms. Lott introduced the discussion of the Plan Review Committee. She indicated that of the original members Ms. Deb Romberger was retiring prior to the review period, Mr. Bob Dean no longer sits on the PGC, and the consultant was unsure about whether Mr. Tom Scesa and Mr. Daniel Richardson would still be available to serve in this role. Mr. Buckley and Mr. Tom Parrington continue to regularly attend meetings and it was confirmed they will continue as members of the subcommittee.

Ms. Itagaki said the purpose of the subcommittee will be to review any comments that come in from the public during the public review process. This can be done electronically by subcommittee members. The only reason for a face-to-face meeting will be if there are things the subcommittee believes would best be discussed in person and/or should be discussed for recommendation back to the PGC.

Mr. Buckley and Mr. Parrington agreed to remain on the subcommittee. Additional volunteers to the subcommittee included:
Mr. Tom Orvis
Mr. Ron Ringen
Someone to represent the county – will coordinate through the CAO's office and the Resource Conservation District
Ms. Stephanie Suess
Mr. Ted Allen (TUD)

4. Plan Adoption Discussion:
Ms. Itagaki walked the group through a Power Point developed by K/J for use/adaption by agencies wishing to provide a presentation to their governing bodies prior to consideration of adoption/support of the IRWM Plan. A number of comments were received from PGC members.

Ms. Romberger noted she had already provided a presentation to forest leadership regarding the IRWM Plan.

Mr. Evan Royce asked what would happen if an agency did not adopt the plan. It was noted it would exclude that agency from submitting for state funding for a project and from participating as a member of the JPA. Mr. Royce noted his concern was support for the plan might have legal consequences regarding compliance by the county. It was suggested the county get advice from their legal counsel regarding any legal implications of plan support/adoption.

Ms. Lott said agencies/organizations that wish to submit a letter of support/adoption of the IRWM Plan and do not have governing bodies, can have the letter signed by the person within the organization who has decision-making power.

A question was raised regarding non-active participants such as the Department of Fish and Wildlife, the National Park Service, Lake Don Pedro and the City of Sonora. It is unlikely letters of support/adoption will be issued by these agencies. Perhaps they should not be listed as active participants in the plan. K/J will consider how to depict these agencies within the context of the plan.

There was discussion about when individual boards would be likely to consider acting on support/adoption of the plan. Some entities thought it best to consider the plan after the public comment period and others did not seem to believe that was an issue. Mr. Pete Kampa offered his agency, and perhaps others, could attend board meetings if support from colleagues would be helpful.

A schedule for adoption was requested and K/J stated Round 2 project proponents must adopt the plan prior to execution of a contract if grant funds are awarded. As for others, while there is no drop-dead date, JPA members will have to adopt the plan and should do so earlier than later. There also will be no technical support from K/J after September 30th so perhaps that should be a target date.

Some concern was raised that boards considering adoption/support of the plan might focus on the project list and have concerns that supporting the plan means supporting all the projects in the plan. Ms. Lott pointed out presenters to boards should be sure their audiences understand inclusion of projects within the IRWM Plan does not mean those projects will necessarily move forward to implementation, or move forward in the current configuration. All of the traditional public processes must be utilized during consideration of any project. A member noted there are many projects within the plan that would have support across the board, and with limited funds, it will be an accomplishment just to get those projects implemented.

It was requested the sample resolution be sent out in Word.

5. Preparation for Post Plan Adoption – July JPA Formation Workshop
Ms. Lott reminded the group that K/J will not be attending the meeting scheduled for July 17th. She stated this timeframe will be used to finalize the public comment period and to provide K/J with an opportunity to organize said comments for the Plan Review Committee. Therefore there it is not anticipated there will be meeting content for the PGC in July.

Ms. Lott encouraged working towards a seamless transition between plan development and beginning of plan implementation activities. To help accommodate this transition, Ms. Lott said she and Ms. Lindsay Rosasco would be willing to organize a JPA formation workshop in place of the July PGC meeting. At this point, several ideas for the workshop include confirming agencies committed to participation in the JPA, agencies still exploring participation, reviewing sample JPA agreements, etc.

Ms. Rosasco shared information regarding DWR's desire that the group move forward with implementation activities. She said it is important the group demonstrate commitment to the process of transitioning from the PGC to the JPA, from a planning group to an implementation group.

A member cited a list of accomplishments of the PGC and shared the perspective that the PGC has made a good-faith effort to date. Other members shared similar opinions and cited accomplishments of the group.

A number of members spoke to the importance of the JPA workshop. A member asked if the workshop would be open to everyone. It was noted that while the focus is on JPA formation, the meeting is open to all.

There were comments that some think there has not been clear enough progress of the PGC or that more results should have been visible sooner. Ms. Lott suggested keeping things in perspective as not all areas have the same experience with regional processes and agencies' capacity differ from region-to-region. Moving forward with implementation will help build faith in the group's efforts. A member said a long-term commitment is needed. Ms. Lott added internal champions and leadership are critical to keep momentum going.

There was additional discussion regarding the proposed workshop. Because of schedule conflicts, it was agreed to postpone the date of the workshop by one week.

Action: Members agreed to a JPA workshop to be held on Wednesday, July 24th, from 9:00 a.m. – 12:00 p.m.

5. Next Steps:
See "Action Items" listed above.

5. Public Comment:
Ms. Lott asked for comments from the public. Mr. Kirk Ford thanked members for their hard work and said he was very pleased with their efforts and proud of the plan.

Ms. Ruanne Nixon said this was her first meeting, but believes the group is doing a good job in a difficult process. She agreed there has been no historic regional experience.

Ms. Deb Romberger said she has enjoyed working with the group and is looking forward to the results of implementation work.

Mr. Kampa noted the 2nd billing, per the Finance Agreement, is ready to be sent and needs to account for Calaveras County dropping out of the MOU. He said there are no remaining funds in the local budget as they were expended to fund work completed by Mr. John Mills. Ms. Itagaki said she would speak with DWR to determine whether dollars from the grant can be reallocated to cover the $10,360 that Calaveras County had originally committed to and now will not be paying.

Ms. Itagaki reminded the group to turn in their in-kind forms and be sure they are tracking their time reviewing the plan.

7. Meeting Recap:
Objectives were met and action items are listed above. Ms. Itagaki noted during the August meeting there will be a discussion regarding the action members are taking regarding the IRWMP.

Next Regular IRWM Meeting:
Wednesday, August 21, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

Special JPA Workshop
Wednesday, July 24, 2013
9:00 a.m. – 12:00 p.m.
Location: Tuolumne Utilities District, Sonora

MEETING ATTENDANCE

Members

Craig Case	Amador-Tuolumne Community Action Agency	Present
Shelly Hance	ATCAA/Alternate	
Jeffrey Meyer	Calaveras County Water District	Present
Dennis Dooley	CCWD/Alternate	
Tom Parrington	Central Sierra Audubon	Present
Tom Harrington	CSA/Alternate	
John Buckley	Central Sierra Environmental Resource Center	Present
Lindsey Myers	CSERC/Alternate	Present
David Myers	City of Angels Camp	Present
Garett Walker	CAC/Alternate	
Evan Royce	County of Tuolumne	Present
Karl Rodefer	TC/Alternate	
Daniel Richardson	TC/Alternate	
Aaron Randi	Groveland Community Services District	
Jennifer Flores	GCSD/Alternate	
Charise Reeves	Lake Don Pedro Community Services District	
Dan Tynan	LDPCSD/Alternate	
	Murphys Sanitary District	
Cindy Nugent	MSD/Alternate	Present
Ron Ringen	Tuolumne County Building Industry	Present
John Feriani	TCBI/Alternate	
Dana Mayo	Tuolumne County Business Council	Present
Ron Kopf	TCBC/Alternate	
Darrell Slocum	TCBC/Alternate	
Lindsay Rosasco	Tuolumne County Resource Conservation District	Present
Kirk Ford	TCRCD/Alternate	Present
Tom Orvis	Tuolumne County Farm Bureau	Present
Sasha Farkas	TCFM/Alternate	
Jon M. Sturtevant	Tuolumne Group Sierra Club	Present
Frank Oyung	TGSC/Alternate	
Patrick Koepele	Tuolumne River Trust	
Pete Kampa	Tuolumne Utilities District	Present
Tom Scesca	TUD/Alternate	
	Twain Harte Community Services District	
Robert Perry	THCSD/Alternate	
Larry L. Thompson	Union Public Utility District	

Bill Airola	UPUD/Alternate	
Tom Quincy	UPUD/Alternate	Present
Deb Romberger	U.S. Forest Service – Stanislaus National Forest	Present
Alex Janicki	USFS/Alternate	
Mitch Pyle	Utica Power Authority	
Vern Pyle	UPA/Alternate	

IRWM Plan Staff

Name	Organization	Attendance
Michelle Dooley	CA Department of Water Resources	
Carolyn Lott	Center for Collaborative Policy/Facilitator	Present
Sachi Itagaki	Kennedy/Jenks	Present
Sean Maguire	Kennedy/Jenks	

Other Interested Parties

Name	Organization
Ruann Mikkelsen	Sparq Environmental, Inc.
Jennifer Sorensen	Tuolumne Me-Wuk Tribal Council
Stephanie Suess	Tuolumne Me-Wuk Tribal Council
Ted Allen	Tuolumne Utilities District

Appendix B.2

Notice of Intent to Prepare and Adopt the IRWM Plan

Affidavit of Publication

STATE OF CALIFORNIA, COUNTY OF TUOLUMNE

I, **Gina-Maureen Hupp**, a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not party to or interested in the above-entitled matter. I am the principal clerk of the printer of

The Union Democrat

a daily newspaper of general circulation, printed and published in the City of Sonora, County of Tuolumne, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Tuolumne, State of California, under the date of March 21, 1952, case number 7594; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published and not in any supplement thereof on the following dates, to-wit:

Acct Name: NOTICE OF IN KENNEDY/JENKS CONSULTANTS
Legal Description: NOTICE OF INTENT OF THE TUOLUMNE-STANISLAUS REGIONAL WATER MANAGEMENT GROUP TO PREPARE AN INTEGRATENOTICE OF IN

01/30/2013

02/07/2013

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Sonora, California, this 7 day of February, 2013.

Signature

NOTICE OF INTENT OF THE TUOLUMNE-STANISLAUS REGIONAL WATER MANAGEMENT GROUP TO PREPARE AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Tuolumne-Stanislaus Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Tuolumne-Stanislaus Subregion of the Proposition 84 San Joaquin River Funding Area. The RWMG is an organization formed by twenty (20) water, land, and resource management agencies and organizations within the Region. The IRWM Plan is being developed to address regional water resources opportunities and challenges for the areas within the Upper Stanislaus, Upper Tuolumne and Upper Little Rock Creek/French Camp Slough watersheds.

Public participation and input from residents and other stakeholders has occurred for over 3 years and is further encouraged throughout the IRWM plan development process, which will be continuing through mid-2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Tuolumne-Stanislaus IRWM website: http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/

Questions regarding the IRWM planning process should be directed to the Offices of John S. Mills at (209) 5920-0432, or via e-mail to sixbit@sonnet.com.

Publication Dates: Jan. 30 & Feb. 7, 2013.
The Union Democrat, Sonora, CA 95370.

AFFIDAVIT OF PUBLICATION

Filed _____

By _____

From the Office of

Attorney for _____

No. _____

In the _____ Court of the

STATE OF CALIFORNIA
for the
COUNTY OF TUOLUMNE

Sonora, California

PUBLIC NOTICE **PUBLIC NOTICE**

NOTICE OF INTENT OF THE
TUOLUMNE-STANISLAUS
REGIONAL WATER MANAGEMENT GROUP
TO PREPARE AN INTEGRATED REGIONAL
WATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Tuolumne-Stanislaus Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Tuolumne-Stanislaus Subregion of the Proposition 84 San Joaquin River Funding Area. The RWMG is an organization formed by twenty (20) water, land, and resource management agencies and organizations within the Region. The IRWM Plan is being developed to address regional water resources opportunities and challenges for the areas within the Upper Stanislaus, Upper Tuolumne and Upper Little Rock Creek/French Camp Slough watersheds.

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Publication Dates: Jan. 30 & Feb. 7, 2013.
The Union Democrat, Sonora, CA 95370.

Public Notices

800 COUNTY LEGALS 800 COUNTY LEGALS 800 COUNTY LEGALS 800 COUNTY LEGALS 800 COUNTY LEGALS 800 COUNTY LEGALS

Public Notice

Calaveras County Department of Public Works is soliciting proposals for engineering and design services for the federally funded Arnold Rim Trail Cedar Center Bikeway Connection Project.

Proposals are due February 5, 2013, at 4:00 pm.

The County is seeking proposals from qualified firms with experience designing bikeway and pedestrian improvements to create final Plans, Specifications, and Estimates for a paved bicycle path between Oak Circle and Pine Drive across County and Forest Service land. The Project also includes a design for a trail that will connect the paved trail to the forest road that leads to the Arnold Rim Trail.

The Request for Proposals describing the Project, the services sought, the requirements of the proposals, and an outline of the criteria and process that will be used to evaluate the proposals and select a consultant for the work can be downloaded from the Calaveras County Public Works website at http://co.calaveras.ca.us/cc/departments/publicworks.aspx.

To request a hard copy of the Request for Proposals or if you have questions regarding this Project, contact Deborah Mullen, Public Works Analyst, at 209-754-6401 or dmullen@co.calaveras.ca.us.

The consultant's participation in the Disadvantaged Business Enterprise (DBE) program will be required. All consultants are hereby notified that the County will affirmatively ensure that DBEs will be afforded full opportunity to submit proposals in response to this invitation, and that proposers will not be discriminated against on the basis of race, religion, creed, medical condition, color, marital status, ancestry, age, national origin or physical or mental disability in consideration for an award.

Deliver or mail the required number of copies of your proposal to the Purchasing Agent, Calaveras County Administrative Office, 891 Mountain Ranch Road San Andreas, CA 95249, no later than 4:00 pm, February 5, 2013. The submittal deadline is final; late proposals will not be accepted.

Publish January 15, 18, 2013CE

NOTICE REGARDING SEIZURE OF PROPERTY AND INITIATION OF FORFEITURE PROCEEDINGS, HEALTH AND SAFETY CODE SECTION 11488.4

To: All persons claiming any right, title or legal interest in the following seized property: $517.31 Currency of the United States seized from 6047 S. Railroad Flat Road, Mountain Ranch, Calaveras County, California.

Notice is hereby given that the property described above was seized on February 6, 2012, from 6047 S. Railroad Flat Road, Mountain Ranch, Calaveras County, California, by Deputies from the Calaveras County Sheriff's Department for a violation of Health & Safety Code Section 11360.

On May 2, 2012, judicial forfeiture proceedings were commenced by the Calaveras County District Attorney in Action 12CV38309.

You have until thirty (30) days from the date of the first publication of this Notice to file a verified claim, unless you have received actual notice. The claim must state the nature and extent of any interest you hold in this property, must be verified, and must be filed with the Clerk of the Superior Court, Government Center, 891 Mountain Ranch Road, San Andreas, California 95249, or the property will be forfeited to the State. An endorsed copy of the claim must be served on the District Attorney, Government Center, 891 Mountain Ranch Road, San Andreas, California 95249, within thirty (30) days of the filing of your claim. Claim forms can be obtained from the Office of the Clerk of the Superior Court.

Dated: January 8, 2013
BARBARA M. YOOK,
District Attorney

by: Dana L. Pfeil
Deputy District Attorney
Publish: January 11, 18, 25, 2013CE

800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-019

The following person is doing business as Davenport's Avian Control, 8313 Sheep Ranch Rd., Mountain Ranch, CA 95246, Calaveras.

Mailing: PO Box 533, Mountain Ranch, CA 95246.

Josiah Victor Davenport, 8313 Sheep Ranch Rd., Mountain Ranch, CA 95246.

This business is conducted by an Individual.

The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: N/A

Signed: Josiah Victor Davenport.

This statement was filed with the County Clerk of Calaveras County on Jan. 16, 2013.

Madaline Krska, County Clerk, By: R. Glanville, Deputy.

Publish: January 22, 29, February 5, 12, 2013CE

Notice of Intent of the Tuolumne-Stanislaus Regional Water Management Group to Prepare an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that the Tuolumne-Stanislaus Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Tuolumne-Stanislaus Subregion of the Proposition 84 San Joaquin River Funding Area. The RWMG is an organization formed by twenty (20) water, land, and resource management agencies and organizations within the Region. The IRWM Plan is being developed to address regional water resources opportunities and challenges for the areas within the Upper Stanislaus, Upper Tuolumne and Upper Little Rock Creek/French Camp Slough watersheds.

Public participation and input from residents and other stakeholders has occurred for over 3 years and is further encouraged throughout the IRWM plan development process, which will be continuing through mid-2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Tuolumne-Stanislaus IRWM website: http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/.

Questions regarding the IRWM planning process should be directed to the Offices of John S. Mills at (209) 5320-0432, or via e-mail to sixbit@sonnet.com.

Publish: January 22, 29, 2013CE

Trustee Sale No. 23063CA Title Order No. 6663864 NOTICE OF TRUSTEE'S SALE YOU ARE IN DEFAULT UNDER A DEED OF TRUST DATED 09-20-2006. UNLESS YOU TAKE ACTION TO PROTECT YOUR PROPERTY, IT MAY BE SOLD AT A PUBLIC SALE. IF YOU NEED AN EXPLANATION OF THE NATURE OF THE PROCEEDINGS AGAINST YOU, YOU SHOULD CONTACT A LAWYER. On 02-13-2013 at 10:00 AM, MERIDIAN FORECLOSURE SERVICE f/k/a MTDS, INC., A CALIFORNIA CORPORATION DBA MERIDIAN TRUST DEED SERVICE as the duly appointed Trustee under and pursuant to Deed of Trust Recorded 10-02-2006, Book , Page , Instrument 2006-18824 of official records in the Office of the Recorder of CALAVERAS County, California, executed by: PAMELA BOLEWARE, AN UNMARRIED WOMAN as Trustor, MORTGAGE ELECTRONIC REGISTRATION SYSTEMS, INC., AS NOMINEE FOR HOME SAVINGS OF AMERICA, as Beneficiary, will sell at public auction sale to the highest bidder for cash, cashier's check drawn by a state or national bank, a cashier's check drawn by a state or federal credit union, or a cashier's check drawn by a state or federal savings and loan association, savings association, or savings bank specified in section 5102 of the Financial Code and authorized to do business in this state. Sale will be held by the duly appointed trustee as shown below, of all right, title, and interest conveyed to and now held by the trustee in the hereinafter described property under and pursuant to the Deed of Trust. The sale will be made, but without convenant or warranty, expressed or implied, regarding title, possesssion, or encumbrances, to pay the remaining principal sum of the notes (s) secured by the Deed of Trust, interest thereon, estimated fees, charges and expenses of the Trustee for the total amount (at the time of the initial publication of the Notice of Sale) reasonably estimated to be set forth below. The amount may be greater on the day of sale. Place of Sale: AT THE FRONT ENTRANCE TO THE JUDICIAL BUILDING OF THE CALAVERAS COUNTY GOVERNMENT CENTER, 891 MOUNTAIN RANCH RD., SAN ANDREAS, CA 95249 Legal Description: AS MORE FULLY DESCRIBED IN SAID DEED OF TRUST Amount of unpaid balance and other charges: $171,862.45 The street address and other common designation of the real property purported as: 237 POPE STREET, SAN ANDREAS, CA 95249 AKA 7 HOPE COURT, SAN ANDRES, CA 95249 APN Number: 042-024-024-000 NOTICE TO POTENTIAL BIDDERS: If you are considering bidding on this property lien, you should understand that there are risks involved in bidding at a trustee auction. You will be bidding on a lien, not the property itself. Placing the highest bid at trustee auction does not automatically entitle you to free and clear ownership of the property. You should also be aware that the lien being auctioned off may be a junior lien. If you are the highest bidder at the auction, you are or may be responsible for paying off all liens senior to the lien being auctioned off, before you can receive clear title to the property. You are encouraged to investigate the existence, priority, and size of outstanding liens that may exist on this property by contacting the county recorder's office or a title insurance company, either of which may charge you a fee for this information. If you consult either of these resources, you should be aware that the same lender may hold more than one mortgage or deed of trust on the property. NOTICE TO PROPERTY OWNER: The sale date shown on this notice may be postponed one or more times by the mortgagee, beneficiary, trustee, or a court, pursuant to Section 2924g of the California Civil Code. The law requires that information about trustee sale postponements be made available to you and to the public, as a courtesy to those not present at the sale. If you wish to learn whether your sale date has been postponed, and, if applicable, the rescheduled time and date for the sale of this property, you may call (714) 573-1965 or visit this Internet Web site www.Prioritypostingcom , using the file number assigned to this case 23063CA. Information about postponements that are very short in duration or that occur close in time to the scheduled sale may not immediately be reflected in the telephone information or on the Internet Web site. The best way to verify postponement information is to attend the scheduled sale. The undersigned Trustee disclaims any liability for any incorrectness of the street address and other common designation, if any, shown herein. The property heretofore described is being sold "as is". DATE: 01-17-2013 MERIDIAN FORECLOSURE SERVICE f/k/a MTDS, INC., A CALIFORNIA CORPORATION DBA MERIDIAN TRUST DEED SERVICE 3 SAN JOAQUIN PLAZA, SUITE 215, NEWPORT BEACH, CA 92660 Sales Line: (714) 573-1965 OR (702) 586-4500 JESSE J. FERNANDEZ, PUBLICATION LEAD MERIDIAN FORECLOSURE SERVICE IS ASSISTING THE BENEFICIARY TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE. P1015750 1/22, 1/29, 02/05/2013

Publish: January 22, 29, February 5, 2013CE

STATEMENT OF ABANDONMENT OF FICTITIOUS BUSINESS NAME STATEMENT
File No. 2010-252

The following person (persons) has abandoned the use of the fictitious business name Altaville Food & Liquor Market, 324 South Main St., Altaville, CA 95221.

The fictitious business referred to above was filed in County on August 20, 2010.

Harjit Singh Shergill, 443 Live Oak Dr., Angels Camp, CA 95221.

Angelina Kaur Shergill.

This business was conducted by Harjit Singh Shergill.

Signed: Harjit Singh Shergill.

This statement was filed with the County Clerk of Calaveras County on Jan. 9, 2013.

Madaline Krska, County Clerk, By: R. Glanville, Deputy.

Publish: January 22, 29, February 5, 12, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-010

The following person is doing business as Altaville Food and Liqour Market, 324 South Main St., Altaville, CA 95221, Calaveras.

Mailing: PO Box 370, Altaville, CA 95221.

Harjit Singh Shergill, 443 Live Oak Dr., Angels Camp, CA 95221.

This business is conducted by an Individual.

The registrant(s)has commenced to transact business under the fictitious business name(s) listed above on:

Signed: Harjit Singh Shergill.

This statement was filed with the County Clerk of Calaveras County on Jan. 9, 2013.

Madaline Krska, County Clerk, By: R. Glanville, Deputy.

Publish: January 22, 29, February 5, 12, 2013CE

Notice:
San Andreas Recreation & Park District Board of Director Position Open

to serve on the Board of Directors completing a vacant term ending December 2013. This is a volunteer non paid position.

The Board of Directors meet every 3rd Monday at 6:00pm at the San Andreas Town Hall.

If interested, please contact Donna at 754-0127 or email info@sanandreas-parks.org for an application.

Publish: January 11, 15, 18, 22, 25, 29, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2012-295

The following person is doing business as Saddle Creek Winery Society, 251 Rock Ridge Lane, Copperopolis, CA 95228, Calaveras.

Bob Watson, 251 Rock Ridge Lane, Copperopolis, CA 95228.

Dolores Baker, 177 Oak Wood Place, Copperopolis, CA 95228.

This business is conducted by an Unincorporated Association other than a Partnership.

The registrant (s) has commenced to transact business under the fictitious business name(s) listed above on: 1-2008

Signed: Dolores Baker.

This statement was filed with the County Clerk of Calaveras County on Dec. 20, 2012.

Madaline Krska, County Clerk, By: John Funk, Deputy.

Publish: January 15, 22, 29, February 5, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-009

The following person is doing business as Sequoia Screenprinting, 481B Hwy 4, Murphys, CA 95247, Calaveras.

506C Surrey Ct., Murphys, CA 95247.

Sandra Lynn Kraft, 506C Surrey Ct., Murphys, CA 95247.

This business is conducted by an Individual.

The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: 09/2003

Signed: Sandra Lynn Kraft.

This statement was filed with the County Clerk of Calaveras County on Jan. 08, 2013.

Madaline Krska, County Clerk, By: R. Glanville, Deputy.

Publish: January 15, 22, 29, February 5, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-009

The following person is doing business as Sequoia Screenprinting, 481B Hwy 4, Murphys, CA 95247, Calaveras.

PO Box 635, San Andreas, CA 95249.

Kathelen Mathre, 4052 Mt. Ranch, Rd., San Andreas, CA 95249.

Mark Mathre, 4052 Mt. Ranch Rd., San Andreas, CA 95249.

This business is conducted by a Husband and Wife.

The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: 10-1-07

Signed: Kathy Mathre.

This statement was filed with the County Clerk of Calaveras County on Jan. 07, 2013.

Madaline Krska, County Clerk, By: A. Goodman, Deputy.

Publish: January 15, 22, 29, February 5, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-007

The following person is doing business as SkoobyzzStuff, Skoobyzzstuff.com, 4052 Mt. Ranch Rd., San Andreas, CA 95249, Calaveras.

PO Box 635, San Andreas, CA 95249.

Kathelen Mathre, 4052 Mt. Ranch, Rd., San Andreas, CA 95249.

Mark Mathre, 4052 Mt. Ranch Rd., San Andreas, CA 95249.

This business is conducted by a Husband and Wife.

The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: 10-1-07

Signed: Kathy Mathre.

This statement was filed with the County Clerk of Calaveras County on Jan. 07, 2013.

Madaline Krska, County Clerk, By: A. Goodman, Deputy.

Publish: January 15, 22, 29, February 5, 2013CE

ADMINISTER ESTATE OF BEULAH GRACE MYERS , aka, Beulah Grace Myers, Beulah Myers, Beullah Meyers
Case # 13PR7439

To all heirs, beneficiaries, creditors, contingent creditors, and persons who may otherwise be interested in the will or estate, or both, of BEULAH GRACE MYERS, also known as Beulah Grace Myers, Beulah Myers, Beullah Meyers.

A PETITION FOR PROBATE has been filed by, HARRY DENNIS, in the Superior Court of California, San Andreas, County of Calaveras.

THE PETITION OF PROBATE requests that HARRY DENNIS, will be appointed as personal representative to administer the estate of the decedent.

THE PETITION request the decedent's will and codicils, if any, be admitted to probate. The will and any codicils are available for examination in the file kept by the court.

A HEARING on the petition will be held on February 19, 2013 at 10:00 a.m., Dept. 1, at the Superior Court of California, County of Calaveras, 891 Mountain Ranch Road, San Andreas, CA 95249.

IF YOU OBJECT to the granting of the petition, you should appear at the hearing and state your objections or file written objections with the court before the hearing. Your appearance may be in person or by your attorney.

IF YOU ARE A CREDITOR or a contingent creditor of the deceased, you must file your claim with the court and mail a copy to the personal representative appointed by the court within four months from the date of first issuance of letters as provided in Probate Code section 9100. The time for filing claims will not expire before four months from the hearing date noticed above.

YOU MAY EXAMINE the file kept by the court. If you are a person interested in the estate, you may file with the court a Request for Special Notice (form DE-154) of the filing of an inventory and appraisal of estate, assets or of any petition or account as provided in Probate Code section 1250. A Request for Special Notice form is available from the court clerk.

Filed on Jan 18, 2013, Calaveras County Courts,, Clerk of Court by Terri Coombs, Deputy.

Attorney for petitioner : Susan J. Hibbs, Law Office of Susan J. Hibbs, 596 Mountain Ranch Road, San Andreas, P.O. Box 920, Mountain Ranch, CA 95246. (209) 754-5291.

Publish: January 15, 22, 29, 2013CE

NOTICE OF TRUSTEE'S SALE File No. 7037.77848 Title Order No. 5507442 MIN No. 1000 85200628800916 APN 060-016-020-000 YOU ARE IN DEFAULT UNDER A DEED OF TRUST, DATED 02/06/08. UNLESS YOU TAKE ACTION TO PROTECT YOUR PROPERTY, IT MAY BE SOLD AT A PUBLIC SALE. IF YOU NEED AN EXPLANATION OF THE NATURE OF THE PROCEEDING AGAINST YOU, YOU SHOULD CONTACT A LAWYER. A public auction sale to the highest bidder for cash, cashier's check drawn on a state or national bank, check drawn by state or federal credit union, or a check drawn by a state or federal savings and loan association, or savings association, or savings bank specified in §5102 to the Financial code and authorized to do business in this state, will be held by duly appointed trustee. The sale will be made, but without covenant or warranty, expressed or implied, regarding title, possession, or encumbrances, to satisfy the obligation secured by said Deed of Trust. The undersigned Trustee disclaims any liability for any incorrectness of the property address or other common designation, if any, shown herein. Trustor(s): Robert G Payne & Melanie K. Payne, husband & wife as joint tenants Recorded: 02/19/08, as Instrument No. 2008 2119,of Official Records of CALAVERAS County, California. Date of Sale: 02/04/13 at 10:00 AM Place of Sale: At the main entrance to the Judicial Building, 891 Mountain Ranch Road, San Andreas, CA The purported property address is: 771 TUOLUMNE AVENUE, ANGELS CAMP, CA 95222 Assessors Parcel No. 060-016-020-000 The total amount of the unpaid balance of the obligation secured by the property to be sold and reasonable estimated costs, expenses and advances at the time of the initial publication of the Notice of Sale is $263,503.82. If the sale is set aside for any reason, the purchaser at the sale shall be entitled only to a return of the deposit paid, plus interest. The purchaser shall have no further recourse against the beneficiary, the Trustor or the trustee. NOTICE TO POTENTIAL BIDDERS: If you are considering bidding on this property lien, you should understand that there are risks involved in bidding at a trustee auction. You will be bidding on a lien, not on the property itself. Placing the highest bid at a trustee auction does not automatically entitle you to free and clear ownership of the property. You should also be aware that the lien being auctioned off may be a junior lien. If you are the highest bidder at the auction, you are or may be responsible for paying off all liens senior to the lien being auctioned off, before you can receive clear title to the property. You are encouraged to investigate the existence, priority and size of outstanding liens that may exist on this property by contacting the county recorder's office or a title insurance company, either of which may charge you a fee for this information. If you consult either of these resources, you should be aware that the same lender may hold more than one mortgage or deed of trust on the property. NOTICE TO PROPERTY OWNER: The sale date shown on this notice of sale may be postponed one or more times by the mortgagee, beneficiary, trustee, or a court, pursuant to Section 2924g of the California Civil Code. The law requires that information about trustee sale postponements be made available to you and to the public, as a courtesy to those not present at the sale. If you wish to learn whether your sale date has been postponed, and if applicable, the rescheduled time and date for the sale of this property, you may call 877-484-9942 or visit this Internet Web site www.USA-Foreclosure.com or www.Auction.com using the file number assigned to this case 7037.77848. Information about postponements that are very short in duration or that occur close in time to the scheduled sale may not immediately be reflected in the telephone information or on the Internet Web site. The best way to verify postponement information is to attend the scheduled sale. Date: January 9, 2013 NORTHWEST TRUSTEE SERVICES, INC., as Trustee Jeffrey Mosher, Authorized Signatory 1241 E. Dyer Road, Suite 250, Santa Ana, CA 92705 Sale Info website: www.USA-Foreclosure.com or www.Auction.com Automated Sales Line: 877-484-9942 Reinstatement and Pay-Off Requests: 866-387-NWTS THIS OFFICE IS ATTEMPTING TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE ORDER # 7037.77848: 01/15/2013,01/22/2013,01/29/2013

Publish: January 15, 22, 29, 2013CE

TSG No.: 7200672 TS No.: CA1200247355 FHA/VA/PMI No.: APN: 070-030-021-000 Property Address: 8985 REDMAN ROAD VALLEY SPRINGS,

Public Notices

800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS 800 LEGALS

RECONVEYANCE COMPANY as the duly appointed Trustee under and pursuant to Deed of Trust Recorded 11-30-2006, Book NA, Page NA, Instrument 2006-22979, of official records in the Office of the Recorder of CALAVERAS County, California, executed by: ROBERTA ROBERTSON MATTHEWS, A WIDOW AND CHARLENE STAGI, A MARRIED WOMAN AS HER SOLE AND SEPARATE PROPERTY, AS JOINT TENANTS, as Trustor, WASHINGTON MUTUAL BANK, FA, as Beneficiary, will sell at public auction sale to the highest bidder for cash, cashier's check drawn by a state or national bank, a cashier's check drawn by a state or federal credit union, or a cashier's check drawn by a state or federal savings and loan association, savings association, or savings bank specified in section 5102 of the Financial Code and authorized to do business in this state. Sale will be held by the duly appointed trustee as shown below, of all right, title, and interest conveyed to and now held by the trustee in the hereinafter described property under and pursuant to the Deed of Trust. The sale will be made, but without covenant or warranty, expressed or implied, regarding title, possession, or encumbrances, to pay the remaining principal sum of the note(s) secured by the Deed of Trust, interest thereon, estimated fees, charges and expenses of the Trustee for the total amount (at the time of the initial publication of the Notice of Sale) reasonably estimated to be set forth below. The amount may be greater on the day of sale. Place of Sale: The Metropolitan, 59 N. Main St., San Andreas, CA 95249 Legal Description: LOT 474, OF LA CONTENTA SUBDIVISION UNIT NUMBERS 2 AND 3 TRACT NUMBER 210, AS SET FORTH ON THE OFFICIAL MAP THEREOF, FILED FOR RECORD JUNE 23, 1970 IN BOOK 3 OF SUBDIVISION MAPS AT PAGE (S) 45, CALAVERAS COUNTY RECORDS. Amount of unpaid balance and other charges: $376,096.24 (estimated) Street address and other common designation of the real property: 579 SAINT ANDREWS RD VALLEY SPRINGS, CA 95252 APN Number: 074-021-004-000 The undersigned Trustee disclaims any liability for any incorrectness of the street address and other common designation, if any, shown herein. The property heretofore described is being sold "as is". In compliance with California Civil Code 2923.5(c) the mortgagee, trustee, beneficiary, or authorized agent declares: that it has contacted the borrower(s) to assess their financial situation and to explore options to avoid foreclosure; or that it has made efforts to contact the borrower(s) to assess their financial situation and to explore options to avoid foreclosure by one of the following methods: by telephone; by United States mail; either 1st class or certified; by overnight delivery; by personal delivery; by e-mail; by face to face meeting. DATE: 01-29-2013 CALIFORNIA RECONVEYANCE COMPANY, as Trustee MARIA MAYORGA, ASSISTANT SECRETARY California Reconveyance Company 9200 Oakdale Avenue Mail Stop: CA2-4379 Chatsworth, CA 91311 800-892-6902 For Sales Information: www.lpsasap.com or 1-714-730-2727 www.priorityposting.com or 1-714-573-1965 www.auction.com or 1-800-280-2832 NOTICE TO POTENTIAL BIDDERS: If you are considering bidding on this property lien, you should understand that there are risks involved in bidding at a trustee auction. You will be bidding on a lien, not on the property itself. Placing the highest bid at a trustee auction does not automatically entitle you to free and clear ownership of the property. You should also be aware that the lien being auctioned off may be a junior lien. If you are the highest bidder at the auction, you are or may be responsible for paying off all liens senior to the lien being auctioned off, before you can receive clear title to the property. You are encouraged to investigate the existence, priority, and size of outstanding liens that may exist on this property by contacting the county recorder's office or a title insurance company, either of which may charge you a fee for this information. If you consult either of these resources, you should be aware that the same lender may hold more than one mortgage or deed of trust on the property. NOTICE TO PROPERTY OWNER: The sale date shown on this notice of sale may be postponed one or more times by the mortgagee, beneficiary, trustee, or a court, pursuant to Section 2924g of the California Civil Code. The law requires that information about trustee sale postponements be made available to you and to the public, as a courtesy to those not present at the sale. If you wish to learn whether your sale date has been postponed, and, if applicable, the rescheduled time and date for the sale of this property, this information can be obtained from one of the following three companies: LPS Agency Sales and Posting at (714) 730-2727, or visit the Internet Web site www.lpsasap.com (Registration required to search for sale information) or Priority Posting and Publishing at (714) 573-1965 or visit the Internet Web site www.priorityposting.com (Click on the link for "Advanced Search" to search for sale information), or auction.com at 1-800-280-2832 or visit the Internet Web site www.auction.com, using the Trustee Sale No. shown above. Information about postponements that are very short in duration or that occur close in time to the scheduled sale may not immediately be reflected in the telephone information or on the Internet Web site. The best way to verify postponement information is to attend the scheduled sale. A-4352149 01/29/2013, 02/05/2013, 02/15/2013
Publish: January 29, February 5, 15, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-019
The following person is doing business as Davenport's Avian Control, 8313 Sheep Ranch Rd., Mountain Ranch, CA 95246, Calaveras.
Mailing: PO Box 533, Mountain Ranch, CA 95246.
Josiah Victor Davenport, 8313 Sheep Ranch Rd., Mountain Ranch, CA 95246.
This business is conducted by an Individual.
The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: N/A
Signed: Josiah Victor Davenport.
This statement was filed with the County Clerk of Calaveras County on Jan. 16, 2013.
Madaline Krska, County Clerk, By: R. Glanville, Deputy.
Publish: January 22, 29, February 5, 12, 2013CE

Notice of Intent of the Tuolumne-Stanislaus Regional Water Management Group to Prepare an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that the Tuolumne-Stanislaus Regional Water Management Group (RWMG) intends to prepare an Integrated Regional Water Management (IRWM) Plan for the Tuolumne-Stanislaus Subregion of the Proposition 84 San Joaquin River Funding Area. The RWMG is an organization formed by twenty (20) water, land, and resource management agencies and organizations within the Region. The IRWM Plan is being developed to address regional water resources opportunities and challenges for the areas within the Upper Stanislaus, Upper Tuolumne and Upper Little Rock Creek/French Camp Slough watersheds.

Public participation and input from residents and other stakeholders has occurred for over 3 years and is further encouraged throughout the IRWM plan development process, which will be continuing through mid-2013. Information related to development of the IRWM Plan and opportunities for public involvement is available at the Tuolumne-Stanislaus IRWM website: http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/.

Questions regarding the IRWM planning process should be directed to the Offices of John S. Mills at (209) 5320-0432, or via e-mail to sixbit@sonnet.com.
Publish: January 22, 29, 2013CE

Trustee Sale No. 23063CA Title Order No. 6663864 NOTICE OF TRUSTEE'S SALE YOU ARE IN DEFAULT UNDER A DEED OF TRUST DATED 09-20-2006. UNLESS YOU TAKE ACTION TO PROTECT YOUR PROPERTY, IT MAY BE SOLD AT A PUBLIC SALE. IF YOU NEED AN EXPLANATION OF THE NATURE OF THE PROCEEDINGS AGAINST YOU, YOU SHOULD CONTACT A LAWYER. On 02-13-2013 at 10:00 AM, MERIDIAN FORECLOSURE SERVICE f/k/a MTDS, INC., A CALIFORNIA CORPORATION DBA MERIDIAN TRUST DEED SERVICE as the duly appointed Trustee under and pursuant to Deed of Trust Recorded 10-02-2006, Book , Page , Instrument 2006-18824 of official records in the Office of the Recorder of CALAVERAS County, California, executed by: PAMELA BOLEWARE, AN UNMARRIED WOMAN as Trustor, MORTGAGE ELECTRONIC REGISTRATION SYSTEMS, INC., AS NOMINEE FOR HOME SAVINGS OF AMERICA, as Beneficiary, will sell at public auction sale to the highest bidder for cash, cashier's check drawn by a state or national bank, a cashier's check drawn by a state or federal credit union, or a cashier's check drawn by a state or federal savings and loan association, savings association, or savings bank specified in section 5102 of the Financial Code and authorized to do business in this state. Sale will be held by the duly appointed trustee as shown below, of all right, title, and interest conveyed to and now held by the trustee in the hereinafter described property under and pursuant to the Deed of Trust. The sale will be made, but without convenant or warranty, expressed or implied, regarding title, possesssion, or encumbrances, to pay the remaining principal sum of the notes (s) secured by the Deed of Trust, interest thereon, estimated fees, charges and expenses of the Trustee for the total amount (at the time of the initial publication of the Notice of Sale) reasonably estimated to be set forth below. The amount may be greater on the day of sale. Place of Sale: AT THE FRONT ENTRANCE TO THE JUDICIAL BUILDING OF THE CALAVERAS COUNTY GOVERNMENT CENTER, 891 MOUNTAIN RANCH RD., SAN ANDREAS, CA 95249 Legal Description: AS MORE FULLY DESCRIBED IN SAID DEED OF TRUST Amount of unpaid balance and other charges: $171,862.45 The street address and other common designation of the real property purported as: 237 POPE STREET, SAN ANDREAS, CA 95249 AKA 7 HOPE COURT, SAN ANDRES, CA 95249 APN Number: 042-024-024-000 NOTICE TO POTENTIAL BIDDERS: If you are considering bidding on this property lien, you should understand that there are risks involved in bidding at a trustee auction. You will be bidding on a lien, not the property itself. Placing the highest bid at trustee auction does not automatically entitle you to free and clear ownership of the property. You should also be aware that the lien being auctioned off may be a junior lien. If you are the highest bidder at the auction, you are or may be responsible for paying off all liens senior to the lien being auctioned off, before you can receive clear title to the property. You are encouraged to investigate the existence, priority, and size of outstanding liens that may exist on this property by contacting the county recorder's office or a title insurance company, either of which may charge you a fee for this information. If you consult either of these resources, you should be aware that the same lender may hold more than one mortgage or deed of trust on the property. NOTICE TO PROPERTY OWNER: The sale date shown on this notice may be postponed one or more times by the mortgagee, beneficiary, trustee, or a court, pursuant to Section 2924g of the California Civil Code. The law requires that information about trustee sale postponements be made available to you and to the public, as a courtesy to those not present at the sale. If you wish to learn whether your sale date has been postponed, and, if applicable, the rescheduled time and date for the sale of this property, you may call (714) 573-1965 or visit this Internet Web site www.Priorityposting.com , using the file number assigned to this case 23063CA. Information about postponements that are very short in duration or that occur close in time to the scheduled sale may not immediately be reflected in the telephone information or on the Internet Web site. The best way to verify postponement information is to attend the scheduled sale. The undersigned Trustee disclaims any liability for any incorrectness of the street address and other common designation, if any, shown herein. The property heretofore described is being sold "as is". DATE: 01-17-2013 MERIDIAN FORECLOSURE SERVICE f/k/a MTDS, INC., A CALIFORNIA CORPORATION DBA MERIDIAN TRUST DEED SERVICE 3 SAN JOAQUIN PLAZA, SUITE 215, NEWPORT BEACH, CA 92660 Sales Line: (714) 573-1965 OR (702) 586-4500 JESSE J. FERNANDEZ, PUBLICATION LEAD MERIDIAN FORECLOSURE SERVICE IS ASSISTING THE BENEFICIARY TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE. P1015750 1/22, 1/29, 02/05/2013
Publish: January 22, 29, February 5, 2013CE

STATEMENT OF ABANDONMENT OF FICTITIOUS BUSINESS NAME STATEMENT
File No. 2010-252
The following person (persons) has abandoned the use of the fictitious business name Altaville Food & Liquor Market, 324 South Main St., Altaville, CA 95221.
The fictitious business referred to above was filed in County on August 20, 2010.
Harjit Singh Shergill, 443 Live Oak Dr., Angels Camp, CA 95221.
Angelina Kaur Shergill.
This business was conducted by Harjit Singh Shergill.
Signed: Harjit Singh Shergill.
This statement was filed with the County Clerk of Calaveras County on Jan. 9, 2013.
Madaline Krska, County Clerk, By: R. Glanville, Deputy.
Publish: January 22, 29, February 5, 12, 2013CE

FICTIT IOUS BUSINESS NAME STATEMENT
File No. 2013-010
The following person is doing business as Altaville Food and Liqour Market, 324 South Main St., Altaville, CA 95221, Calaveras.
Mailing: PO Box 370, Altaville, CA 95221.
Harjit Singh Shergill, 443 Live Oak Dr., Angels Camp, CA 95221.
This business is conducted by an Individual.
The registrant(s)has commenced to transact business under the fictitious business name(s) listed above on:
Signed: Harjit Singh Shergill.
This statement was filed with the County Clerk of Calaveras County on Jan. 9, 2013.
Madaline Krska, County Clerk, By: R. Glanville, Deputy.
Publish: January 22, 29, February 5, 12, 2013CE

Notice:
San Andreas Recreation & Park District Board of Director Position Open

to serve on the Board of Directors completing a vacant term ending December 2013. This is a volunteer non paid position.

The Board of Directors meet every 3rd Monday at 6:00pm at the San Andreas Town Hall.

If interested, please contact Donna at 754-0127 or email info@sanandreas-parks.org for an application.
Publish: January 11, 15, 18, 22, 25, 29, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2012-295
The following person is doing business as Saddle Creek Winery Society, 251 Rock Ridge Lane, Copperopolis, CA 95228, Calaveras.
Bob Watson, 251 Rock Ridge Lane, Copperopolis, CA 95228.
Dolores Baker, 177 Oak Wood Place, Copperopolis, CA 95228.
This business is conducted by an Unincorporated Association other than a Partnership.
The registrant (s) has commenced to transact business under the fictitious business name(s) listed above on: 1-2008
Signed: Dolores Baker.
This statement was filed with the County Clerk of Calaveras County on Dec. 20, 2012.
Madaline Krska, County Clerk, By: John Funk, Deputy.
Publish: January 15, 22, 29, February 5, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-009
The following person is doing business as Sequoia Screenprinting, 481B Hwy 4, Murphys, CA 95247, Calaveras.
506C Surrey Ct., Murphys, CA 95247.
Sandra Lynn Kraft, 506C Surrey Ct., Murphys, CA 95247.
This business is conducted by an Individual.
The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: 09/2003
Signed: Sandra Lynn Kraft.
This statement was filed with the County Clerk of Calaveras County on Jan. 08, 2013.
Madaline Krska, County Clerk, By: R. Glanville, Deputy.
Publish: January 15, 22, 29, February 5, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-009
The following person is doing business as Sequoia Screenprinting, 481B Hwy 4, Murphys, CA 95247, Calaveras.
PO Box 635, San Andreas, CA 95249.
Kathelen Mathre, 4052 Mt. Ranch, Rd., San Andreas, CA 95249.
Mark Mathre, 4052 Mt. Ranch Rd., San Andreas, CA 95249.
This business is conducted by a Husband and Wife.
The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: 10-1-07
Signed: Kathy Mathre.
This statement was filed with the County Clerk of Calaveras County on Jan. 07, 2013.
Madaline Krska, County Clerk, By: A. Goodman, Deputy.
Publish: January 15, 22, 29, February 5, 2013CE

FICTITIOUS BUSINESS NAME STATEMENT
File No. 2013-007
The following person is doing business as SkoobyzzStuff, Skoobyzzstuff.com, 4052 Mt. Ranch Rd., San Andreas, CA 95249, Calaveras.
PO Box 635, San Andreas, CA 95249.
Kathelen Mathre, 4052 Mt. Ranch, Rd., San Andreas, CA 95249.
Mark Mathre, 4052 Mt. Ranch Rd., San Andreas, CA 95249.
This business is conducted by a Husband and Wife.
The registrant(s) has commenced to transact business under the fictitious business name(s) listed above on: 10-1-07
Signed: Kathy Mathre.
This statement was filed with the County Clerk of Calaveras County on Jan. 07, 2013.
Madaline Krska, County Clerk, By: A. Goodman, Deputy.
Publish: January 15, 22, 29, February 5, 2013CE

ADMINISTER ESTATE OF BEULAH GRACE MYERS , aka, Beulah Grace Myers, Beulah Myers, Beullah Meyers
Case # 13PR7439

To all heirs, beneficiaries, creditors, contingent creditors, and persons who may otherwise be interested in the will or estate, or both, of BEULAH GRACE MYERS, also known as Beulah Grace Myers, Beulah Myers, Beullah Meyers.
A PETITION FOR PROBATE has been filed by, HARRY DENNIS, in the Superior Court of California, San Andreas, County of Calaveras.
THE PETITION OF PROBATE requests that HARRY DENNIS, will be appointed as personal representative to administer the estate of the decedent.
THE PETITION request the decedent's will and codicils, if any, be admitted to probate. The will and any codicils are available for examination in the file kept by the court.
A HEARING on the petition will be held on February 19, 2013 at 10:00 a.m., Dept. 1, at the Superior Court of California, County of Calaveras, 891 Mountain Ranch Road, San Andreas, CA 95249.
IF YOU OBJECT to the granting of the petition, you should appear at the hearing and state your objections or file written objections with the court before the hearing. Your appearance may be in person or by your attorney.
IF YOU ARE A CREDITOR or a contingent creditor of the deceased, you must file your claim with the court and mail a copy to the personal representative appointed by the court within four months from the date of first issuance of letters as provided in Probate Code section 9100. The time for filing claims will not expire before four months from the hearing date noticed above.
YOU MAY EXAMINE the file kept by the court. If you are a person interested in the estate, you may file with the court a Request for Special Notice (form DE-154) of the filing of an inventory and appraisal of estate, assets or of any petition or account as provided in Probate Code section 1250. A Request for Special Notice form is available from the court clerk.
Filed on Jan 18, 2013, Calaveras County Courts,, Clerk of Court by Terri Coombs, Deputy.
Attorney for petitioner : Susan J. Hibbs, Law Office of Susan J. Hibbs, 596 Mountain Ranch Road, San Andreas, P.O. Box 920, Mountain Ranch, CA 95246. (209) 754-5291.
Publish: January 15, 22, 29, 2013CE

NOTICE OF TRUSTEE'S SALE File No. 7037.77848 Title Order No. 5507442 MIN No. 1000 8520062880091 6 APN 060-016-020-000 YOU ARE IN DEFAULT UNDER A DEED OF TRUST, DATED 02/06/08. UNLESS YOU TAKE ACTION TO PROTECT YOUR PROPERTY, IT MAY BE SOLD AT A PUBLIC SALE. IF YOU NEED AN EXPLANATION OF THE NATURE OF THE PROCEEDING AGAINST YOU, YOU SHOULD CONTACT A LAWYER. A public auction sale to the highest bidder for cash, cashier's check drawn on a state or national bank, check drawn by state or federal credit union, or a check drawn by a state or federal savings and loan association, or savings association, or savings bank specified in §5102 to the Financial code and authorized to do business in this state, will be held by duly appointed trustee. The sale will be made, but without covenant or warranty, expressed or implied, regarding title, possession, or encumbrances, to satisfy the obligation secured by said Deed of Trust. The undersigned Trustee disclaims any liability for any incorrectness of the property address or other common designation, if any, shown herein. Trustor(s): Robert G Payne & Melanie K. Payne, husband & wife as joint tenants Recorded: 02/19/08, as Instrument No. 2008 2119,of Official Records of CALAVERAS County, California. Date of Sale: 02/04/13 at 10:00 AM Place of Sale: At the main entrance to the Judicial Building, 891 Mountain Ranch Road, San Andreas, CA The purported property address is: 771 TUOLUMNE AVENUE, ANGELS CAMP, CA 95222 Assessors Parcel No. 060-016-020-000 The total amount of the unpaid balance of the obligation secured by the property to be sold and reasonable estimated costs, expenses and advances at the time of the initial publication of the Notice of Sale is $263,503.82. If the sale is set aside for any reason, the purchaser at the sale shall be entitled only to a return of the deposit paid, plus interest. The purchaser shall have no further recourse against the beneficiary, the Trustor or the trustee. NOTICE TO POTENTIAL BIDDERS: If you are considering bidding on this property lien, you should understand that there are risks involved in bidding at a trustee

Proof of Publication of

KENNEDY/JENKS CONSULTANTS
NOTICE OF INTENT

Notice of Intent of the Tuolumne-Stanislaus Regional Water Management Group to Adopt an Integrated Regional Water Management Plan

NOTICE IS HEREBY GIVEN that on 16 August 2013 the Tuolumne-Stanislaus Regional Water Management Group (RWMG) will release the Final Integrated Regional Water Management (IRWM) Plan for the Tuolumne-Stanislaus Subregion of the Proposition 84 San Joaquin River Funding Area available at http://www.tudwater.com/projects-development/integrated-regional-water-management-plan/. The Plan was developed to identify and address regional water resources opportunities and challenges for the areas within the Upper Stanislaus River, Upper Tuolumne River, and Little John's Creek watersheds.

The public review draft was released on 14 June 2013 and comments received by 6 August 2013 were incorporated into the final document. The final IRWM Plan will be considered for adoption or support by the RWMG member agencies in August, September and October 2013. Check the member agencies websites or contact them directly for specific information on the scheduled Plan adoption dates.

Other information related to development of the IRWM Plan including a list of the RWMG members and links to their websites is available at the Tuolumne-Stanislaus IRWM website (URL provided above).

Questions? Contact Carolyn Lott at (209) 402-2024 or carolyn-lott@sbcglobal.net
Publish: August 20, 27, 2013CE

(2015-5 C.C.P.)

This space is for the County Clerk's Filing Stamp

STATE OF CALIFORNIA,

County of Calaveras.

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years and not a pa rty to or interested in the above matter. I am the principal clerk of the printer of the Calaveras Enterprise, a newspaper of general circulation, printed semi-weekly, in the City of San Andreas, California, County of Calaveras, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court, of the County of Calaveras, State of California; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates; to-wit:

August20, 27, 2013

I certify (or declare) under penalty of perjury that the fore-going is true and correct.

Dated the 27th day of August 2013CE

Lisa Austin

Signature – Lisa Austin

CALAVERAS ENTERPRISE
15 North Main Street
P.O. Box 1197, San Andreas, CA 95249-1197
(209) 754-3862 - FAX (209) 754-1805

PROOF OF PUBLICATION

Affidavit of Publication

STATE OF CALIFORNIA, COUNTY OF TUOLUMNE

I, **Elizabeth J Boyd**, a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not party to or interested in the above-entitled matter. I am the principal clerk of the printer of

The Union Democrat

a daily newspaper of general circulation, printed and published in the City of Sonora, County of Tuolumne, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Tuolumne, State of California, under the date of March 21, 1952, case number 7594; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published and not in any supplement thereof on the following dates, to-wit:

Acct Name: Not. of Adop KENNEDY/JENKS CONSULTANTS
Legal Description: NOTICE OF INTENT OF THE TUOLUMNE-STANISLAUS REGIONAL WATER MANAGEMENT GROUP TO ADOPT AN INTEGRATED Not. of Adop

08/22/2013

08/29/2013

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Sonora, California, this 3 day of September, 2013. Elizabeth J. Boyd
Signature

NOTICE OF INTENT OF THE TUOLUMNE-STANISLAUS REGIONAL WATER MANAGEMENT GROUP TO ADOPT AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that on 16 August 2013 the Tuolumne-Stanislaus Regional Water Management Group (RWMG) will release the Final Integrated Regional Water Management (IRWM) Plan for the Tuolumne-Stanislaus Sub-region of the Proposition 84 San Joaquin River Funding Area available at http://www.twbwater.com/projects-development/integrated-regional-water-management-plan/ The Plan was developed to identify and address regional water resources opportunities and challenges for the areas within the Upper Stanislaus River, Upper Tuolumne River, and Little John's Creek watersheds.

The public review draft was released on 14 June 2013 and comments received by 6 August 2013 were incorporated into the final document. The final IRWM Plan will be considered for adoption or support by the RWMG member agencies in August, September and October 2013. Check the member agencies websites or contact them directly for specific information on the scheduled Plan adoption dates.

Other information related to development of the IRWM Plan including a list of the RWMG members and links to their websites is available at the Tuolumne-Stanislaus IRWM website (URL provided above).
Questions? Contact Carolyn Lott at (209) 402-2024 or carolynlott@sbcglobal.net

Publication Dates: August 22 & 29, 2013
The Union Democrat, Sonora, CA 95370

AFFIDAVIT OF PUBLICATION

Filed _____

By _____

From the Office of

Attorney for _____

No. _____

In the _____ Court of the

STATE OF CALIFORNIA
for the
COUNTY OF TUOLUMNE

Appendix B.3

Interregional Collaboration Letter

TUOLUMNE UTILITIES DISTRICT
18885 NUGGET BLVD • SONORA, CA 95370
(209) 532-5536 • Fax (209) 536-6485
www.tudwater.com

DIRECTORS
Barbara Balen
Robert M. Behee
Joseph Day, PhD
Ralph Retherford, MD
Delbert Rotelli

September 15, 2011

To: Yosemite-Mariposa Regional Water Management Group
Mokelumne-Amador-Calaveras Integrated Regional Water Management Program
Inyo-Mono Integrated Regional Water Management Program
East Stanislaus Integrated Regional Water Management Program

The Tuolumne-Stanislaus IRWM Program is now in the process of preparing an IRWM Plan. Part of that effort is to establish appropriate communications, cooperation and coordination with our neighboring regions. In acknowledgement of the common physical boundaries between the Tuolumne-Stanislaus IRWM region and it's neighboring regions to the south, north, east and west, we would like to establish the following interim communications protocol for coordination between the regions:

1. The regions agree that we will send e-mail notices of IRWM meetings, copies of appropriate agenda materials, and minutes of meetings to the Lead Agency and any other stakeholders of the other RWMG who so request such information from the Tuolumne-Stanislaus IRWM Program.

2. If there are common interests that are identified through the course of Plan development we will consider a more formal process for communications relative to those interests.

If you are in agreement, please confirm this by e-mail or in writing. Please email materials to the following individuals.

Pete Kampa, pkampa@tuolumneutilities.com

Melissa McMullen, melissam@tuolumneutilities.com

John S. Mills, sixbit@sonnet.com

Sincerely,

Pete Kampa, General Manager Tuolumne Utilities District
For the Tuolumne-Stanislaus IRWM Program

Appendix C

Technical Analysis

Appendix C: Technical Analyses

Technical information is used throughout the Tuolumne-Stanislaus IRWM Plan to describe and develop a better understanding of the water-related needs, conflicts, opportunities, and challenges of the Region. The process of developing an integrated regional water management plan (IRWM Plan) requires drawing and synthesizing technical data from many other plans, studies and data previously prepared by stakeholders. This Appendix is intended to provide a brief overview of the technical information that was used to formulate the diversity and broad array of water resources challenges that are incorporated throughout the IRWM Plan. The technical content and descriptions of the T-S Region are included in Sections 2, 3 and 4 of the Plan. This technical analyses appendix includes a description of the data sources and analyses that were used to prepare the IRWM Plan, as well as provides supplementary information to these sections and a limited discussion of additional information that could be obtained to help refine the Plan in the future.

This plan was developed after compiling over 160 different water resources and land use planning reports, studies, and data sets that cover issues directly within the Region. While only a portion of the reports were directly referenced in the plan, the library of information has been compiled and will be made available for future updates to fill various information needs. The list of references compiled for the plan development is provided at the end of this appendix.

C.1 Population and Demographics

Population projections for the IRWM Plan were developed using the 2010 U.S. Census data as described in Section 2. Large residential development proposals in recent years in certain areas within Calaveras County, and to a lesser extent Tuolumne County, could, if approved, potentially affect population growth patterns within the T-S Region. The areas with the greatest projected growth within the Region are the areas of Copper Cove/Copperopolis, located in the southern portion of Calaveras County, and Sonora in Tuolumne County. These growth areas and other potential areas may need to be taken into account when population projections are reevaluated in future IRWM Plan updates.

Demographic information for the T-S Region shown in Section 2 was obtained from the American Community Survey data for the period of 2006-2010. This data includes information regarding median household income (MHI) for each county. MHI data for specific areas of the Region may be required for determination of disadvantaged community (DAC) status for a number of the proposed projects included in the IRWM Plan. Communities known to be DACs within the Region include Angels Camp, Arnold, Murphys, Twain Harte as well as portions of Sonora, and Groveland and unincorporated areas.

C.2 Land Use and Water Management Plans

Numerous plans and studies related to water resources and land use management in the T-S Region have been reviewed to support the development of this IRWM Plan. The T-S IRWM Plan contains information from local planning efforts that have occurred throughout the Region and is consistent with and supports locally-led planning and implementation of integrated water management. Several of the general plans are considerably out of date, or were in the process of being updated at the time this IRWM Plan was completed. Therefore, current and updated land use management plans will help better inform future iterations of this plan.

Table C-1 provides a summary of local land use planning documents developed by the jurisdictional agencies in the Region.

Table C-1: Land Use Planning Documents

Plan Category/Agency	Document Title	Year Adopted/Updated	Update Frequency
General Plans			
Tuolumne County	General Plan	1996, currently under revision	As needed
Calaveras County	General Plan	1996, currently under revision	As needed
Oak Canyon Ranch	Community Plans		As needed
Murphys/Douglas Flat			
Arnold			
Avery/Hathaway Pines			
Alpine County	General Plan	February 2009	As needed
City of Sonora	2020 General Plan	2007	As needed
City of Angels	2020 General Plan	February 2009	As needed
Forest Management Plans			
Stanislaus National Forest	Forest Plan Direction	2010	Every 10-15 years
	Tuolumne Wild and Scenic River Management Plan	April 2002	As needed
	Fire Management Plan	2005	Every 10-15 years
California State Parks	Calaveras Big Trees State Park General Plan	1989	As needed
Yosemite National Park	General Management Plan	September 1980	As needed

Water supplies and uses in the T-S Region were evaluated to determine existing water supply conditions and potential future water supply needs. Primary sources of data were local water purveyor records and reports as presented in Section 2. Due to a lack of available data, quantifiable supply projections were not available for many of the smaller community water systems such as Lake Don Pedro CSD, or private domestic groundwater users in the T-S Region. Table C-2 provides a summary of local water planning documents developed by the municipalities and jurisdictional authorities in the Region.

Water use in the T-S Region includes local municipal uses for residential, some industrial and commercial enterprises in addition to agricultural use, hydro power generation, the maintenance of minimum flow releases to meet downstream ecosystem needs, and major water exports by senior water rights holders. The water demands analysis is described in Section 2. Primary sources of data were local water purveyor records and reports.

Table C-2: Local Water Management Plans

Plan Category/Agency	Document Title	Year Adopted/Updated	Update Frequency
Urban Water Management Plans			
Tuolumne Utilities District (TUD)	2010 Urban Water Management Plan	2011	Every 5 years
Calaveras County Water District (CCWD)	2010 Urban Water Management Plan	2011	Every 5 years
Groveland Community Services District (GCSD)	2010 Urban Water Management Plan	Under Development	Every 5 years
Municipal Service Reviews (MSR)			
Tuolumne County LAFCO	MSR for the TUD	2007	In conjunction with update of a SOI
	MSR for the Twain Harte CSD	2007	
	MSR for the GCSD	2007	
	MSR for the Leland Meadows WD	2006	
Calaveras County LAFCO	Calaveras County Water and Wastewater MSR	2011	
Water and Wastewater Master/System Plans			
City of Angels	Water Master Plan	Under development (July 2012)	As needed
City of Angels/CCWD/TUD/ UPUD	Water Sanitary Survey Update – Stanislaus River Watershed	2006	As needed
CCWD	Sewer System Management Plan	2010	As needed
TUD	Treated Water System Optimization Plan	Under development (July 2012)	As needed
	Ditch System Sustainability Project – Case Study	February 2012	As needed
	Small Communities Wastewater Grant Planning Documents		As needed
UPUD	Water Master Plan	2004	As needed
GCSD	Water Master Plan	2001	As needed
	Wastewater Master Plan	2001	As needed
County-Based Water Management Documents/Ordinances			
County of Tuolumne	Water Quality Plan	2007	As needed
	Wastewater Ordinance	February 2010	As needed
Water Supply Assessments			
	Multiple – Prepared as developments are proposed. – per the requirements of SB610/221		As needed
Stormwater Management			
Calaveras County	Stormwater Management Plan	2007 (Draft)	As needed
Emergency Response, Disaster Plans			
Tuolumne County	Multi-Jurisdiction Hazard Mitigation Plan	October 2004	As needed
Groundwater Management Plans			
Camanche/Valley Springs (CCWD)	2007 Groundwater Management Plan Update	2007	As needed

Although the majority of the existing population is served by surface water, approximately 25-30% are served by groundwater. The lack of groundwater availability and quality data has been identified as an issue contributing to a lack of understanding regarding the reliability of these

resources. In the past, wells have gone dry and had to either be deepened or relocated to maintain supply needs during significantly dry years and droughts. Existing groundwater wells may be subject to decreasing reliability related to the potentially longer and more intense drought periods within the Region under climate change. There is a need to improve the understanding of the Regional groundwater resources in order to better assess the overall reliability of local water supplies and enhance water resources management and planning.

In addition to the groundwater in fractured bedrock, there is a small area in the northwestern corner of the Region that is within the Eastern San Joaquin Groundwater subbasin, a portion of the larger San Joaquin Groundwater Basin (as identified in Department of Water Resources Bulletin 118-80), which has been determined to be in an overdraft condition. CCWD has prepared a number of groundwater studies including a 2007 Groundwater Management Plan update for the Camanche/Valley Springs area which includes a small portion of the Region around the community of Milton. However, there are no wells in the T-S Region portion of the Camanche/Valley Springs area and therefore limited data are available.

Additional Information Needs

- Water supply projections for smaller communities, such as Lake Don Pedro CSD.
- Water demand analyses in this IRWM Plan focus strongly on consumptive uses within the T-S Region. Quantitative information has been provided based on data available from UWMPs and population data.
- Hydroelectric power generation facilities are a significant user of water in the T-S Region, however, hydroelectric generation is “non-consumptive”, in that water used is generally returned to the natural water system downstream of the power production facilities or into ditches for downstream consumptive uses.
- Flows and water quality needed to support sustainable fisheries and ecosystems. With the significant number of reservoirs and diversions in the T-S Region, it is essential to maintain minimum flow releases from the reservoirs to support aquatic species both in the watershed as well as downstream in the San Joaquin River and the Sacramento-San Joaquin Delta. FERC hydropower licenses for the projects on the Upper Tuolumne and Stanislaus Rivers include requirements for maintaining minimum in-stream flows to provide protection for downstream fisheries and other aquatic species. Conditions including temperature, turbidity, and minimum flow often must be satisfied to ensure the releases are protective of the affected ecosystems.
- Water demands for hydroelectric power generation and instream flow requirements were not evaluated quantitatively in this IRWM Plan. Future data collection and analyses could be conducted to provide additional details on the quantitative extent of these uses to improve understanding on potential impacts to other water demands and other Regional factors.
- Quantification of climate change-related variability in snowpack that can affect water supply, and, therefore, may require potential operational adjustments, including changes in timing and availability of water releases. These modifications could impact the availability of municipal supplies as well as hydropower storage facility operations.

- Water supplies and uses will need to be reassessed during future updates. Detailed analyses were not done on water exports and consumptive uses outside of the Region. However, during future updates, it may be beneficial to obtain additional details on water exports and water use projections outside of the Region in order to better integrate this information with water use data within the Region. The additional analysis may help improve the understanding of the overall interactions of water demands within and outside of the Region and may enhance the ability to effectively plan and assess needs within the T-S Region.

C.3 Environmental Resources

The Region Description (Section 2) of the IRWM Plan presents a sampling of wildlife and plant species, including endangered, threatened or species of concerns, that occur or have been known to historically occur in the Region. This information was compiled from the following sources:

1. Draft Environmental Impact Statement (EIS) for Hydropower Licenses Stanislaus River Projects
2. Clavey River Watershed Assessment
3. New Melones Lake Area Final Resource Water Management Plan (RWMP)/EIS
4. California Natural Diversity Database Species List for Counties of Tuolumne, Calaveras, Alpine

Table C-3 and Table C-4 provide a listing of special status wildlife and plan species, respectively that occur or may occur in the Region. Table C-5 and Table C-6 provide a list of other notable species in the Region.

Table C-3: Special Status Wildlife Species that Occur or May Occur in the Region

Scientific Name	**Common Name**	**NOTES**
Accipiter gentilis	Northern goshawk	FSS, FSC, CSC, MIS
Actinemys marmorata	Western pond turtle	FSS, FSC, CSC
Agelaius tricolor	Tricolored blackbird	CSC
Ambystoma californiense	California tiger salamander	FT
Anaxyrus canorus	Yosemite toad	FSS, FPT, FSC, CSC
Anodonta californiensis	California floater	FSC, IS
Antrozous pallidus	Pallid bat	FSS, CSC
Aplodontia rufa californica	Sierra Nevada mountain beaver	CSC
Asio flammeus	Short-eared owl	CSC
Asio otus	Long-eared owl	CSC
Athene cunicularia	Burrowing owl	CSC
Batrachoseps relictus	Relictual slender salamander	CSC
Branchinecta lynchi	vernal pool fairy shrimp	FT
Bucephala islandica	Barrow's goldeneye	CSC
Buteo swainsoni	Swainson's hawk	CT
Chaetura vauxi	Vaux's swift	CSC
Charadrius montanus	Mountain plover	CSC
Chlidonias niger	Black tern	CSC
Circus cyaneus	Northern harrier	CSC
Contopus borealis	Olive-sided flycatcher	CSC
Corynorhinus townsendii	Townsend's big-eared bat	FSS, FSC, CSC
Cypseloides niger	Black swift	CSC

Scientific Name	Common Name	NOTES
Dendroica petechia brewsteri	Yellow warbler	CSC
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT(proposed to be removed)
Dryocopus pileatus	Pileated woodpecker	MIS
Empidonax traillii	Willow flycatcher	FSS, FSC, CE, MIS
Euderma maculatum	Spotted bat	CSC
Eumops perotis	Western mastiff bat	FSC, CSC, FSV
Gavia immer	Common loon	CSC
Gulo gulo	California wolverine	FSS, FSC, CT
Haliaeetus leucocephalus	Bald eagle	FSS, FT, CE, MIS
Histrionicus histrionicus	Harlequin duck	FSC, CSC
Hydromanes platycephalus	Mount Lyell salamander	CSC
Hydromantes brunus	Limestone salamander	FSS, CT
Icteria virens	Yellow-breasted chat	CSC
Lanius ludovicianus	Loggerhead shrike	FE
Lasionycteris noctivagans	Silver-haired bat	FSV
Lasiurus blossevillii	Western red bat	FSS (proposed to be removed), CSC
Lasiurus cinereus	Hoary bat	FSV
Lavinia symmetricus ssp. 1	San Joaquin roach	CSC
Lavinia symmetricus ssp. 3	Red Hills roach	CSC
Lepidurus packardi	Vernal pool tadpole shrimp	FE
Lepus americanus tahoensis	Sierra Nevada snowshoe hare	CSC
Lepus townsendii townsendii	Western white-tailed jackrabbit	CSC
Margaritifera falcate	Freshwater pearlshell mussel	FSS (proposed to be added)
Martes Americana	American marten	FSS
Martes pennanti pacifica	Pacific fisher	FSS, CSC
Mylopharodon conocephalus	Hardhead	FSS, CSC
Myotis thysanodes	Fringed myotis	FSS (proposed to be added)
Oncorhynchus clarkii henshawi	Lahontan cutthroat trout	ESA Threatened, MIS
Oncorhynchus clarkii seleniris	Paiute cutthroat trout	East side species – does not occur on Stanislaus NF
Oncorhynchus mykiss	Steelhead trout	FE
Oncorhynchus tshawytscha	Chinook salmon	FE
Oreortyx picta	Mountain quail	MIS
Pandion haliaetus	Osprey	CSC
Phrynosoma blainvillii	Coast horned lizard	CSC
Progne subis	Purple martin	CSC
Rana aurora draytonii	California red-legged frog	FT, CSC
Rana boylii	Foothill yellow-legged frog	FSS, FSC, CSC
Rana sierra	Sierra Nevada yellow-legged frog	FSS – ESA proposed endangered, CSC
Riparia riparia	Bank swallow	CT, FSV
Sorex lyelli	Mount Lyell shrew	CSC
Spea hammondii	Western spadefoot	CSC
Strix nebulosa	Great gray owl	CE, FSS, IS
Strix occidentalis occidentalis	California spotted owl	FSS, FSC, CSC, MIS
Stygobromus harai	Hara's Cave amphipod	FSC, IS
Taxidea taxus	American badger	CSC
Ursus americanus	Black bear	MIS
Vulpes vulpes necator	Sierra Nevada red fox	FSS, CT, FSC

Table C-4: Other Notable Wildlife Species That Occur or May Occur in Region

Scientific Name	Common Name
Accipiter cooperii	Cooper's hawk
Accipiter striatus	Sharp-shinned hawk
Ammonitella yatesii	Tight coin (Yates' snail)
Aphrastochthonius grubbsi	Grubbs' Cave pseudoscorpion
Aquila chrysaetos	Golden eagle
Baeolophus inornatus	Oak titmouse
Banksula martinorum	Martins' cave harvestman
Banksula melones	Melones Cave harvestman
Banksula Tuolumne	Tuolumne cave harvestman
Banksula Tutankhamen	King Tut Cave harvestman
Big Tree Forest	Big Tree Forest
Buteo regalis	Ferruginous hawk
Catharus ustulatus	Swainson’s thrush
Columba fasciata	Band-tailed pigeon
Dipodomys heermanni dixoni	Merced kangaroo rat
Eremophila alpestris actia	California horned lark
Euphydryas editha monoensis	Mono checkerspot butterfly
Falco columbarius	Merlin
Falco mexicanus	Prairie falcon
Falco peregrinus anatum	American peregrine falcon
Hydroporus leechi	Leech's skyline diving beetle
Larca laceyi	Lacey's Cave pseudoscorpion
Larus californicus	California gull
Martes americana sierrae	Sierra marten
Monadenia circumcarinata	Keeled sideband
Monadenia mormonum buttoni	Button's Sierra sideband
Monadenia mormonum hirsuta	Hirsute Sierra sideband
Monadenia tuolumneana	Tuolumne sideband
Myotis ciliolabrum	Western small-footed myotis
Myotis evotis	Long-eared myotis
Myotis volans	Long-legged myotis
Myotis yumanensis	Yuma myotis
Numenius americanus	Long-billed curlew
Ochotona princeps schisticeps	Gray-headed pika
Peltigera hydrothyria	Aquatic felt lichen
Perognathus inornatus inornatus	San Joaquin pocket mouse
Phalacrocorax auritus	Double-crested cormorant
Pseudogarypus orpheus	Music Hall Cave pseudoscorpion
Punctum hannai	Trinity Spot
Speyeria nokomis carsonensis	Carson Valley silverspot
Sterna forsteri	Forster’s tern
Stygobromus gradyi	Grady's Cave amphipod
Tamias speciosus	Lodgepole chipmunk

Table C-5: Special Status Plant Species That Occur or May Occur in the Region

Scientific Name	Common Name	NOTES
Agrostis hendersonii	Henderson's bent grass	CNPS-3.2

Scientific Name	Common Name	NOTES
Agrostis humilis	Mountain bent grass	CNPS-2.3
Allium jepsonii	Jepson's onion	FSS – not known on STF, CNPS-1B.2
Allium tribracteatum	Three-bracted onion	FSS, CNPS-1B.2
Allium tuolumnense	Rawhide Hill onion	CNPS-1B.2
Allium yosemitense	Yosemite onion	FSS, CNPS-1B.3
Antennaria pulchella	Beautiful pussy-toes	CNPS-4.3
Arctostaphylos myrtifolia	Ione manzanita	FT, CNPS-1B.2
Arctostaphylos nissenana	Nissenan manzanita	FSS – not known on STF, CNPS-1B.2
Balsamorhiza macrolepis var. macrolepis	Big-scale balsamroot	FSS, CNPS-1B.2
Boechera evadens	Hidden rock cress	FSS (proposed to be added), CNPS-1B.3
Boechera microphylla	Small-leaved rock cress	CNPS-3
Bolandra californica	Sierra bolandra	FSW, CNPS-4
Botrychium ascendens	Upswept moonwort	FSS, CNPS-2.3
Botrychium crenulatum	Scalloped moonwort	FSS, CNPS-2.2
Botrychium lineare	Slender moonwort	FSS, CNPS-1B.3
Botrychium lunaria	Common moonwort	FSS – not known on STF, CNPS-2.3
Botrychium minganense	Mingan moonwort	FSS, CNPS-2.2
Botrychium montanum	Western goblin	FSS, CNPS-2.1
Botrychium pedunculosum	Stalked moonwort	FSS (proposed to be added), CNPS-2.1
Botrychium pinnatum	Northwestern moonwort	FSS, CNPS-2.3
Botrychium tunux	Moosewort	FSS – not known on STF, CNPS-2.1
Botrychium yaaxudakeit	Giant moonwort	FSS – not known on STF, CNPS-2.1
Brasenia schreberi	Watershield	CNPS-2.3
Brodiaea pallida	Chinese Camp brodiaea	FTCE, CNPS-1B.1
Bruchia bolanderi	Bolander's bruchia	FSS, CNPS-2.2
Bulbostylis capillaris	Thread-leaved beakseed	CNPS-4.2
Calochortus clavatus var. avius	Pleasant Valley mariposa-lily	FSS, CNPS-1B.2
Calycadenia hooveri	Hoover's calycadenia	CNPS-1B.3
Carex buxbaumii	Buxbaum's sedge	CNPS-4.2
Carex congdonii	Congdon's sedge	CNPS—4.3
Carex davyi	Davy's sedge	CNPS-1B.3
Carex incurviformis var. danaensis	Mount Dana sedge	CNPS-4.3
Carex limosa	Mud sedge	CNPS-2.2
Carex petasata	Liddon's sedge	CNPS-2.3
Carex praticola	Northern meadow sedge	CNPS-2.2
Carex scirpoidea ssp. pseudoscirpoidea	Western single-spiked sedge	CNPS-2.2
Carex tahoensis	Tahoe sedge	CNPS-4.3
Carex tompkinsii	Tompkins' sedge	CNPS-4.3
Carex vallicola	Western valley sedge	CNPS-2.3
Carex viridula var. viridula	Green yellow sedge	CNPS-2.3
Ceanothus fresnensis	Fresno ceanothus	CNPS-4.3
Chaenactis douglasii var. alpina	Alpine dusty maidens	CNPS-2.3
Chlorogalum grandiflorum	Red Hills soaproot	CNPS-1B.2
Clarkia australis	Small's southern clarkia	FSS, CNPS-1B.2
Clarkia biloba ssp brandegeae	Brandegee's clarkia	CNPS-1B.2

Scientific Name	Common Name	NOTES
Clarkia biloba ssp. australis	Mariposa clarkia	FSS, CNPS-1B.2
Clarkia lingulata	Merced clarkia	FSS – not known on STF, CNPS-1B.1
Clarkia rostrata	Beaked clarkia	CNPS-1B.3
Clarkia virgata	Sierra clarkia	CNPS-4.3
Claytonia megarhiza	Fell-fields claytonia	CNPS-2.3
Claytonia umbellata	Great Basin claytonia	CNPS-2.3
Crepis runcinata ssp. hallii	Hall's meadow hawksbeard	CNPS-2.1
Cryptantha crymophila	Subalpine cryptantha	CNPS-1B.3
Cryptantha glomeriflora	Clustered-flower cryptantha	CNPS-4.3
Cryptantha mariposae	Mariposa cryptantha	CNPS-1B.3
Cypripedium montanum	Mountain lady's-slipper	FSS, CNPS-4.2
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	CNPS-4.2
Didymodon norrisii	Norris' beard moss	CNPS-2.2
Draba asterophora var. asterophora	Tahoe draba	FSS, CNPS-1B.2
Draba praealta	Tall draba	CNPS-2.3
Drosera anglica	English sundew	CNPS-2.3
Elymus scribneri	Scribner's wheat grass	CNPS-2.3
Epilobium howellii	Subalpine fireweed/Yuba Pass willowherb	FSS (proposed to be removed), CNPS-4.3
Eriogonum luteolum var. saltuarium	Jack's wild buckwheat	FSS, CNPS-1B.2
Eriogonum microthecum var. alpinum	Northern limestone buckwheat	CNPS-4.3
Eriogonum ovalifolium var. eximium	Brown-margined buckwheat	CNPS-4.3
Eriogonum tripodum	Tripod buckwheat	CNPS-4.3
Eriophorum gracile	Slender cottongrass	CNPS-4.3
Eriophyllum confertiflorum var. tanacetiflorum	Tansy-flowered woolly sunflower	CNPS-4.3
Eriophyllum congdonii	Congdon’s woolly sunflower	FSS, CNPS-1B.2
Eriophyllum nubigenum	Yosemite woolly sunflower	FSS, CNPS-1B.3
Eryngium pinnatisectum	Tuolumne button-celery	CNPS-1B.2
Eryngium racemosum	Delta button-celery	CNPS-1B.1
Eryngium spinocephalum	Spiny-sepaled button-celery	CNPS-1B.2
Erythronium taylorii	Pilot Ridge fawn lily	FSS, CNPS-1B.2
Erythronium tuolumnense	Tuolumne fawn lily	FSS, CNPS-1B.2
Festuca minutiflora	Small-flowered fescue	CNPS-2.3
Fissidens aphelotaxipholius	Brook pocket moss	FSS – not known on STF, CNPS-2.2
Fritillaria agrestis	Stinkbells	CNPS-4.2
Fritillaria pinetorum	Pine fritillary	CNPS-4.3
Githopsis pulchella ssp. serpenticola	Serpentine bluecup	CNPS-4.3
Githopsis tenella	Delicate bluecup	CNPS-1B.3
Helianthemum suffrutescens	Bisbee Peak rush-rose	CNPS-3.2
Helodium blandowii	Blandow’s bog moss	FSS, CNPS-2.3
Horkelia parryi	Parry's horkelia	FSS, CNPS-1B.2
Hulsea brevifolia	Short-leaved hulsea	FSS – not known on STF, CNPS-1B.2
Hydrothyria venosa	Veiny aquatic lichen	FSS, CNPS-2
Iris hartwegii ssp. columbiana	Tuolumne iris	FSS, CNPS-1B.2
Ivesia unguiculata	Yosemite ivesia	CNPS-4.2
Jensia yosemitana	Yosemite tarplant	CNPS-3.2
Jepsonia heterandra	Foothill jepsonia	CNPS-4.3
Juncus hemiendytus var. abjectus	Center Basin rush	CNPS-4.3

Scientific Name	Common Name	NOTES
Juncus leiospermus var. ahartii	Ahart's dwarf rush	CNPS-1B.2
Lathyrus sulphureus var. argillaceus	Dubious pea	CNPS-3
Lewisia congdonii	Congdon's lewisia	FSS, CNPS-1B.3
Lewisia disepala	Yosemite lewisia	FSS – not known on STF, CNPS-1B.2
Lewisia kelloggii ssp. hutchisonii	Hutchinson's lewisia	FSS, CNPS-3.3
Lewisia kelloggii ssp. kelloggii	Kellogg's lewisia	FSS
Lilium humboldtii ssp. humboldtii	Humboldt lily	CNPS-4.2
Lomatium congdonii	Congdon's lomatium	CNPS-1B.2
Lomatium stebbinsii	Stebbins' lomatium	FSS, CNPS-1B.1
Lupinus gracilentus	Slender lupine	FSS (proposed to be removed), CNPS-1B.3
Lupinus spectabilis	Shaggyhair lupine	CNPS-1B.2
Lycopus uniflorus	Northern bugleweed	CNPS-1B.2
Lysimachia thyrsiflora	Tufted loosestrife	CNPS-2.3
Meesia triquetra	Three-ranked hump moss	FSS (proposed to be removed), CNPS-4.2
Meesia uliginosa	Moss	FSS – not known on STF, CNPS-2.2
Microseris sylvatica	Sylvan microseris	CNPS-4.2
Mielichhoferia elongata	Elongate copper-moss	FSS, CNPS-2.2
Mielichhoferia shevockii	Shevock's copper-moss	FSS – not known on STF, CNPS-1B.2
Mimulus filicaulis	Slender-stemmed monkeyflower	FSS, CNPS-1B.2
Mimulus gracilipes	Slender-stalked monkeyflower	FSS (proposed to be removed), CNPS-1B.2
Mimulus grayi	Gray's monkeyflower	CNPS-4.3
Mimulus inconspicuus	Small-flowered monkeyflower	CNPS-4.3
Mimulus laciniatus	Cut-leaved monkeyflower	FSC, FSS, CNPS-4.3
Mimulus pulchellus	Yellow-lip pansy monkeyflower	FSS, CNPS-1B.2
Mimulus whipplei	Whipple's monkeyflower	CNPS-1A
Minuartia obtusiloba	Alpine sandwort	CNPS-4.3
Minuartia stricta	Bog sandwort	CNPS-2.3
Monardella candicans	Sierra monardella	CNPS-4.3
Monardella douglasii ssp venosa	Veiny monardella	CNPS-1B.1
Myrica hartwegii	Sierra sweet bay	CNPS-4.3
Navarretia eriocephala	Hoary navarretia	CNPS-4.3
Navarretia myersii ssp. myersii	Pincushion navarretia	CNPS-1B.1
Ophioglossum californicum	California adder's-tongue	CNPS-4.2
Orthotrichum spjutii	Spjut's bristle moss	CNPS-1B.3
Packera layneae	Layne's ragwort	CNPS-1B.2
Pentachaeta fragilis	Fragile pentachaeta	CNPS-4.3
Perideridia bacigalupii	Bacigalupi's yampah	CNPS-4.2
Pinus albicaulis	White bark pine	FSS
Piperia colemanii	Coleman's rein orchid	CNPS-4.3
Piperia michaelii	Michael's rein orchid	CNPS-4.2
Podistera nevadensis	Sierra podistera	CNPS-4.3
Polystichum kruckebergii	Kruckeberg's sword fern	CNPS-4.3
Polystichum lonchitis	Northern holly fern	CNPS-3
Potamogeton epihydrus	Nuttall's ribbon-leaved pondweed	CNPS-2.2
Potamogeton robbinsii	Robbins' pondweed	CNPS-2.3
Pseudobahia bahiifolia	Hartweg's golden sunburst	CNPS-1B.1
Pseudostellaria sierrae	Sierra starwort	CNPS-4.2
Rhamnus alnifolia	Alder buckthorn	CNPS-2.2

Scientific Name	Common Name	NOTES
Rhynchospora capitellata	Beaked rush	CNPS-2.2
Salix nivalis	Snow willow	CNPS-2.3
Schoenoplectus subterminalis	Water bulrush	CNPS-2.3
Scopelophila cataractae	Tongue-leaf copper moss	CNPS-2.2
Senecio clevelandii var. heterophyllus	Red Hills ragwort	CNPS-1B.2
Senecio layneae	Layne's ragwort	CNPS-1B.2
Sidalcea multifida	Cut-leaf checkerbloom	CNPS-2.3
Sparganium natans	Small bur-reed	CNPS-4.3
Stellaria longifolia	Long-leaved starwort	CNPS-2.2
Stellaria obtusa	Obtuse starwort	CNPS-4.3
Streptanthus oliganthus	Masonic Mountain jewel-flower	CNPS-1B.2
Subularia aquatica ssp. americana	Water awlwort	CNPS-4.3
Tonestus eximius	Tahoe tonestus	CNPS-4.3
Trichostema rubisepalum	Hernandez bluecurls	CNPS-4.3
Triglochin palustris	Marsh arrow-grass	CNPS-2.3
Tuctoria greenei	Greene's tuctoria	FE, CR, FSS, CNPS-1B.1
Utricularia minor	Lesser bladderwort	CNPS-4.2
Verbena californica	Red Hills vervain/California vervain	FT, CT, CNPS-1B.1
Veronica cusickii	Cusick's speedwell	CNPS-4.3
Viola purpurea ssp. aurea	Golden violet	CNPS-2.2

Table C-6: Other Notable Plant Species That Occur or May Occur in the Region

Scientific Name	Common Name
Allium sanbornii var. congdonii	Congdon's onion
Allium sanbornii var. sanbornii	Sanborn's onion
Astragalus kentrophyta var. danaus	Sweetwater Mountains milk-vetch
Astragalus whitneyi var. lenophyllus	Woolly-leaved milk-vetch
Camissonia sierrae ssp. sierrae	Yosemite evening-primrose
Caulanthus major var. nevadensis	Slender jewelflower
Claytonia parviflora ssp. grandiflora	Streambank spring beauty
Drosera rotundifolia	Round-leaved sundew
Silene invisa	Short-petaled campion

Priority species for control in the Region include: cheat grass, Italian thistle, Spotted knapweed, yellow star-thistle, bull thistle, French broom, common velvet grass, perennial pepperweed and Himalayan blackberry. Yellow star-thistle, cheat grass and bull thistle are among the most widespread and prevalent species in the Region. Table C-7 provides a comprehensive listing of invasive plant species of concern in the Region.

Table C-7: Invasive Plant Species of Concern in the Region

Scientific Name	Common Name
Aegilops cylindrica L	Jointed goatgrass
Aegilops triuncialis	Barbed goatgrass
Ailanthus altissima	Tree of heaven
Amaranthus albus	Prostrate pigweed
Arundo donax	Giant reed
Brassica nigra	Black mustard
Brassica rapa	Field mustard

Scientific Name	**Common Name**
Bromus madritensis ssp. rubens	Foxtail chess
Bromus tectorum	Cheat grass
Carduus pynocephalus	Italian thistle
Centaurea cyanus	Bachelor's button
Centaurea maculosa	Spotted knapweed
Centaurea melitensis	Tocalote
Centaurea solstitialis	Yellow starthistle
Chenopodium botrys	Jerusalem oak
Cirsium vulgare	Bull thistle
Coreopsis lanceolata	Lanceleaf tickseed
Cynodon dactylon	Bermuda grass
Cynoglossum officinale	Gypsyflower
Cytisus scoparius	Scotch broom
Digitalis purpurea	Foxglove
Festuca arundinacea	Tall fescue
Foeniculum vulgare	Wild fennel
Genista monspessulana	French Broom
Hedera helix	English ivy
Hirschfeldia incana	Shortpod mustard
Holcus lanatus	Velvet grass
Humulus lupulus	Hops
Hypericum perforatum	Klamathweed
Lathyrus latifolius	Perennial sweet pea
Lepidium latifolium	Perennial Pepperweed
Leucanthemum vulgare	Ox-eye daisy
Lychnis coronaria	Rose campion
Melilotus alba	White sweetclover
Melilotus indica	Sourclover
Melilotus officinalis	Yellow sweetclover
Mentha spicata var. spicata	Spearmint
Nicotiana acuminata var.	Manyflower tobacco
Parthenocissus vitacea	Woodbine, Virginia creeper
Polygonum convolvulus	Black bindweed
Raphanus sativus	Radish
Robinia pseudoacacia	Black locust
Rubus discolor	Himalayan blackberry
Rubus laciniatus	Cutleaf blackberry
Rudbeckia hirta var. pulcherrima	Blackeyed Susan
Saponaria officinalis	Bouncing bet
Sinapis arvensis	Charlock mustard
Sisymbrium irio	London rocket
Taeaniatherum caput-medusae	Medusahead
Taraxacum officinale	Dandelion
Tragopogon dubius	Yellow salsify
Tribulus terrestris	Puncture vine
Trifolium hirtum	Rose clover
Verbascum thapsus	Woolly mullein
Vicia benghalensis	Purple vetch
Vinca major	Greater periwinkle

C.4 Data Needs

During the course of the preparation of this IRWM Plan, data needs were identified by resource specialists working on the plan. Many data and information needs in addition to those described in Sections 2 through4 and this Technical Appendix are associated with understanding and achieving plan objectives and are described in Appendix F – Objectives Tracking Table.

Appendix D

Climate Change Vulnerability Checklist

Appendix D: Climate Change Vulnerability Assessment Checklist with Priorities per IRWM Plan Objectives

The Proposition 84 IRWM Plan Guidelines issued in November 2012, requires preparation of a climate change vulnerability evaluation in order to meet the Climate Change Standard for Round 2 and 3 of the Proposition 84 IRWM Implementation Grant application. A Climate Change Vulnerability Checklist was provided by the Department of Water Resources (DWR) in its Climate Change Handbook found at http://www.water.ca.gov/climatechange/CCHandbook.cfm and has been completed for the Tuolumne-Stanislaus Region. The first portion of this checklist is a summary of prioritized vulnerabilities. As the Tuolumne-Stanislaus Region implements the IRWM Plan, data gathering and reporting on the IRWM Plan objectives, and by extension, the prioritized vulnerabilities, will occur.

Following the prioritized Climate Change Vulnerabilities, responses to the questions found in the checklist are provided. The questions identified by number and are not italicized. The responses are in bold below each numbered question. Specific narrative relevant to climate change that is drawn from the responses to this checklist will be incorporated directly into a variety of IRWM Plan sections.

Proposed Prioritization of Climate Change Vulnerabilities

As identified in the 2012 Proposition 84/1E IRWM Guidelines, the IRWM Plan must contain a list of prioritized vulnerabilities based on the vulnerability assessment and the IRWM decision making process. The proposed prioritization of Climate Change vulnerabilities summarized below, are in alignment with the Tuolumne-Stanislaus IRWM prioritized objectives (i.e., the climate change vulnerability was compared to the priority of the objective).

High Priority Climate Change Vulnerabilities

2. Water Supply
   a. 2.1 The region has water supply from snowmelt
   b. 2.4 The region may have difficulty in storing carryover supply surpluses from year to year in some reservoirs.
3. Water Quality
   a. 3.1 Increased wildfires are a threat to the region
   b. 3.2 Some of the region relies on surface water bodies with current or recurrent water quality issues related to eutrophication, such as… algal blooms.
   c. 3.4 Beneficial uses for some water bodies cannot always be met due to water quality issues.
   d. 3.5 Part of the region observes water quality shifts during rain events that impact treatment facility operation.
6. Ecosystem and Habitat Vulnerability
   a. 6.1 The region includes inland aquatic habitats vulnerable to erosion and sedimentation issues.
   b. 6.6 Rivers in the region with quantified environmental flow requirements or know water quality/quantity stressors to aquatic life.

Medium Priority Climate Change Vulnerabilities

1. Water Demand
   a. 1.2 Water use varies more than 50% seasonally in parts of the region
   b. 1.5 Water use curtailment measures are effective and can harden demand
2. Water Supply
   a. 2.6 The region has invasive species management at facilities, conveyance structures or in habitat areas

5. Flooding
    a. 5.4 Flood control facilities have been insufficient in the past
6. Ecosystem and Habitat Vulnerability
    a. 6.3 Climate-sensitive fauna or flora populations live in the Region.
    b. 6.4 Endangered and threatened species exist in the region.
    c. 6.8 The region includes the California Sierra Nevada Mountains which is a habitat described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change.
    d. 6.9 There are areas of fragmented aquatic wildlife habitat in the region and movement corridors for salmonids are inaccessible because of constructed dams.
7. Hydropower
    a. 7.1 The region contains 12 hydropower facilities that provide power for the Region as well as the State
    b. 7.2 While energy needs in the Region are not expected to increase significantly, Statewide demands for renewable power are expected to increase.

RESPONSES TO CLIMATE CHANGE VULNERABILITY CHECKLIST

1 Water Demand

1.1 Are there major industries that require cooling/process water in your planning region?

- As average temperatures increase, cooling water needs may also increase.
- Identify major industrial water users in your region and assess their current and projected needs for cooling and process water.

The larger industrial water users that require cooling/process water within the Region are lumber mills (Sierra – Pacific Industries saw mill in Standard) and hospitals (Sonora Regional Medical Center).

1.2 Does water use vary by more than 50% seasonally in parts of your region?

- Seasonal water use, which is primarily outdoor water use, is expected to increase as average temperatures increase and droughts become more frequent.
- Where water use records are available, look at total monthly water uses averaged over the last five years (if available). If maximum and minimum monthly water uses vary by more than 25%, then the answer to this question is "yes".
- Where no water use records exist, is crop irrigation responsible for a significant (say >50%) percentage of water demand in parts of your region?

Yes.
Water use records indicate that on average summer water usage is more than twice the volume of winter water usage.

Agriculture does not currently account for a large proportion of water used within the Region. Agricultural land use comprises about 0.2 percent of the total land use and agricultural water demands only make up approximately 10 percent of total Regional demands. There are parts of the Region where agriculture represents approximately 25 – 30% of water demand for that portion of the region. For this reason, agricultural water use does not contribute to a large seasonal variability in overall water use in the region.

The T-S Region has a significant tourism industry, which contributes to higher summertime domestic water use.

1.3 Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?

- Fruit and nut crops are climate-sensitive and may require additional water as the climate warms.

DWR's land use survey indicates that there are approximately 3,000 acres of agricultural lands in the Region. Pasture grasses make up the majority of crops grown in the Region. However, there are also approximately 1,600 acres of grains, fruit and nut trees, and vineyards. It is anticipated that these crops could require additional irrigation water if evapotranspiration rates increase due to higher temperatures or changing heat patterns. Permanent crops such as fruits, nuts, and vineyard also require higher reliability water supplies in order to remain productive during droughts.

1.4 Do groundwater supplies in your region lack resiliency after drought events?

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts and may become more dependent on groundwater pumping.

  Yes.

  Groundwater is obtained from fractured granitic and volcanic features, where it is difficult to quantify the reliable groundwater yield. In addition, these groundwater sources are small and may lack sufficient storage to sustain multiple year drought events. While over 95% of the current community municipal water supply is from surface waters (Section 2), there are areas within the Region that are 100 percent reliant upon groundwater and could be susceptible to declining groundwater production capacity under drought conditions. It is estimated that private wells may serve from 20,000 to 25,000 people in the Region.

  TUD anticipates that groundwater availability may be reduced by as much as 50% during a dry year. Overall, there is limited data available to quantify sustainable groundwater supplies and therefore to assess the resiliency of these supplies after drought events.

  Due to the uncertainty of groundwater availability, with anticipated reductions in yields, groundwater supplies do not provide a highly reliable source with expected climate change impacts and drought conditions. Potential measures to increase the yield and reliability of groundwater in the Region include meadow restoration and targeted forest management with vegetation thinning. Meadow restoration projects are currently being studied and implemented in the Region.

  References:
  TUD UWMP, 2010
  http://www.nps.gov/yose/ecoprojects.htm
  http://www.nps.gov/yose/naturescience/meadows.htm

1.5 Are water use curtailment measures effective in your region?

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts.

  Yes.

  Water agencies, including urban water suppliers have developed Water Shortage Contingency plans to reduce water use during periods of drought or other water shortages.

  TUD implements demand management measures, as a signatory to the Memorandum of Understanding Regarding Water Conservation in California (MOU) and plans to implement additional conservation programs to increase water savings. TUD has experienced water supply stresses in the past with early end of spill dates at Lyons Reservoir. Water use restrictions are in place to meet demands in such situations.

CCWD conservation measures during past droughts have been effective in curtailing water demands, resulting, for example, in lower summer demand increases than would have been the case without implementation of the District's conservation program.

Water demands are generally less flexible for agricultural uses, which make up approximately 10 percent of the Region's water demands. Under drought conditions, growers may need to fallow lands and/or shift to crops of higher value per amount of applied water and drip irrigation. Drip irrigation, however, requires substantial investments and are not effective on all crop types. Higher value permanent crops often irrigated by drip irrigation systems would harden demand and increase vulnerability to drought.

References:
TUD UWMP, 2010
CCWD UWMP, 2010

1.6 Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?

- Changes in snowmelt patterns in the future may make it difficult to balance water demands. Vulnerabilities for ecosystems and municipal/agricultural water needs may be exacerbated by instream flow requirements that are:
  1. not quantified,
  2. not accurate for ecosystem needs under multiple environmental conditions including droughts, and
  3. not met by regional water managers.

As tributaries to the San Joaquin River and the Sacramento-San Joaquin Delta (Delta), in-stream flow requirements on the Tuolumne and Stanislaus Rivers are complex and governed by a range of agencies and licenses including the Federal Energy Regulatory Commission (FERC) licensing and operation of hydroelectric power facilities, the State Water Resources Control Board (SWRCB), reservoir operators such as US Bureau of Reclamation (USBR), Pacific Gas and Electric (PG&E), Modesto Irrigation District (MID), Turlock Irrigation District (TID), and TriDam (Oakdale Irrigation District and the South San Joaquin Irrigation District).

Many legal challenges have been made regarding the ecological impacts of diversions out of the Delta. These diversions and the remaining flows are being reassessed in processes that include:

- *SWRCB's Delta Flow Criteria as adopted under Resolution 2010-0039. The SWRCB is also completing a comprehensive review and update of the 2006 Bay-Delta Plan, which could result in modified flow objectives for tributaries to the Delta, including the Tuolumne and Stanislaus Rivers.*
- *FERC Relicensing of Don Pedro Reservoir on the Tuolumne River.*
- *Establishment of a long-term plan of operations for New Melones Dam. Currently, the USBR is in the process of revising the operating plan for New Melones Reservoir. This plan will incorporate best available information on water quality and fishery flow objectives.*
- *Upper Tuolumne River Ecosystem Project*

TID and MID have been in compliance with the terms of its FERC license for operation of the Don Pedro project throughout the initial license term, which includes FERC minimum instream flow requirements. The Districts have modified operations in coordination with City and County of San Francisco, the state and federal resources agencies and non-governmental organizations to benefit fisheries, especially fall-run Chinook salmon as well as balancing water supply and flood control needs.

Tri-Dam's operations, including the Beardsley/Donnells Hydroelectric Project and the Tulloch Hydroelectric Project have been in compliance with FERC license requirements .

UPA prepared a drought contingency plan in 2004 for reduced instream flows in drought conditions for Angels Creek, which concluded that threatened and endangered species would not be affected and would be adequate to maintain trout populations.

References:
http://www.donpedro-relicensing.com/Documents/DPedro_PAD%20Vol%20I-110210.pdf
http://www.ferc.gov/for-citizens/projectsearch/SearchProjects.aspx?Region=Southwest
http://elibrary.ferc.gov/idmws/search/fercadvsearch.asp

2 Water Supply

2.1 Does a portion of the water supply in your region come from snowmelt?

- Snowmelt is expected to decrease as the climate warms. Water systems supplied by snowmelt are therefore potentially vulnerable to climate change.
- Where watershed planning documents are available, refer to these in identifying parts of your region that rely on surface water for supplies; if your region contains surface water supplies originating in watersheds where snowpack accumulates, the answer to this question is "Yes."
- Where planning documents are not available, identify major rivers in your region with large users. Identify whether the river's headwaters are fed by snowpack.

Yes.
The Tuolumne and Stanislaus Rivers are the primary source of water within the Region and provide significant water supplies for M&I and agricultural users throughout California. These rivers are fed primarily by snowmelt. The carryover storage and available water supply from the major reservoirs (New Melones, Don Pedro, and Hetch Hetchy) could be affected in the future by changing snowfall and snowmelt patterns, although this potential has not yet been studied in detail.

- *Major in-Region and export water users include:*
  - *Tuolumne River*
    - *GCSD (in-Region)*
    - *SFPUC (San Francisco Bay Area)*
    - *TID (Central Valley)*
    - *MID (Central Valley)*
  - *Stanislaus River*
    - *CCWD (in-Region)*
    - *TUD (in-Region)*
    - *UPA (in-Region)*
    - *SSJID (Central Valley)*
    - *OID (Central Valley)*
    - *USBR (Central Valley)*

In addition, there are many hydroelectric power projects by the agencies noted above as well as PG&E that use the water supplies non-consumptively.

A 2012 study on the climate change in the Upper Tuolumne watershed shows that climate change affects snow and runoff regimes in the watershed, including amounts and timing. While exact changes are uncertain, generally snow melts earlier in the spring, fall and early winter runoff increases and late spring and summer runoff decreases. As a result, it would be necessary to modify reservoir operations to adapt to these changes. The study concluded that operations would need "to be revised to manage increased runoff in November through April, and decreased runoff in May for most climate change scenarios, and in June and July for all climate change scenarios." The impacts climate change may have on the Region are still unknown and highly variable, and existing information from climate change models is not yet defined at a level to identify specific future impacts to water supply reliability within the Region based on changes to the hydrology in the watersheds.

References:
GCSD UWMP, 2010
San Francisco Public Utilities District (SFPUC) UWMP, 2010
CCWD UWMP, 2010
TUD UWMP, 2010
Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios, 2012

2.2 Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?

- Some imported or transferred water supplies are sources from climate-sensitive watersheds, such as water imported from the Delta and the Colorado River.

No.
Although the area is a climate-sensitive system, all water used within the Region originates within the Region. The Tuolumne and Stanislaus Rivers are tributaries to the San Joaquin River, which flows north to create the Sacramento-San Joaquin Delta.

2.3 Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?

- Coastal aquifers are susceptible to salt intrusion as sea levels rise, and many have already observed salt intrusion due to over-extraction, such as the West Coast Basin in southern California.

No.
The Region is not located close to the coast and therefore is not affected by salt intrusion.

2.4 Would your region have difficulty in storing carryover supply surpluses from year to year?

- Droughts are expected to become more severe in the future. Systems that can store more water may be more resilient to droughts.

Yes.
Currently the Hetch Hetchy Water and Power reservoir system, which includes Hetch Hetchy, Eleanor, and Cherry Reservoirs, is operated to optimize reservoir carryover storage for out-of-region water supplies and flood protection. Don Pedro and New Melones Reservoirs are both large storage facilities that can provide drought supply if operated as such. However, in-region water users could be affected by multi-year drought conditions. In particular, some municipal agencies are reliant upon storage that is managed for other purposes such as hydropower generation and recreation, which have different release schedules and/or storage requirements and can result in decreased municipal supply availability during periods of drought. Minimum target storage levels are in place for Regional reservoirs, including Lyons and Pinecrest Reservoirs. SWRCB is currently establishing a new mandatory minimum elevation at Pinecrest Lake under the 401 Water Quality Certification which could affect water availability for local supply when needed.

References:
http://www.donpedro-relicensing.com/Lists/Announcements/Attachments/68/Hetch%20Hetchy%20Water%20And%20Power%20Presentation_110401[1].pdf
http://www.mid.org/about/newsroom/projects/watertransfer/MIDHydrology_presentation.pdf

2.5 Has your region faced a drought in the past during which it failed to meet local water demands?

- Droughts are expected to become more severe in the future. Systems that have already come close to their supply thresholds may be especially vulnerable to droughts in the future.

No, not after water conservation measures are implemented.

Targeted measures have generally enabled water demands in the Region to be met even during drought conditions in the past. For example, conservation measures implemented by CCWD during past droughts have been effective in curtailing water demands.

Availability of water supplies to meet TUD customer demands during drought conditions has generally been accomplished by both conservation and establishing minimum target storage levels at Lyons and Pinecrest Reservoirs. In the past, annual precipitation and runoff have filled both reservoirs to capacity, providing sufficient supplies to meet TUD demands. However, a new minimum surface elevation at Pinecrest Lake, set by SWRCB in 2009, poses a threat to TUD water supply reliability for even current demands. Climate change impacts have the potential to exacerbate these water supply threats by potentially impacting reservoir inflows, particularly in the face of increased drought frequencies and intensities.

References
CCWD UWMP, 2010
TUD UWMP, 2005 and 2010

2.6 Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?

- As invasive species are expected to become more prevalent with climate change, existing invasive species issues may indicate an ecological vulnerability to climate change.

Yes.
Various invasive species have been identified within the Region that include: cheat grass, Italian thistle, Spotted knapweed, yellow star-thistle, bull thistle, French broom, common velvet grass, perennial pepperweed and Himalayan blackberry.

Along the North Fork Tuolumne River, invasive plant species include invasive blackberry, velvet grass and bull thistle, and invasive animal species include American bullfrog, smallmouth bass, and an invasive crayfish). Various invasive fish species are also found along the Tuolumne tributaries, Hetch Hetchy and Don Pedro Reservoir. Numerous invasive species are also found and actively managed throughout the Stanislaus National Forest. As of 2009, there were 2622.96 total acres, and 29.52 miles of motorized routes infested with noxious weed and invasive plant species which includes most of the Stanislaus National Forest except for Interface Recreation Plan areas near homes and off-highway vehicle paths, roadless areas, and wilderness areas.

Eleven invasive plant species are common around the New Melones Reservoir, however New Melones dam is still free of quagga and zebra mussels which have invaded many reservoirs and lakes in other regions.

Management of invasive species in the Region will be increasingly important with climate change. Spread of invasive plant species may impair riparian systems by reducing soil stability, increasing erosion, and impacting water quality and quantities. Invasive species, such as cheat grass, may change fire regimes, by increasing the frequency, seasonality and intensity of fires, which could become exacerbated with climate change.

References:
http://watershed.ucdavis.edu/tuolumne/resources/Final_NF.pdf
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5112613.pdf
http://www.usbr.gov/mp/ccao/newmelones/RMP/RIR/4.0-Natural_Resources.pdf
http://www.usbr.gov/mp/ccao/newmelones/docs/Form_Mussel_Free_Certification.pdf

3 Water Quality

3.1 Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?

- Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy Research (PIER) Program has posted wildfire susceptibility projections as a Google Earth application at: http://cal-adapt.org/fire/. These projections are only the results of a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

  Yes.

  The Region is susceptible to wildfires and has dense forests and vegetation throughout the Region, some of which has not experienced fire for many decades and is therefore building up significant fuel load. Catastrophic wildfires can devastate the landscape, resulting in increased erosion during subsequent rain events.

  Approximately two thirds of the IRWM Region is dominated by coniferous forests; fires in the Sierra Nevada, of which this Region is a part, are more common than the nation as a whole. Based on Cal-Adapt projections, wildfire susceptibility is anticipated to increase in the Region, with susceptibility increasing towards the upper watershed. Of particular concern are the areas within the Stanislaus National Forest and Yosemite National Park. The reservoirs within the Region are located within areas that would be impacted by these fires, being directly located within forested areas, such as Hetch Hetchy, Union and Utica Reservoirs, adjacent to forested areas and/or within a subwatershed with forested areas, such as New Melones Reservoir and Don Pedro Reservoir.

  While all reservoirs in the Region may be susceptible to water quality issues through increased threat of wildfire, the greatest water quality risks may exist for the reservoirs in the upper watersheds, directly located within forested areas and where erosion from peak runoff is enhanced by mountainous topography.

  Potential measures to mitigate wildfire threats in this Region include enhanced forest management with targeted forest thinning to reduce vegetation. In addition to contributing to reduced fire risk this measure is also expected to contribute to an increased water yield.

  Reference:
  Forests and Water in the Sierra Nevada, 2011
  Cal-Adapt.org.

3.2 Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?

- Warming temperatures will result in lower dissolved oxygen levels in water bodies, which are exacerbated by algal blooms and in turn enhance eutrophication. Changes in streamflows may alter pollutant concentrations in water bodies.

  Yes.

  While surface water for M&I use within the Region is generally of excellent water quality, algal blooms and taste and odor concerns do exist in some water bodies, such as Phoenix Lake. Phoenix Lake is a drinking water supply and recreational area, and has been subject to excessive sedimentation, nutrient loading, and spread of exotic invasive aquatic vegetation. Sedimentation has been the primary factor creating shallow waters resulting in increased water temperatures.

Currently the 303(d) list does not include surface waters in this Region that are impaired by nutrients, low dissolved oxygen or other directly related eutrophication issues. However, the Lower Tuolumne River, below Don Pedro Reservoir, is listed as impaired by temperature, as measured values do not meet water quality objectives for fish spawning beneficial uses. This could be exacerbated by climate change, with expected increases in air and water temperature.

The majority of the 303(d) water quality impairments found in the Region is related to E.coli and mercury. Streams and lakes in the Upper Tuolumne River and Upper Stanislaus River watersheds as well as Littlejohns Creek in the Rock Creek French Camp Slough have been listed as impaired by these pollutants. These impairments could potentially be exacerbated with climate change. Although, impacts are not clearly understood, studies suggest that mercury concentrations may increase during drought conditions and impairments by pathogens, for which E.coli is an indicator species, could increase. Stormwater flows from surrounding watersheds have been found to be a primary source of coliform loads and stormflows may increase with climate change). Climate change can also be expected to create conditions conducive to bacterial activity, such as by increasing water temperatures.

Invasive species found in the Region may also be of increasing concern with climate change, as they can create and/or exacerbate water quality problems.

References:
http://jlakes.org/web/impacts-climate-change-surface-water-quality-EI2009.pdf

3.3 Are seasonal low flows decreasing for some waterbodies in your region? If so, are the reduced low flows limiting the waterbodies' assimilative capacity?

- In the future, low flow conditions are expected to be more extreme and last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

A study published in 2012, provides simulations on changes in hydrologic conditions along the Upper Tuolumne River under climate change conditions. Under all scenarios modeled, decreases in median runoff were predicted, except under conditions of moderate temperature increase coupled with an increase in precipitation. Reductions in median runoff of up to 8.6% and 10.7% were estimated at O'Shaughnessy Dam and Don Pedro Dam, respectively. These reductions in flows, depending on the actual extent of changes, could impair the integrity and limit the assimilative capacity for pollutants in water bodies in the Region.

References:
Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios, 2012

3.4 Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?

- In the future, low flows are expected decrease, and to last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.
  Yes.
  TMDLs have been set on four (4) creeks for bacterial contamination and three (3) reservoirs for mercury contamination within the Region. In addition, a TMDL has been set for the Lower Tuolumne River, below the Don Pedro Reservoir, a portion of which is within the Region. TMDLs include:
  - *TMDL for bacterial contamination (primarily affecting recreational use)*
    - *Curtis Creek*
    - *Sullivan Creek*
    - *Woods Creek*
    - *Littlejohns Creek*
  - *TMDLs for mercury contamination (primarily affecting environmental use)*
    - *Don Pedro Lake*

- *Hetch Hetchy Reservoir*
- *New Melones Reservoir*

- *TMDLs for Lower Tuolumne River (out of the Region), include temperature/water, mercury, pesticides and unknown toxicity (primarily affecting beneficial uses relating to fish habitat)*

As the pollutants causing the water quality impairment are often carried into the water bodies through stormwater or naturally occurring runoff, reduced flows as occurs during drought would also reduce pollutant loading. However, more intense storms that are anticipated with climate change, could also result in higher peaks in pollutant flushes from surrounding watersheds. Additionally, as mentioned in 3.2, climate change may have other impacts on mercury and bacterial contamination that is still not well-understood.

Reference:
RWQCB Region 5 – 2008-2010 303d List

3.5 Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to increased erosion, which will increase turbidity in surface waters. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable.

Yes.
While all purveyors in the Region are able to comply with drinking water standards, some surface water treatment plants experience operational challenges during periods of increased turbidity, particularly during periods of high runoff in the wintertime.

Reference:
TUD Phoenix Lake Plan
CCWD UWMP 2010,
GCSD UWMP 2010

4 Sea Level Rise

4.1 Has coastal erosion already been observed in your region?

- Coastal erosion is expected to occur over the next century as sea levels rise.

No. The Region does not include coastline therefore coastal erosion will not occur.

4.2 Are there coastal structures, such as levees or breakwaters, in your region?

- Coastal structures designed for a specific mean sea level may be impacted by sea level rise.

No. The Region does not contain coastal structures such as levees or breakwaters.

4.3 Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation) at less than six feet above mean sea level in your region?

- Coastal flooding will become more common, and will impact a greater extent of property, as sea levels rise. Critical infrastructure in the coastal floodplain may be at risk.
- Digital elevation maps should be compared with locations of coastal infrastructure.

No. The Region does not contain significant coastal infrastructure.

4.4 Are there climate-sensitive low-lying coastal habitats in your region?

- Low-lying coastal habitats that are particularly vulnerable to climate change include estuaries and coastal wetlands that rely on a delicate balance of freshwater and salt water.

No. There are no climate-sensitive low-lying coastal habitats within the Region at less than six feet above mean sea level.

4.5 Are there areas in your region that currently flood during extreme high tides or storm surges?

- Areas that are already experiencing flooding during storm surges and very high tides, are more likely to experience increased flooding as sea levels rise.

No. There are no areas within the Region that currently flood during extreme high tides or storm surges.

4.6 Is there land subsidence in the coastal areas of your region?

- Land subsidence may compound the impacts of sea level rise.

No. There are no coastal areas within the Region.

4.7 Do tidal gauges along the coastal parts of your region show an increase over the past several decades?

- Local sea level rise may be higher or lower than state, national, or continental projections.
- Planners can find information on local tidal gauges at http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=ca.

No. There are no coastal areas within the Region.

5 Flooding

5.1 Does critical infrastructure in your region lie within the 200-year floodplain? DWR's best available floodplain maps are available at: *http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/.*

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to higher peak flows and more severe floods.
- Refer to FEMA floodplain maps and any recent FEMA, US Army Corps of Engineers, or DWR studies that might help identify specific local vulnerabilities for your region. Other follow-up questions that might help answer this question:
  1. What public safety issues could be affected by increased flooding events or intensity? For example, evacuation routes, emergency personnel access, hospitals, water treatment and wastewater treatment plants, power generation plants and fire stations should be considered.
  2. Could key regional or economic functions be impacted from more frequent and/or intense flooding?

No. No known critical infrastructure within the Region lies within a 200-year floodplain. However, localized drainage problems with flooding does occasionally occur.

5.2 Does part of your region lie within the Sacramento-San Joaquin Drainage District?

- The SSJDD contains lands that are susceptible to overflows from the Sacramento and San Joaquin Rivers, and are a key focus of the Central Valley Flood Protection Plan. (http://www.water.ca.gov/cvfmp/program.cfm).

No. The Region does not lie within the Sacramento-San Joaquin Drainage District.

5.3 Does aging critical flood protection infrastructure exist in your region?

- Levees and other flood protection facilities across the state of California are aging and in need of repair. Due to their overall lowered resiliency, these facilities may be particularly vulnerable to climate change impacts.
- DWR is evaluating more than 300 miles of levees in the San Joaquin and Sacramento Rivers Valleys and the Delta (http://www.water.ca.gov/levees/).

Various reservoirs in the Region were constructed in part or with the primary purpose for flood protection, including New Melones and Don Pedro Reservoirs. This flood protection is primarily focused on areas below the Region that would receive greater flood flows than the Region itself. The DWR Division of Safety of Dams inspects dams on an annual basis to ensure dam safety. However, many dams in the Region were originally constructed several decades ago, some are over a century ago, and these facilities are aging. Levee repair projects conducted by DWR have not been identified within the Region.

5.4 Have flood control facilities (such as impoundment structures) been insufficient in the past?

- Reservoirs and other facilities with impoundment capacity may be insufficient for severe storms in the future. Facilities that have been insufficient in the past may be particularly vulnerable.

  No.

  Flood control facilities have historically provided adequate levels of flood protection, although there are areas of localized flooding, particularly around the Sonora area exacerbated by a combination of urbanization increasing peak flows and undersized conveyance facilities. Floods are also managed through floodplain acquisition in the Region

  Reference:
  http://www.tuolumne.org/content/article.php/200704041150220

5.5 Are wildfires a concern in parts of your region?

- Wildfires alter the landscape and soil conditions, increasing the risk of flooding within the burn and downstream areas. Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy Research Program (PIER) has posted wildfire susceptibility projections as a Google Earth application at: http://cal-adapt.org/fire/. These projections are the results of only a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

  Yes, see response to checklist item 3.1. Wildfires are a major concern throughout the entirety of the Region. Of specific concern are areas within:
  - *Stanislaus National Forest*
  - *Yosemite National Park*

6 Ecosystem and Habitat Vulnerability

6.1 Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?

- Erosion is expected to increase with climate change, and sedimentation is expected to shift. Habitats sensitive to these events may be particularly vulnerable to climate change.

Yes.
Erosion from roads (especially dirt roads) and terrain exposed after a fire within the Region negatively impact aquatic habitats.
Reference:
Tuolumne County WQP – Section 3.5.2 (Roadway Erosion)
Stanislaus Forest Plan

6.2 Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?

- Seasonal high and low flows, especially those originating from snowmelt, are already shifting in many locations.

Although the Region does not contain estuarine habitats, it contains meadows which do relay on seasonal freshwater flows from snowmelt. This area of hydrology is being studied. In addition it should be noted that seasonal freshwater flow is essential for the aquatic habitats of migratory fish, such as the Chinook Salmon. Downstream flows from the Stanislaus and Tuolumne Rivers contribute to these important flow conditions.

6.3 Do climate-sensitive fauna or flora populations live in your region?

- Some specific species are more sensitive to climate variations than others.

Yes.

Resulting from the topography and higher elevations existing in the Region, many established ecosystems in the Region and the flora and fauna inhabiting these systems are particularly sensitive to climate change. Studies show that ecosystems at high elevations, including alpine species of plants and animals are greatly impacted by climate change effects. One species that has been identified to be particularly sensitive to temperature changes resulting from climate change is the alpine chipmunk, which is endemic to the Sierra Nevada and found throughout Yosemite National Park. Due to temperatures changes, this species has been retracting its range

On the other hand, warming temperatures are allowing for species from lower elevations that are otherwise limited by short growing seasons and heavy snowpack to expand their range and potentially replace upper-elevations species. This has been seen with the lodgepole pine which is rapidly establishing in higher elevation meadows in Yosemite National Park. Other species that have been found to be sensitive and vulnerable to climate change include native amphibians and the American pika.

References:

http://www.sciencedaily.com/releases/2012/02/120219143319.htm
http://nrs.uri.edu/labs/invasive/PdfReprints/Chapter%204_National%20Parks.pdf
http://itsgettinghotoutthere.org/index.php?option=com_content&view=article&id=56

6.4 Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?

- Species that are already threatened or endangered may have a lowered capacity to adapt to climate change.

Yes.

A list of endangered and threatened species within the Region are found in Section 2. Species such as the Yosemite toad and Yellow-Legged Frog are species identified within the Region that are susceptible to climate change. See response to 6.3 for additional information.

References:

http://itsgettinghotoutthere.org

6.5 Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?

- Economic values associated with natural habitat can influence prioritization.

Yes.

Water-based tourism and recreation is an essential component of the economic viability of the Region. There are 27 miles of world-class whitewater rapids along the Tuolumne River used for rafting and kayaking with similar rapids on the Stanislaus River. Many lakes and rivers throughout the Region are used as camping as well as hiking, biking, and swimming destinations. The Region contains a portion of Yosemite National Park as well as Calaveras Big Trees State Park.

6.6 Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?

- Constrained water quality and quantity requirements may be difficult to meet in the future.

Yes.

The Region has quantified environmental flows on the Tuolumne and Stanislaus Rivers as discussed in Item 1.6. Water quantity stressors stem, in part, from changes in natural flow patterns caused by export water requirements; it should be noted that the existence of storage reservoirs have changed natural flow patterns but have also allowed more late season releases if operated appropriately. Water quality stressors include mercury contamination (from abandoned mines), erosion (primarily from roads), and bacterial contamination (from sources such as livestock and failing septic systems). In addition, beneficial uses in surface waters within the Region include temperature-dependent uses, such as cold freshwater habitat, spawning and migration.

6.7 Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?

- Storm surges are expected to result in greater damage in the future due to sea level rise. This makes fragile coastal ecosystems vulnerable.

No. There are no coastal environments located within the Region.

6.8 Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change *(http://www.itsgettinghotoutthere.org/)?*

- These ecosystems are particularly vulnerable to climate change.

Yes. The Region is part of the California Sierra Nevada Mountains which has ecosystems that are vulnerable to climate change.

6.9 Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?

- These ecosystems are particularly vulnerable to climate change.

Yes.

The Tuolumne and Stanislaus Rivers historically served as migratory pathways for salmonid spawning. Although some of the uppermost reaches of these rivers are naturally inaccessible to spawning, many of the constructed dams in the Region have impaired the ability for species migration to the lower reaches. Goodwin Dam, for example, excludes salmon from migrating above this point in the Stanislaus River. Improvement of fisheries conditions, including spawning habitat in the tributaries to the Delta is a statewide priority. Also, certain stretches of the Tuolumne River are classified as Wild and Scenic; therefore, future construction of dams and diversions along these sections of the River are prohibited.

7 Hydropower

7.1 Is hydropower a source of electricity in your region?

- As seasonal river flows shift, hydropower is expected to become less reliable in the future.

Yes.

There are 12 hydroelectric facility licenses within the Region, with capacities ranging from 1.4 to 300 MW. These facilities are a major source of power for the Region and users in the Central Valley.

Since the Region is highly affected by changes in snowpack and resulting changes in flow regimes, hydropower production will be affected by climate change requiring changes to the timing and availability of water releases through changes in water storage operations. Changes in these water release patterns could impact the overall reliability of hydropower in the Region.

7.2 Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?

- Energy needs are expected to increase in many locations as the climate warms. This increase in electricity demand may compound decreases in hydropower production, increasing its priority for a region.

  Yes.

  Within the Region, only marginal increases in energy demands are expected due to the low growth historically experienced in the Region and projected for the future. Energy demands outside of the Region, where electricity is currently transmitted, may increase more substantially. One project being considered for future implementation is the Red Mountain Bar Pumped Storage project, proposed by the TID and MID. This project is intended to increase the reliability of the electric system and would provide electricity for use in the Central Valley.

  References:
  http://www.cserc.org/main/news/news_briefs/Don_pedro_plan.html
  http://www.tid.org/power/projects/red-mountain-bar-pumped-storage

Appendix E

Projects

Appendix E.1

Project Information Form

TUOLUMNE - STANISLAUS IRWM PROGRAM

PROJECT WORKSHEET V9.0

Revised Oct 9, 2012

This worksheet is to be completed by the proponent and submitted electronically as an PDF file to the Tuolumne – Stanislaus IRWM Program staff. E-mail completed worksheets to Sarah Laybourne with Kennedy / Jenks Consultants – sarahlaybourne@kennedyjenks.com

NOTE: ANY VERSION OF THE PROJECT WORKSHEET WILL BE ACCEPTED. THIS VERSION INCLUDES STRIKETHROUGH TO CLARIFY INSTRUCTIONS AND SOME ADDITIONAL COMMENTS FIELDS, WHICH ARE OPTIONAL.

PROJECT WORKSHEET

Section 1 – Project Information

1. Proponent:
2. Contact person(s):
   Phone -
   E-mail -
3. Name of project:
4. County(ies) and City(ies) where the project will be implemented:
5. Watershed(s) where the project will be carried out (examples; Sullivan Creek, Littlejohn Creek, North Fork Tuolumne River, etc):
6. Federal and/or other public or private lands upon which project will be carried out. Please indicate expression of support for proposal from land-owner or manager.
7. Please provide a brief (500 words maximum in 12-point font single spaced text) narrative description of the project that includes:
   a. Statement of problem to be addressed by the project
   b. Objective(s)
   c. Design phase
   d. Deliverables
   e. Expected outcome(s)

f. Beneficiaries

g. Disadvantaged Community benefits, if applicable

h. Project partners

i. Priority of project to proponent.

8. Please provide a budget for the project that identifies the following:
   a. All anticipated costs
   b. Potential sources of project funding including internal funds
   c. Potential source(s) of 25% local match, unless the project is projected to qualify for a Disadvantaged Communities waiver.
9. Earliest expected start date and estimated schedule for the project's completion. If acquisition of lands and / or easements is needed, please list and provide relative status of compliance.

Earliest Start Date:

Project Schedule

Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
a. Conceptual		
b. Planning		
c.Environmental (CEQA / NEPA)		
d.Permitting		
e.Design		
f.Construction / Implementation		

Comments:

10. Geographic location of project (latitude and longitude - any format):

Section 2 – Project Selection Score Sheet

Note: Parts 1 through 5 of this Project Selection Worksheet are color-coded to match the corresponding parts 1 through 5 of the Project Selection Score Sheet (an excel spreadsheet file).

~~Note: If, after checking a box, a narrative or written response is requested, the project proponent is asked to provide a metric in terms of the subject matter (for example: acres, square feet, gallons, river miles, etc.).~~

Part 1. Eligibility (check all boxes that apply)

- ☐ The proponent has adopted[1] or will adopt the IRWM Plan. If this box is not checked the proponent is ineligible.[2]
- ☐ This project is being submitted by one or more organizations that are currently members of the Planning Grant Committee in compliance with the financial agreement.
- ☐ This project is being submitted by one or more organizations that are currently members of the Planning Grant Committee, but one or more of them are not in compliance with the financial agreement.
- ☐ This project is being submitted by an organization whose place of business is and/or customers or members are located within this region, but is not a member of the Planning Grant Committee.
- ☐ This project is being submitted by an organization whose place of businesses and/or customers or members are located outside this region and is not a member of the Planning Grant Committee (e.g. Interregional project)

Part 2. Please indicate which of the Tuolumne - Stanislaus IRWM Objectives this project may address.

[1] DWR Financial Assistance Branch will clarify the meaning of the term "adopted" in the final Guidelines.

[2] DWR Proposal Solicitation Package, Implementation, Round 2, July 2012, page 19

- Each checked box is worth a range of from 0 to 4 points with a total of 56 points for all of Part 2. ~~For each box checked please provide a one-sentence description explaining your answer.~~
- This represents the first category of information numerically scored on the Project Selection Score Sheet (check as many boxes as may apply):

☐ Improve water supply sources and/or distribution within DAC and urban areas that have declining water quantity/quality or other water system reliability issues (e.g. fire-flow, contamination, etc.)

☐ Reduce the negative impacts of storm water, urban runoff, and nuisance water

☐ Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs

☐ Improve infrastructure: to meet wastewater discharge or disposal requirements and deliver drinking water that meets drinking water standards and customer expectations

☐ Improve watershed health in support of increased water yield and ecosystem function

☐ Improve the condition and ecosystem function of meadows

☐ Assist in the protection and recovery of sensitive, special status, threatened, culturally sensitive, and endangered native aquatic and other water dependent species in the region

☐ Identify, preserve and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; and reduce invasive species

☐ Reduce the risk of localized flooding in urban areas

☐ Increase renewable energy production for water management

☐ Improve energy efficiency and reliability of surface water conveyance systems

☐ Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users

☐ Develop sufficient reliable and affordable water supplies to meet regional demands of existing and projected water supply needs under a multiyear drought now and into the future

Provide any additional explanation of objectives selection in this box:

- ☐ Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions

Part 3. Please indicate which of the Proposition 84 IRWM Program Preferences (PRC §75026[b] and CWC §10544) this proposal addresses.

- Each checked box is worth a range of from 0 to 2 points with a total of 14 points for all of Part 3. (For additional information please see DWR Draft IRWM Guidelines, pages 11-13, July 2012.)
- Part 3 represents the second category of information numerically scored on the Project Selection Score Sheet (check all boxes that apply):

☐ Is the project a regional project or program?

☐ Does the project effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board region, or subdivision or other region or sub-region as identified by the DWR or SWRCB?

☐ Does the project effectively resolve significant water-related conflicts within or between regions?

☐ Does the project contribute to the attainment of one or more of the objectives of the CALFED Bay-Delta Program? (Improve water quality, improve water supply reliability through storage, conveyance, water use efficiency or water transfers, improve the ecological health of the Bay-Delta Watershed)?

☐ Does the project address critical water supply or water quality needs for disadvantaged communities within the region?

☐ If applying for Storm Water Flood Management funding does the project provide multiple benefits, including but not limited to water quality improvements, ecosystem benefits, reduction in instream erosion and sedimentation and groundwater recharge? (DWR Draft IRWM Guidelines Page 11)

Part 4. Please indicate which of the Proposition 84 IRWM Program Statewide Priorities this project may address.

- Each checked box is worth a range of from 0 to 2 points with a total of 40 points for this section.

- ~~For each box checked please provide a one-sentence description justifying your answer.~~ (For more details please see DWR Draft IRWM Guidelines, Table 1, Statewide Priorities, pages 11-13, July 2012.)
- This represents the third category of information numerically scored on the project score sheet (check all boxes that apply):

Drought Preparedness through contributing to a sustainable water supply and reliability during water shortages

- ☐ Promote water conservation, conjunctive use, reuse and recycling
- ☐ Improve Landscape and Agricultural Irrigation Efficiencies
- ☐ Achieve a Long-Term Reduction of Water Use
- ☐ Efficient ground water basin management
- ☐ Establish System Interties

Use and Reuse Water More Efficiently to help meet future water demands increase water supply and reliability and adapt to climate change

- ☐ Increase urban and agricultural water use efficiency measures such as conservation and recycling
- ☐ Capture, store, treat and use storm water runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic storm water capture systems or the creation of catch basis or sumps downhill of development or projects outlined in PRC §30916 - Coastal Conservancy)
- ☐ Incorporate and implement low impact development (LID) design features, techniques and practices to reduce or eliminate storm water runoff

Climate Change Response Actions that will assess vulnerabilities as a result of climate change, adapt to climate change, reduce greenhouse gas emissions, or reduce energy consumption

- ☐ Advance and expand conjunctive management of multiple water supply sources

- ☐ Water management system modifications that address anticipated climate change impacts, such as rising sea level, and which may include modifications, or relocations of intakes or outfalls
- ☐ Establish migration corridors, re-establish stream flood-plain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, and enhance and protect upper watershed forests and meadow systems
- ☐ Reduce water demand and wastewater loads and may reduce energy demands & Green House Gas emissions, including water use efficiency, recycling, water system energy efficiency, and reuse of runoff

Expand Environmental Stewardship

- ☐ Proposals that contain projects that practice, promote, improve and expand environmental stewardship to protect and enhance the environment by improving watersheds, floodplains and Instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- ☐ Proposals that contain projects that practice, integrated flood management to provide multiple benefits including; better emergency preparedness and response, improved flood protection, more sustainable flood and water management systems, enhanced flood plain ecosystems and Low Impact Development techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- ☐ Protect and restore surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- ☐ Salt / Nutrient management planning as a component of the IRWM Plan

Improve Tribal Water and Natural Resources

- ☐ Projects that include the development and / or implementation of Tribal consultation, collaboration, and access to funding for water programs and projects to better sustain Tribal water and natural resources

Provide any additional explanation of statewide priorities selection in this box:

Ensure Equitable Distribution of Benefits

- ☐ Projects that increase the participation of small and disadvantaged communities in the IRWM process
- ☐ Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations
- ☐ Projects that address critical water supply or water quality needs of Disadvantaged Communities within the Region

Part 5. Mandatory Selection Components[3].

INTEGRATION

a. Project Benefits. Please provide a brief narrative description (150 words or less.) This item is worth 0-5 points total.

b. Resource Management Strategies. Please indicate which of the of the State Water Plan's Resource Management Strategies this project may address. Please note that not all of the Resource Management Strategies have application to this IRWM Region. This item is worth a total of 0-5 points. ~~For each box checked please provide a brief description justifying your answer.~~ (check as many boxes as may apply):

[3] (DWR, July 2012 IRWM P84 Guidelines, page 19)

- ☐ Agricultural Lands Stewardship
- ☐ Agricultural Water Use Efficiency
- ☐ Conjunctive Management and Ground water storage
- ☐ Conveyance (Delta)
- ☐ Conveyance (Regional / Local)
- ☐ Desalination
- ☐ Drinking Water Treatment and Distribution
- ☐ Economic Incentives (loans, grants & water pricing)
- ☐ Ecosystem Restoration
- ☐ Flood Risk Management
- ☐ Forest Management
- ☐ Groundwater Remediation / Aquifer Remediation
- ☐ Land Use Planning and Management
- ☐ Matching Water Quality to Use
- ☐ Pollution Prevention
- ☐ Precipitation Enhancement
- ☐ Recharge Area Protection
- ☐ Recycled Municipal Water
- ☐ Salt and Salinity Management
- ☐ Surface Storage - CALFED

- ☐ Surface Storage - Regional / Local
- ☐ System Re-operation
- ☐ Urban Runoff Management
- ☐ Urban Water Use Efficiency
- ☐ Water Transfers
- ☐ Water-dependent Recreation
- ☐ Watershed Management

Provide any additional explanation of RMS selection in this box:

c. Geographic Area / Zone of Influence. Please briefly describe (150 words or less) the project's general geographic area and size and describe its beneficial zone of influence. This item is worth a total of 0-3 points.

READINESS TO PROCEED to Implementation

Each box checked describes the project's readiness to proceed. Please note, **only** answer Item #1 **or** #2 and not both. If your project is subject to both the National Environmental Policy Act (NEPA) & the California Environmental Quality Act (CEQA) please so note in a one-sentence explanation. Each item is worth a total of 0-4 points. (Check only one box per item):

Item 1.

- ☐ The project is a project under CEQA and a final Negative Declaration has been completed, or the project is not a project under CEQA, or is otherwise exempt from CEQA (4)
- ☐ The project is a project under CEQA and an Final Environmental Impact Report has been completed (4)
- ☐ This project is a project under CEQA and CEQA compliance is anticipated to be completed within 12 months (3)
- ☐ This project is a project under CEQA and CEQA compliance is anticipated to be completed within 13 to 36 months (2)
- ☐ This project is a project under CEQA and CEQA compliance is anticipated to be completed in 37 months or more (1)
- ☐ The project is a project under CEQA and no final environmental document has been completed (0)

Item 2.

- ☐ The project is a project under NEPA and a final Finding of No Significant Impact has been completed, or the project is not a project under NEPA, or is otherwise exempt from NEPA (4)
- ☐ The project is a project under NEPA and an Final Environmental Impact Statement has been completed (4)
- ☐ This project is a project under NEPA and NEPA compliance is anticipated to be completed within 12 months (3)
- ☐ This project is a project under NEPA and NEPA compliance is anticipated to be completed within 13 to 36 months (2)
- ☐ This project is a project under NEPA and NEPA compliance is anticipated to be completed in 37 months or more (1)

- ☐ The project is a project under NEPA but no final environmental document has been prepared (0)

Item 3.

- ☐ All local, state and federal permitting requirements (if any) have been completed (4)
- ☐ All local, state and federal permitting requirements should be completed within 12 months (3)
- ☐ All local, state and federal permitting requirements should be completed within 13 to 36 months (2)
- ☐ All local, state and federal permitting requirements should be completed in 37 months or more (1)

Item 4.

- ☐ The proponent has capacity within current staff and/or consultants or volunteers to carry out the project (2)
- ☐ The proponent will have to hire staff or retain consultants or secure volunteers to carry out the project (1)

Item 5.

- ☐ Feasibility analysis for the project is complete (4)
- ☐ Feasibility analysis for the project will be complete within 12 months (3)
- ☐ Feasibility analysis for the project will be complete within 13 to 36 months (2)
- ☐ Feasibility analysis for the project will be complete in 37 months or more (1)

Item 6.

- ☐ The project has all necessary engineering, designs, blueprints and work plans completed (4)
- ☐ The project will have all necessary engineering, designs, blueprints and work plans completed within 12 months (3)

- ☐ The project will have all necessary engineering, designs, blueprints and work plans completed within 13 to 36 months (2)
- ☐ The project will have all necessary engineering, designs, blueprints and work plans completed in 37 months or more (1)

Item 7.

- ☐ The proponent has the necessary authority and approvals to implement the project (such as landowner approval, approval by a governing board, license, right or fee) (4)
- ☐ The proponent expects to have the necessary authority and approvals to implement the project (such as landowner approval, approval by a governing board, license, right or fee) within 12 months (3)
- ☐ The proponent expects to have the necessary authority and approvals to implement the project (such as landowner approval, approval by a governing board, license, right or fee) within 13 to 36 months (2)
- ☐ The proponent expects to have the necessary authority and approvals to implement the project (such as landowner approval, approval by a governing board, license, right or fee) in 37 months or more (1)

Item 8.

- ☐ This project qualifies as a Disadvantaged Community project and the local match may be waived (2)
- ☐ The proponent has secured non-state funding and/or in-kind services that will qualify for and meet the required minimum local match (2)
- ☐ The proponent has no non-state funding and/or in-kind services that qualifies for the required local match (0)

For informational purposes only:

- ☐ A feasibility analysis is a component of the proposed project
- ☐ The proponent has carried out similar projects in the past

STRENGTH OF THE PROJECT

Subjective Evaluation Narratives (response will be 150 words or less for each question and may be attached as a separate document). This item is worth a total of 0-13 points and is subjectively scored at one point maximum per lettered question below.

a. Will this project result in increasing local and or regional resiliency to extended drought or water supply or resolving water quality issues? If yes, please explain how.

b. Does this project address public safety and or health concerns within the Tuolumne - Stanislaus IRWM Region (Region)? Please describe.

c. Will this project contribute to the achievement of regulatory compliance within the Region? If yes, please specify regulation(s) and describe.

d. Will this project provide short-term economic benefits within this Region? If yes, please explain.

e. Will this project provide long-term economic benefits within the Region? If yes, please explain.

f. Does the project improve the condition in a natural resource within the Region? If yes, please reference resource(s) and explain.

g. Does the project provide specific benefits to critical water supply or water quality needs of a Disadvantaged Community (DAC) as defined by CWC 79505.5(a) and as listed in XXXXX of the Tuolumne-Stanislaus IRWM Plan? If so, how, and are there any Environmental Justice concerns. If non-DAC mark N / A.

h. Will this project actively involve or benefit Indian Tribes within the Region? If yes, please specify Tribe or Band and explain involvement and or benefits anticipated.

i. Will this project contribute to developing or implementing strategies to respond to climate variability on water resources within the Region? If yes, please explain.

j. Will this project reduce, directly or indirectly, greenhouse gas emissions within the Region?

k. Is this project expected to result in any significant, socio-economic, environmental, or economic impacts within the Region, which cannot be mitigated to a non-significant level? If so, briefly explain how the project would mitigate them to a non-significant level.

l. Are any benefits associated with this project outside the Region? If yes, please explain.

m. Are any significant, socio-economic, environmental, or economic impacts, outside the Region that cannot be mitigated to a non-significant level? If so, briefly explain how the project would mitigate them to a non-significant level.

Type Response(s) to Strength of Project Questions Here. Please type the letter of the question prior to each response :

Strength of Project Narrative - Continued

END

Appendix E.2

Project Synopses

Project Number	Proponent	Project Name	Project Description
1	Tuolumne County Resource Conservation District	Water Quality Monitoring Enhancement Program	The proposed project enhances an existing storm and surface water monitoring program to more clearly assess existing data and focus efforts on identifying nutrient and fecal coliform contamination in the County's surface waters. -The district's existing program Stream Team has five years of data related to water quality parameters such as turbidity, temperature, dissolved oxygen, pH, and fecal coliform. This data have been reported, but not yet analyzed. One of the primary goals of the project is to develop a database and more specifically define a sampling program and regimen wherein the water quality data that is collected can be statistically assessed and used to focus efforts by multiple agencies (including the RCD) in directing their limited resources towards remedial actions. -The desired outcomes of this project include a comprehensive watershed-centric database and assessment of previous water quality parameter test results, development and implementation of a collaborative water quality testing program, increased participation of stream team volunteers, provision of adequate laboratory testing inclusive of genetic source tracking at selected hot-spots, preparation of a summary report defining the highest priority locations for storm water quality enhancement projects, and the ability to conduct pre- and post project monitoring for storm water quality enhancement projects -This project consists of five primary goals designed to provide regionally significant water quality data results and to bolster public and governmental support for and participation in a wide range of programs with an increased likelihood of achieving clean water standards. 1. Enhancement of an integrated and focused water quality monitoring program - Evaluate data collected over five years to define priority subwatersheds - Develop a database wherein water quality data can be entered and analyzed - Define specific water quality parameters that need to be addressed based on past data - Collaborate with County, TUD and others to define priority sampling locations to provide answers to specific water quality questions - Prepare and Implement Water Quality Sampling Program 2. Volunteer Recruitment and Training - Recruit 15 new Volunteers - Provide Guidance and formal training to ensure quality control and compliance with appropriate approved methodologies 3. Purchase of Additional Equipment and Supplies and ongoing calibration - IDEXX Supplies - Test Kits (4) 4. Laboratory Testing - Coliform IDEXX testing - Standard or priority parameter testing - Additional Genetic Bacteriological testing at selected locations 5. Reporting and Outreach - Publication of the Water Quality database on the website - Report Preparation - Coordination with Utility Districts, Public, County and other Responsible Agencies
2	Murphys Sanitary District	Wastewater Treatment Facilities Improvement Project	A. Statement of problem to be addressed with this project: The District currently operates a 0.20 MGD dry weather flow secondary wastewater treatment plant (WWTP) which treats wastewater from the town of Murphys and the surrounding area. The District's WWTP exhibits the following deficiencies based upon requirements contained in the current District WDRs: • Pond #4 provides inadequate effluent storage capacity for current flows under design wet conditions. • The existing chlorine contact basin cannot provide adequate disinfection of peak wastewater flows. • Both the chlorine contact basin and the effluent filters are not sized sufficiently to hydraulically pass the recycled water demands of the Ironstone Vineyard which currently is taking recycled wastewater. • Treatment Ponds #1, #2, and #3 cannot reliably maintain required dissolved oxygen levels. • Current design of Treatment Ponds #1, #2, and #3 does not provide for proper solids handling. B. Objectives: Provide a Title 22 compliant tertiary wastewater treatment plant with adequate storage, in order to provide reclaimed wastewater for use in the nearby vicinity and accommodate additional growth within the District. C. Design Phase & Deliverables: As part of the project design an evaluation of the following options will be conducted for addressing the District's current WWTP deficiencies: 1. Increase storage in Pond #4 by excavation within the storage pond. 2. Replace the existing chlorine contact basin and effluent filters. 3. Replace the existing three treatment ponds with a Title 22 compliant mechanical treatment process with disinfection 4. Build additional storage reservoir on District property 5. Evaluation of the collection system to determine the extent of I/I and assessment of the potential to reduce the WWTP storage need. The project design will include continuous backwash sand filters, ultraviolet disinfection facilities, pumping, electrical, and mechanical modifications, modifications to the existing dechlorination detention basin, increased storage capacity, and installation of required facilities for development of spray fields on an adjacent 20 acre parcel. Complete plans, specifications, and engineer's estimate suitable for bidding project will be completed. D. Expected outcome(s): Construction of a Title 22 tertiary plant and related facilites that will not only reduce the potential groundwater degradation from the secondary effluent at the land disposal areas, but also provide the availability of Title 22 effluent for irrigation which will also reduce the need for surface water by facilitating reclamation. The project would maximize opportunities for the beneficial use of the recycled wastewater in the areas surrounding the wastewater treatment plant. A new plant will also increase capacity, and in turn allow for additional affordable housing in the area. E. Beneficiaries: Currently nearby vineyards use surface water for frost protection and for irrigation. Use of treated wastewater for this purpose will relieve the demand on surface water supplies allowing for use of the surface water for additional commercial/residential development. F. Disadvantaged Community benefits: With the addition of a Title 22 WWTP, treated wastewater will be available to the community for irrigation purposes at a relatively low cost and possibly free of charge. The availability of this valuable resource will relieve the demand on surface water supplies currently being used for agricultural purposes. G. Project partners: None. H. Priority of project to proponent: Top priority project.

Project Number	Proponent	Project Name	Project Description
3	Tuolumne Band of Me-Wuk Indians	Murphy Ranch Meadow Restoration	a. The Murphy Ranch, a 660 acre parcel owned by the federally recognized Tuolumne Band of Me-Wuk Indians, represents a traditional cultural property which has a long and important history to both the Tribe and the greater Gold Country community. The northeast quarter of the property is dominated by an approximately 65 acre meadow. This meadow, which shows evidence of supporting many culturally significant plant and animal species as well as archaeological sites, is currently in disrepair. The primary threats to the overall health and functionality of this meadow are unmanaged grazing practices, moderate to severe erosion along stream courses, and an increasing dominance of invasive species in the plant community. Together these threats have the potential to further degrade the meadow from both an ecologic and cultural perspective. b. The primary objectives of this project would be to identify and implement practices necessary to restore meadow function, with a focus on supporting native and culturally significant plants, and improve water quality and aquatic habitat. c. In 2011/2012, the Tribe partnered with the USDA Natural Resources Conservation Service (NRCS), to complete a Conservation Activity Plan (CAP) on the Murphy Ranch which identified broad resource concerns and threats to ecosystem function. This CAP will serve as the foundation of these restoration efforts, and will direct the Tribe to seek input from specific professionals on how best to mitigate and/or address these problems. d. Deliverables from the project will be necessary survey reports from contracted professionals including, but not limited to: wetland delineation, botany, hydrology, and aquatic biology surveys. These reports will be used to develop an implementation plan for restoration work. Finally, upon completion of implementation activities, a status report and long term monitoring plan will be presented to the funding body. e. Expected outcomes of meadow restoration on the Murphy Ranch include late season water storage, flood attenuation, improved surface water quality, and improved habitat for culturally significant, state and federally listed sensitive, threatened and endangered plant and animal species. f. Beneficiaries of this Meadow Restoration Project include the Tuolumne Band of Me-Wuk community, as the meadow could regain its previous status as an important gathering area for traditional cultural activities. Other possible beneficiaries include all downstream landowners. The meadow located on the Murphy Ranch is one of few prominent meadows in the immediate area, and restoring its function will have surface water quality, water storage, and flood attenuation benefits for downstream sections of the creek. g. N/A h. Established project partners would include the USDA NRCS, as this agency has expressed interest in addressing the findings of the Murphy Ranch CAP plan. Other potential partners might include the USDA Forest Service, as this agency manages adjacent lands, other local/state agencies, as they have vested interests in downstream water quality, and regional non-governmental organizations with interest in overall ecosystem health and sustainability. i. Of the three projects put forth by the Tuolumne Band of Me-Wuk Indians for DWR Prop. 84 funds, this project takes third priority.
4	Stanislaus National Forest	Shell Meadow Restoration Project	Two stream headcuts in Shell Meadow, one five feet deep and one three feet deep, are actively migrating upstream, threatening the loss of the entire meadow. If no action is taken, the headcuts will advance, causing the channel to incise and the water table to drop. This would result in a loss of water storage in the meadow, loss of carbon storage, loss of floodplain connectivity, loss of Yosemite toad breeding habitat, loss of deer fawning habitat, degradation of water quality, and conversion of the meadow plant community to dryland species. The objective of the project is to stabilize the headcuts to prevent advancement into the meadow. Conceptual planning and all field work for NEPA were completed in 2012. NEPA is planned for winter 2012/2013. The Stanislaus National Forest has partnered with American Rivers, a 501(c) 3 non-profit, in submitting two grant proposals for design, permitting, and contract preparation funds at Shell Meadow. This includes a National Fish and Wildlife Foundation (NFWF) grant (awarded) as well as a Sierra Nevada Conservancy (SNC) grant (still in approval process). This work would occur in summer 2013 through spring 2014. Implementation is planned for fall 2014. The intermittent stream in Shell Meadow is a tributary to Niagara Creek, which flows into Donnell Reservoir and the Middle Fork Stanislaus River. Donnell Reservoir is part of the Tri-Dam Project, a partnership between the Oakdale Irrigation District and the South San Joaquin Irrigation District. Properly functioning meadows protect water quality by filtering and storing runoff as well as maintaining base streamflows, both of which are benefits to Tri-Dam. This project will also protect breeding habitat of Yosemite toad, a Forest Service Sensitive Species and a United States Fish and Wildlife Service (USFWS) candidate threatened species. The project will protect important fawning habitat for deer. More fawns are born in meadows than any other habitat, although meadows represent less than one percent of the area of summer range. Wet meadows meet the requirements of pregnancy and lactation better than any other habitat and receive especially high concentrations of does and fawns. Research conducted by UC Davis Extension on the Stanislaus National Forest found that soils under more moist meadow positions in properly functioning meadows have at least twice the carbon storage of non-functioning meadows. Therefore, stabilization of headcuts would prevent the drying of Shell Meadow and the loss of carbon storage. This project is priority 5 of 7 on the forest.
5	Stanislaus National Forest	Tuolumne-Stanislaus Meadow Protection & Restoration	Wet meadows and fens in the Tuolumne and Stanislaus watersheds are threatened by eroded banks, headcuts, depressed water tables, encroaching conifers and non-native vegetation, off-highway vehicle travel, and heavy livestock use. These disturbances not only jeopardize these special aquatic features, but also impact water quality and retention for downstream uses. Within four planning areas on the Stanislaus National Forest where the Forest Service is undertaking broad scale ecological restoration, we have identified seventeen meadows and fens where restoration treatments are urgently needed and environmental analysis has already been completed. Within these wetlands the project objectives are to restore and maintain ecosystem function by restoring stream hydrology, removing encroaching conifers and non-desirable shrubs, and creating fenced exclusions around special aquatic features including fens. To date all NEPA analysis is complete and conifer thinning and fencing treatments are ready to implement. Funding for design and permitting for stream restoration in five meadows has been secured. In addition fencing and replanting of native vegetation has already been completed in one meadow. The deliverables from the funding currently requested would include: (1) Completed treatment designs, wetland delineation, and secured environmental permits for five additional meadows (2) Repaired headcuts and channels via grade control structures in ten meadows (3) Removal of conifers and shrubs in seven meadows (4) Construction of exclusions around one meadow and five fens. Once completed, this project will improve the condition and ecosystem functioning of these wetlands and protect them from future degradation. The benefits of healthy meadows and fens are numerous and include improved habitat for fish, wildlife, and rare plants; improved late season water yield; improved downstream water quality; and increased livestock forage. Waters from these meadows feed into Don Pedro and New Melones reservoirs where they serve agricultural and municipal users in Calaveras, Tuolumne, Stanislaus, and San Joaquin counties which comprise several disadvantaged communities. Most of the project sites are within the Clavey River Watershed, the only critical aquatic refuge (CAR) on the Stanislaus National Forest. Portions of this project are conducted in partnership with the Tuolumne Band of Me-Wuk Indians and the California Department of Fish and Wildlife. Portions of the project have received letters of support from Tuolumne Utilities District (TUD), Central Sierra Environmental Resource Center (CSERC), Sierra Club, and the Tuolumne Band of Me-Wuk Indians. On October 12, 2012 the Yosemite-Stanislaus Solutions (YSS) collaborative group voted to support inclusion of those portions of the project occurring on the YSS landscape in an IRWMP submittal. YSS is a broad cross-section of nearly thirty stakeholders in private industry, environmental organizations, utility providers, and State and local government organizations. The project has also been funded in part by the Sierra Nevada Conservancy through a partnership with the Tuolumne River Trust. The Stanislaus National Forest rated this project as 2nd priority among those submitted by the Forest.

Project Number	Proponent	Project Name	Project Description
6	Stanislaus National Forest	South Fork Stanislaus River watershed restoration - Lyons	Forest roads in the South Fork Stanislaus River watershed between Lyons Dam and Pinecrest Lake are eroding, causing sediment to be delivered to streams, the South Fork Stanislaus River, and ultimately Lyons Reservoir. We have identified 61 eroding road segments that are hydrologically connected to water bodies and 115 culverts at risk of failure. More than 130 cubic yards of sediment have been mobilized into the watershed from these road segments and over 6 miles of roads are at high risk of future erosion. This sedimentation reduces aquatic habitat quality, decreases reservoir storage capacity, and decreases water quality in the primary drinking water supply for Tuolumne county. The proposed project reflects the Stanislaus National Forest's commitment to reducing sedimentation in this watershed and throughout the landscape. In 2010, the Forest service identified all at-risk road segments and culverts in this watershed and assessed existing erosion and risk of future erosion. In 2011 all at-risk culverts were cleaned and maintained in an effort to prevent culvert failures that cause large sediment inputs. Our objective now, for which grant funding is requested, is to stabilize existing erosion and limit new erosion of road surfaces in this watershed through maintenance and repair of road segments with hydrological connectivity. The expected deliverables are completion of environmental analysis (NEPA), engineering design for specific road treatments, and implementation of those treatments. Roads that have connectivity to water bodies will be maintained with treatments that will allow water to drain with minimal new erosion. These treatments will include road grading, repair and installation of rolling dips and driveable water bars, and maintenance of inside ditches and over-side drains. Some highly eroded segments will be reconstructed to prevent continued input of sediment into the watershed. After performing this work, we expect roads in the watershed to be more resilient to erosion. This means a reduction in road-generated fine sediment delivery to water bodies, improved aquatic habitat quality, reduced reservoir sedimentation, and improved water quality in a vital domestic water supply. This project is expected to be of benefit to the citizens of Tuolumne county, comprising several disadvantaged communities, who rely on Lyons Reservoir for their drinking water supply; Pacific Gas and Electric, which owns Lyons Reservoir; and Tuolumne Utilities District, the contract holder for water delivery from Lyons Reservoir. In addition forest users such as hunters, anglers, and other recreational users will benefit from improvement to aquatic ecosystems and driveable road surfaces. On October 12, 2012 the Yosemite-Stanislaus Solutions (YSS) collaborative group voted to support inclusion of this project in an IRWMP submittal. YSS is a broad cross-section of nearly thirty stakeholders in private industry, environmental organizations, utility providers, and State and local government organizations. The Stanislaus National Forest rated this project as 3rd priority among those submitted by the Forest.
7	Tuolumne Utilities District	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	a. Tuolumne county, through TUD's contract with PG&E, does not have enough water under its control to supply current and future water customers and meet the ecological demands of its current raw water delivery system. In addition, conflicts with recreation at TUD's primary water supply reservoir, Pinecrest Lake, are causing conflicts over the surface elevation of Pinecrest during the summer, which has resulted in a State Water Board restriction on access to mid summer water supply. Due to limited availability, no additional sources of groundwater of adequate quality and quantity have been identified. Water supply from New Melones Reservoir, although practical to serve a portion of TUD's service area, a contract for which has not been available due to environmental restrictions on use of the water during most years. b. The objective of this project would be to develop a solution for a long term, predictable and stable water supply. The project would also increase recreational opportunities, provide storage for flood control, generate hydroelectric power and revenue, provide supply predictability in the event of climate change and provide additional stored water for enhanced control of instream flows. c. The project has been developed enough to know that it is technically feasible from an engineering and geotechnical perspective. The next phase of the design would be to apply for water rights, consider partnering, exploring funding options, begin the permitting process which will include CEQA, NEPA and FERC, contract / agreement with PG&E, USFS and SPI, and the development of plans and specifications. d. The deliverables would include environmental documentation, licenses, contracts / agreements, reports on funding options and partners and final plans and specifications. e. The outcome would be the a complete plan of how to move the construction of the new dam forward. f. The beneficiaries would be the residents, businesses and visitors of Tuolumne county and any partner in the project. h. In addition to USFS, SPI, and Tuolumne County any other agency(s) and their customers that participated in the project. i. The important of this project to TUD is very high.
8	Stanislaus National Forest	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	A gully throughout the entire length of Red Rock Meadow has resulted in the drying of the meadow. The stream channel is not connected to its floodplain, the water table has dropped approximately 1 meter, bank stability is poor, and nearly all the meadow surface is covered by sagebrush, a dry species. This has resulted in degraded water quality, a loss of water storage, loss of carbon storage, and loss of deer fawning habitat. A redesign of the stream channel at a higher elevation is needed. This could be accomplished by filling the gully and raising the streambed or through pond and plug meadow restoration techniques. The objective of the project is to raise the water table in Red Rock Meadow in order to re-wet the meadow and improve water quality. The Juniper Uranium Mine is an abandoned mine located approximately 0.3 miles upstream of Red Rock Meadow. Reclamation of this CERCLA (Superfund) site is underway and has involved putting all the waste rock left over from the mining process back into the pit and burying it. Following completion in 2013, extensive monitoring for 3 years will ensure water quality protection. Approximately 1/2 mile of creek has been contaminated by the abandoned mine. Work has not yet begun in Red Rock Meadow. Planning, NEPA, design, permitting, and implementation would be phased at this site. Implementation is planned for fall 2019. The intermittent stream in Red Rock Meadow and adjacent to Juniper Mine is a tributary to the Middle Fork Stanislaus River, which flows into Donnell Reservoir. Donnell Reservoir is part of the Tri-Dam Project, a partnership between the Oakdale Irrigation District and the South San Joaquin Irrigation District. The Stanislaus National Forest has partnered with the Central Sierra Environmental Resource Center (CSERC) on this project. CSERC will provide staff to coordinate and recruit volunteers to assist in implementation needs such as collection of native seed, re-vegetation tasks, and other related work as needed. This project is priority 7 of 7 on the forest.
9	Stanislaus National Forest	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project (Version 2)	The South Fork Stanislaus River Watershed is of critical importance to the region. It is not only a source for most of the municipal water supply in Tuolumne County, but also hosts a diversity of meadows, fens, and springs, and key aquatic species' habitat. Yet, watershed values in the headwaters, the Upper South Fork Stanislaus River Watershed, are at risk from a number of sources including: wildfire, recreation, meadow degradation, and sedimentation from the transportation system. High fuel loading in this watershed has increased the risk of severe wildfire that could threaten water quality and watershed condition, as well as habitat and homes. Recreational impacts, particularly around Pinecrest Lake, threaten water quality. Meadow values, including subsurface water storage, flood attenuation capacity, water quality and carbon storage are at risk and have already been lost at some meadows. Culvert failures and erosion of road surfaces threaten water quality. This project is designed to address these threats and preserve the integrity of the Upper South Fork Stanislaus River watershed which is the Forest's highest priority for treatment in the IRWMP. Several components of this work have already been carried out. Prescribed burning and fuel treatments have been conducted to reduce the risk of severe wildfire and to improve the resiliency of the forest ecosystem. Functioning of one meadow has been restored through repair of a deep gully. Lakeshore improvements have begun which will enhance water quality. Culverts that have a high risk of failure have been identified as well as hydrologically connected road segments which could contribute sediment. The deliverables from the funding currently requested would include: 1) Completed treatment designs, permitting, and environmental analysis for restoration of six meadows and planning for an additional two meadows. 2) Implementation of meadow restoration that repairs headcuts and gullies, as well as a trail re-route. 3) Clearing and maintenance of at-risk road culverts in the meadows' vicinity. The expected outcome of this project is improved watershed condition through reduced risk of catastrophic wildfire, reduced sediment input from failed road culverts and road surfaces, improved water quality and improved meadow functioning. Deer fawning and Yosemite toad (FS Sensitive Species and USFWS candidate threatened species) breeding habitat would be protected and enhanced. Besides the ecological benefits to various species, domestic water users, residents and recreational users would benefit from improved water quality, improved watershed condition and a more resilient forest. Partners include Tuolumne River Trust and CSERC.
10	Stanislaus National Forest	Prather-Medusa Stream Channel Restoration and Road Decommissioning	The Prather-Medusa Stream Channel Restoration and Road Decommissioning Project restores watershed values within the Rattlesnake and Little Rattlesnake drainages of the Middle North Fork of the Stanislaus River. This area was hit very hard by the 1997 storms and subsequent runoff events and has not fully recovered. Reducing the compacted road footprint is part of the solution. The project will decommission 7.48 miles of unneeded roads as well as removing a large culvert and decommissioning a stream crossing on road 6N91 that presents a complete barrier to aquatic organism passage and interferes with stream geomorphic function. Of the total 7.48 miles of road decommissioning, 4.34 miles are roads within the Carson-Iceberg Inventoried Roadless Area. Stream restoration is needed to fix a large active headcut on a meadow riparian area tributary to Little Rattlesnake Creek. The gullied channel segment (400 feet) will be filled-in with earthen materials, reshaped, and held in place by a series of rock grade stabilizers imbedded in the channel at intervals. Channel restoration will raise the streambed to its pre-incision elevation, restore connectivity with the floodplain, cause the ground water table to rise, and increase the extent and vigor of riparian vegetation (aspen, willow, alder, cottonwoods). In addition, the ongoing erosion within this stream is providing a chronic source of excess fine sediment that is delivered to Little Rattlesnake Creek and may degrade water quality and aquatic habitat there. NEPA is completed. Design work has been completed for the culvert removal/stream crossing decommissioning on road 6N91, and for road decommissioning. Slide repair work has been completed on Road 5N14 by local contractors. Deliverables are completion of final restoration design for the gullied channel; obtain all required environmental permits; and implementation designed restoration. It is anticipated that road decommissioning will be implemented over the years 2013 through 2016 as three timber sales will occur successively. The project is priority 6 on the list of projects submitted by the Stanislaus Forest.

Project Number	Proponent	Project Name	Project Description
11	US Forest Service, Stanislaus National Forest	Mi-Wok Complex Thinning, Murphy Ranch Area	The large watershed above and below the Murphy Ranch area, the Hunter Creek drainage, burned in the 1987 Stanislaus Complex Fire. The significance of this event to down stream values is that post-fire erosion from this watershed alone routed very high levels of sediment to Don Pedro Reservoir, enough to lower storage capacity. Conditions are rapidly building to a high risk of wildland fire again, especially in unthinned plantations and where dense brush has taken hold. The Murphy compartment is the first area to be treated within the larger watershed. In fact, the Stanislaus Complex Fire started nearby on Paper Cabin Ridge (known for lightening strikes and fire starts). The project will thin 746 acres of plantation trees established on Forest lands adjacent to the private Murphy Ranch property. Stocking levels are very high in plantations, putting conifers and hardwoods at risk from insect or drought conditions or from a wildfire. The primary objectives are to reset fuel loading to more natural levels; create a young "fire resistant" forest of larger trees; and ultimately less catastrophic fire over the landscape. NEPA planning is now addressing road, wildlife and young forest sustainability issues. Reconstruction or maintenance is needed on 6.4 miles of road, of which 1.1 miles have segments that directly route sediment to stream channels. Thinning prescriptions will arrange residual groups of trees to provide hiding or thermal cover for deer. Amphibian habitat is expected to benefit. The deliverables of this project will be a healthier and vigorously growing conifer and oak woodland that is resilient to wildfire, drought and insect mortality. Treatments will also enable fire crews to be able to control any wildfire starts within the area, reducing the chance of spread to adjacent private land holdings. Water quality will be increased twofold: by reducing sediment transport from the road system/drainage features and by lessening wildfire intensity impacts to the watershed. Beneficiaries are Don Pedro Reservoir, the Stanislaus Forest, SPI holdings and private lands in the Wildland Urban Interface. Proximity of area to Wildland Urban Interface and risk of loss of previous investments gives this project a priority 4. On October 12, 2012 the Yosemite-Stanislaus Solutions (YSS) collaborative group voted to support inclusion of this project in an IRWMP submittal. YSS is a broad cross-section of nearly thirty stakeholders in private industry, environmental organizations, utility providers, and State and local government organizations. The Tuolumne Band of Me-Wuk Indians own nearby lands and have expressed interest as a project partner.
12	Tamarack Springs Mutual Water Company	Tamarack Springs Source Improvement Project	The Tamarack Springs Mutual Water Co. was established in 1967 and maintains a licensed public water system that provides water to 40 properties The water system has exceeded the MCL for coliforms in 28% of the months tested in the past 5 years. One sample in 2012 also tested positive for E. coli, resulting in a boil water notice. The system currently relies on two spring sources that are located 1900 feet uphill from the storage tanks and deliver water via unrated PVC piping. The goal of this project is to establish a new water source and delivery piping that will result in a clean feed source for domestic use. In order to improve the source water, we plan to establish a new groundwater source on private land nearer to the existing storage tanks. In the last 10 years, water companies in adjacent areas have successfully established wells and related infrastructure to support their communities. We anticipate that this project will be equally able to obtain sufficient supply of high quality water at similar depths of 700-800 feet. The scope of the project involves a geological survey, engineering and permitting, drilling at the selected location, and establishing the necessary pumping, piping, monitoring and structures needed to deliver the water to the existing distribution system. Based on the costs incurred by the neighboring communities, we estimate that a total project cost of $90,000 will be incurred. This project directly benefits the property owners of the Tamarack Springs subdivision. Tamarack Springs is located in census tract 5.04 of Calaveras County and has a median household income of $36,649. This is the only project put forward at this time, and therefore has the highest priority.
13	Tuolumne Utilities District	Phoenix Bypass Ditch Pipeline	a. Nearly half of the raw water used by Tuolumne Utilities District is received from PG&E delivered through the Phoenix Lake Power House located on Power Creek approximately 4,700 feet upstream from Phoenix Reservoir. This raw water is currently conveyed in 4,350 feet of open ditch starting from Power Creek to 16 inch pipe that conveys water directly to the Shaws Flat Pipeline. The Shaws Flat Pipeline serves water to Sonora and Jamestown areas. This existing conveyance structure is undersized requiring use of water directly from Phoenix Lake, and is subject to significant maintenance problems and related expense and water quality problems including debris and contaminates from the urban runoff in the watershed above the ditch at this location. Without this project, these conditions will worsen over time. b. The objectives of the project are to: 1. Bypass a segment of open ditch and undersized pipeline with an appropriate sized pipeline. 2. Provide needed capacity for this reach of conveyance. 3. Protect the source water from disease-causing microorganisms and turbidity subject to the open ditch at this location. 4. Provide water use efficiency by use of modern pipeline conveyance infrastructure. c. Preliminary design and calculations demonstrate that the proposed size and routing are feasible and will meet the objectives for this project. d. The deliverables are to install an operating pipeline from the TUD Power Creek Phoenix Bypass diversion point to the outlet tower in Phoenix Lake. e. The expected outcome of this project is that the proposed pipeline will provide safer, and more water use efficiency at an appropriate delivery rate of water to the service areas and related communities of Sonora and Jamestown. f. The beneficiaries of this project include the DAC, businesses, schools, and support services of Sonora and Jamestown. g. The Disadvantaged Community benefits from having a more efficient and safer water delivery system to the Sonora and Jamestown areas.
14	City of Angels Camp	City of Angels Camp Secondary Water Supply	a. Problem: The City of Angels is in need of a secondary water supply to supplement existing water agreements with UPA and provide water during emergencies such as a drought or the Darby Fire in 2001 which compromised our water supply for and extended period of time. b. Objective: To have secondary supplementary & emergency water supplies available in order to be prepared for time of uncertainty in supply and usage. To pursue alternative options for providing supplementary & emergency water supply in the event that our usage exceeds our existing agreements and or the flume system is damaged, the most likely option seems to be the construction of one or more wells. Having an alternative water supply provides redundancy within the water system and allows water to continue to be treated and sent to the distribution system when the primary supply is exceeded or compromised. c. Design Phase: The City is working on a water master plan and hopes from there to begin design of the project as money permits. d. Deliverables: The City is working on a water master plan and hopes from there to begin design of the project as money permits. e. Expected outcome: For the City is to secure a secondary water supply for the future of the City. f. Beneficiaries: The City is the primary beneficiary. Union Public Utility District (UPUD), Utcia Power Authority (UPA) & Calaveras County Water District (CCWD) are secondary beneficiaries of a secondary water supply for the City especially during emergency situations such as Drought or Fire. g. DAC benefit: The City of Angels is a DAC. h. Project Partners: City of Angels Camp, Union Public Utility District (UPUD) & Utcia Power Authority (UPA) i. Priority of project to proponent: Of highest importance due to the nature of emergencies and there unpredictability.

Project Number	Proponent	Project Name	Project Description
15	Union Public Utility District	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	a. Statement of Problem The District currently operates two irrigation water delivery systems (North and South Ditch) which provide water to agricultural users in the towns and rural areas of Murphys, Vallecito, Douglas Flat, and Carson Hill. In addition, portions of these delivery systems provide fire flow for fire protection of some of the communities. The North Ditch system primarily serves the town of Murphys and surrounding areas and was installed in the 1950's. The irrigation line proposed to be replaced was constructed of spiral welded steel pipe which has greatly exceeded is lifetime and has experienced significant leaks in recent history. In addition, the existing line size is inadequate based upon demand projections. This line is the main feed line for the entire North Ditch system and also provides fire protection thru three fire hydrants for portions of the town of Murphys adjacent to State Highway 4. This project was identified as a need during 2008 as part of a review of priority irrigation line replacement projects in the District and was placed on a 1 to 5 year replacement schedule as the District's top priority irrigation project. b. Objectives The project would replace approximately 3500 lf of existing North Ditch irrigation line to increase reliability and capacity. • The project would increase flows available to the North Ditch irrigation delivery system thereby accommodating future agricultural growth with the subsequent job creation associated with agriculture. • The project would also provide adequate and reliable water supply for fire flow. c. Design Phase All survey work has been completed for the project and a set of preliminary engineered improvement plans have been completed. Remaining work consists of completion of CEQA document, Caltrans Encroachment Permit, and specifications suitable for bidding.
16	Tuolumne County Resource Conservation District	Small Acreage Land Stewardship Program	The purpose of this project is to develop a program to achieve immediate and lasting reductions in nutrient, sediment and pathogen pollution to surface and ground waters in the Tuolumne and Stanislaus River watersheds through implementation of BMPs on small acreage livestock facilities in Tuolumne County. The project entails development of a locally relevant, full program of LID-type management practices that reduce sediment load and other pollutants from small rural parcels, especially those with confined livestock. The project is based on proven and successful programs implemented throughout the country such as the Sustainable Agriculture Research and Education and University of California Cooperative Extension's "Living on the Land" program. The primary goal of this project is to reduce nonpoint source (NPS) pollution in the Stanislaus and Tuolumne River watersheds. This will be accomplished by engaging a portion of the community, small acreage landowners with significant potential to adversely impact water quality throughout these two watersheds. This community is outside of the traditional support network for agriculture and therefore will benefit from targeted education and outreach. Additional goals and objectives of this project are to: • Integrate public participation into the project by leveraging the existing equine community in the watershed to provide targeted outreach. • Facilitate the use of sustainable best management practices that will result in reductions in nonpoint source pollution, resulting in benefits to aquatic biological resources and habitat. • Support existing and future restoration efforts by reducing nonpoint source pollution impacts. • Benefit aquatic biological resources and environmental education and outreach through a maintenance-based project that both addresses water quality improvements and provides environmental education outreach. The project will include six major components: 1. Assemble and Develop Library References – The Library will include fact sheets and publications related to small parcel land management including managing mud, manure, roof runoff, drainage, etc. 2. Develop EEO Program –The Education and Outreach program will include development of locally relevant presentation materials that can be used for ongoing technical assistance to landowners and for workshops.
17	Amador Tuolumne Community Action Agency	In-Home Water Conservation for the DAC	* The Problem: > The Amador Tuolumne Community Action Agency concerns itself with the Disadvantaged Community. As pertains to water, the DAC is concerned with cost. We therefore propose to use grant funds to mitigate water costs by assessing, then installing water conservation measures in homes and businesses. * The objective: > To stabilize or reduce the money a given home or business must spend on water by identifying and installing water conservation measures in their home or business. > To stabilize or reduce water usage with client education. * Design Phase: > ATCAA already has the entire infrastructure built out. We have crews, shops, vehicles and tools in addition to an outreach/intake staff. We weatherize homes in the entire TR-IRWM region in an effort to conserve electricity & gas. Our outreach/intake staff income-qualifies applicants, prioritizes them according to level of need and then the crews work on their homes. By adding a suite of water conservation measures, we can accomplish our objective without a ramp-up or design phase. > The suite of conservation measures we propose has been sent to KJ and is available on request. > Any small business in the region, i.e. restaurants, nurseries, car washes, etc., could apply for a water audit and conservation measures in an effort to address water waste on a larger scale. * Deliverables: > ATCAA will develop a table of goals and work accomplished on a monthly basis that, depending upon our award amount, will include the number of homes and businesses worked, the measures installed and the savings expressed in both dollars and gallons saved. > Every person, family or business we encounter would receive conservation education materials. * Expected Outcomes: > Similar to our energy conservation work, we would expect to make significant, measurable reductions in water use. > We would reduce the financial burden related to water for virtually every home or business we work on. * Beneficiaries: > Individuals and families who make less than 80% of the state median income. By using our prioritization system, we would be serving the lower end of the DAC: individuals and families who can least afford to pay for water services. > Small, water-intensive businesses should be included. We would define the most likely candidates and direct our outreach efforts directly towards

Project Number	Proponent	Project Name	Project Description
18	Tuolumne Utilities District	Phoenix Lake Preservation and Restoration	a. The storage capacity and water quality in Phoenix Lake is declining. On average approximately 4,600 cubic yards of sediment is deposited in Phoenix Lake annually. This sedimentation has led to decreased water quality and the promotion of invasive aquatic vegetation which in turn decreases the quality of the water. b. The Phoenix Lake Preservation and Restoration project will decrease the sediment loading to the lake, remove deposits from the lake thus restoring storage capacity and improve the quality of the water while promoting fish and wildlife habitats. c. On July 12, 2012 the TUD board approved the Phoenix Lake Preservation and Restoration Plan. This plan provides the feasibility and planning criteria for the proposed project. Environmental compliance and design plans will be completed next. d. Deliverables will include, but not be limited to; environmental compliance document, construction design plans and specifications, construction contract documents, project status updates, and a final report. e. Implementation of the plan will provide 139 acre-feet of restored capacity to Phoenix Lake, reduction of erosion and sediment deposition into Phoenix Lake and in the various watersheds, improved water quality, and improved habitat for fish and wildlife. f. The beneficiaries of the project will be customers of TUD, both domestic and agricultural users, the environment, the Sullivan Creek, Tuolulmne River, and Delta watersheds. g. The cost of treated the water in Phoenix Lake will be reduced by improving source water quality. These cost savings can be passed on to the customers in the disadvantaged communities via their water rates. Conversely, if improvements to the source water quality are not done, the cost of treating the water and meeting the required health standards will increase. Restored storage capacity will also increase the District's ability to provide water supply for longer durations during emergencies. Also the construction components will provide jobs and economic benefit to the region. h. Potential project partners include, but are not limited to; Tuolumne County, Tuolumne County Resource Conservation District, private landowners, and PG & E. i. The proposed project is a high priority for TUD. The proposed improvements will be a huge benefit to both TUD and the environment.
19	Tuolumne Utilities District	West Ranch Recycled Water Reservoir	The Tuolumne Utilities District ("TUD") is the administrator of the Regional Reclamation System ("Regional System"). The Regional System collects, stores, and disposes of treated wastewater effluent from the Jamestown Sanitary District, TUD collection system, and the Twain Harte Community Services District. The communities of Columbia, Jamestown, Sonora, Twain Harte, and other unincorporated areas of Tuolumne County are served by the system. The system is currently operating under a "Cease and Desist Order" from the State Water Resources Control Board (SWRCB) due to violations from past discharges of treated wastewater to Woods Creek. In addition to the Cease and Desist Order, a new NPDES Permit has been issued to TUD that would require costly upgrades to treatment facilities at TUD and the Jamestown Sanitary District treatment plants. In keeping with the SWRCB's state policy of preferring effluent land disposal over surface water discharge, TUD is pursuing a policy of 100% land disposal. In order to eliminate surface water discharge in all but the wettest of years and to accommodate future growth in wastewater connections, the Regional System needs to develop approximately 500 acre-feet of additional recycled water storage over the next 40 years. Coupled with additional storage will be the phased development of additional irrigation areas. TUD has already completed a Facilities Plan as required under the SWRCB Small Community Wastewater Grant Program and has determined that the land disposal approach delivers the highest economic and non-economic advantages. In 2005, TUD and its regional partners purchased a 140-acre parcel of land suitable for a new 650 acre-foot recycled water reservoir. An environmental "fatal-flaw" analysis has been conducted. The next steps involve final CEQA compliance and preliminary design. The design phase would likely last between 2-3 years, including acquiring the necessary permits from Division of Safety of Dams.
20	Tuolumne Utilities District	Section 4 Raw Water Storage	a. During the annual ditch outage and when on Lyons storage TUD does not have enough raw or treated water storage. This project will address TUD customer needs and reduce the impact to the recreation, by a lower lake level, at Pinecrest Lake. b. This project wold provide raw water storage that could be used during the annual ditch outage or when on stored water in Lyons. (From the end of spill to Labor Day.) c. The feasibility phase of the project is complete. This application is for the design and construction phase of the project. d. The deliverable products are the final design, environmental documents and the construction of the dam. e. A completed project. f. The entire TUD water customer base and all that visit Pinecrest Lake. g. A more reliable water supply. i. This part of the TUD strategic plan and therefore is one of our higher priorities.

Project Number	Proponent	Project Name	Project Description
21	Tuolumne River Trust	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Problem Statement Foothill Horizons Outdoor School is located along Phoenix Creek above Phoenix Lake. The site is heavily used by 6th graders, primarily from Stanislaus County, and has a degraded meadow that was the focus of an earlier restoration effort but which was never completed. Portions of the meadow are covered with yellow star thistle and, due to dry meadow conditions, subject to encroaching conifers. Other locations on the site are subject to erosion due to undersized culverts and highly impacted foottrails. Objectives The objective of this project is to restore the meadow and fix erosion problems on site. This would be accomplished through three elements: 1) Meadow restoration – fix a solar pump that provides water to the meadow; remove yellow star thistle; remove encroaching conifers. 2) Reconfigure and stabilize eroding trails. 3) Replace an undersized culvert that is causing significant erosion on the downstream side. Project Design The design for this project still needs to be completed, but we anticipate it will be relatively straightforward. Deliverables The specific deliverables for this project include: 1) Restored meadow (properly functioning solar pump, removal of yellow star thistle, removal of encroaching conifers). 2) Stabilized foot trails 3) Improved storm water runoff through a properly sized culvert. Expected Outcomes Through this project, we expect the following project outcomes: 1) Better meadow function through improved hydrology, removed conifers, and reduction in the coverage of yellow star thistle. 2) Reduced sediment loading through stabilizing foot trails and replacing an undersized culvert. Beneficiaries This project will benefit Phoenix Lake, the Tuolumne Utilities District, and the TUD service area. Phoenix Lake currently received approximately 4,600 cubic yards of silt and sediment every year. Erosion of Foothill Horizons site runs off directly into the reservoir, thus fixing these sites will reduce the annual sediment load. The project will also benefit students of Stanislaus County who visit the site by enhancing the quality of the site and the overall educational experience for the children. Finally, the project will benefit the environment in general through a improvements to meadow function and bank stability.
22	Tuolumne River Trust	Watershed Outreach, Stewardship, and Water Efficiency Incentives	a. Statement of problem to be addressed by the project The problem this project would address is a limited water supply in a region who's population is projected to grow by nearly 23,000 people or 32% over the next 25 years. As the population continues to grow it will be necessary to use water more efficiently and wisely to ensure that there are adequate supplies to meet the growing need. We will also need to engage our community in active stewardship of our watersheds to maintain high water quality. b. Objective(s) The objective of this project is to develop a public education and incentive program to engage the public in wise water use and watershed stewardship. We will do this through a public education campaign that includes the internet and social media as well as presentations, news articles, and tabling at local events. We will also offer 2-3 watershed stewardship opportunities, such as river cleanups, noxious weed control projects, etc. to directly engage the public in the care of our watersheds. Finally, we will offer a limited incentive program to encourage people to install water saving devices. c. Design phase Conceptual planning for this project is complete. Specific planning will be straightforward as we are not proposing to build anything new. Thus there is no project "design" per se. d. Deliverables Deliverables would include the following: • Water smart website with information about how to make your residence and/or business more water efficient • 10 presentations and/or tabling events per year on watershed stewardship and water use efficiency • 3 media placements per year on watershed stewardship and water use efficiency • 2-3 watershed stewardship volunteer events per year for 3 years • Water efficiency incentive program offering a limited number of rebates on up to 5,000 low-flow toilets and 2,500 high efficiency washing machines for residents throughout the Region. e. Expected outcome(s) The expected outcomes of this project are: A public that is better informed about our watersheds, our water system, where our water comes from, and how to use it wisely and protect it for future generations. We also expect real water savings as people become more aware of their own water use and make changes in their daily lives. Water savings will also be realized as people install water saving devices in their homes. f. Beneficiaries The beneficiaries of this project are residents throughout the Tuolumne-Stanislaus IRWM in Tuolumne and Calaveras Counties. g. Disadvantaged Community benefits, if applicable The Tuolumne-Stanislaus includes many disadvantaged communities. This project would benefit these communities as it would the entire region. h. Project partners Presently the project is led by the Tuolumne River Trust, although we would welcome additional partners as the project develops further. i. Priority of project to proponent. This project is a high priority to the Tuolumne River Trust.

Project Number	Proponent	Project Name	Project Description
23	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Tuolumne County has an exceeding amount of failing sewer septic systems that are polluting surface water streams as well as underground aquifers. This project entails doing all necessary planning and surveys necessary to determine the feasibility of linking Twain Harte CSD (Sherwood Forest area), Tuolumne Utilities District (TUD) (Ponderosa Hills area), the Tuolumne Rancheria and Tuolumne City Sanitary District (TCSD) together via a sewer interceptor line. This complex system would allow the removal of 149 septic systems in the Twain Harte area, 400 systems in the TUD/Ponderosa Hills area and 100 systems ion the Tuolumne Rancheria. This could potentially remove 61,681 gallons of raw liquid sewage per day from soils, streams and aquifers and place it in a regulated sewage treatment system at TCSD (calculations based upon average daily sewage of 31.68 gallons per person per day and assuming 3 person dwellings at each of the septic systems abandoned). This project will benefit the disadvantage communities of Ponderosa Hills, Tuolumne Rancheria and Tuolumne City by increasing the values of properties, lessening the burden of having to fund new engineered septic systems which require costly annual inspections and the removal of contaminants from their soils, streams and aquifers and thereby improving water quality within the region. Additional benefits will be realized by the local agricultural community and the community as a whole through increased land application of treated sewage and reduction of discharge into Turnback creek. This project is currently in the conceptual phase and funding is being requested to complete all surveys/studies regarding environmental and other impacts as well as develop a design for the infrastructure. The proponents of the project expect that the deliverables/outcomes will include all documentation, planning, and accurate cost estimates necessary to make an informed decision on whether implementation would be possible, cost effective, etc. Long term Outcomes of implementation of such a system would include decreased contaminant levels in streams and aquifers. This can be confirmed through ongoing in-stream monitoring that benchmarks current contamination levels. Additionally, this project will provide a much needed economic stimulus for the local community. This project would constitute the only project that Twain Harte CSD is submitting for funding and would therefore be its top priority. This project represents one of three projects put forth by the Tuolumne Band of Me-Wuk Indians, however it take top priority for the Tribe.
24	City of Angels Camp	Filter Backwash Water Settling Ponds and Recycling Project	a. Problem: Currently, the City discharges its filter backwash and Sedimentation Basin cleaning water into a ditch system that leads directly into a creek behind the WTP without a NPDES permit which is not in compliance with the California State regulations. b. Objective: In order to comply with state regulations, the City is needing to construct settling ponds in which to collect the backwash and Sedimentation Basin cleaning water and settle out solids in the water. Once ponds are installed, the City would work with CDPH to determine what portion of the water may be recycled through the headworks of the WTP. This would increase the efficiency of the WTP as well as promote water conservation. Pilot or full-scale testing is needed to establish the recycle rate that the City could obtain. City will not be able to recycle all of the backwash water and will have to discharge a portion of the water in some way or another. The city will have to either obtain a NPDES permit and discharge the backwash water to the creek behind the WTP or to discharge the water to the Cities collection system and then to the wastewater treatment plant for treatment and disposal. This second option will require collection system flow studies to determine feasibility due to an already surcharged collection system. c. Design Phase: The City is working on a water master plan and hopes from there to begin design of the project as money permits.
25	Calaveras County Water District	Douglas Flat/Vallecito Storage Ponds	The Douglas Flat/Vallecito WWTP was recently upgraded to tertiary treatment with a design flow of 86,500 gallons per day. Currently the limiting factor is effluent storage. The existing storage is only capable of handling 75,000 gallons per day. However the spray fields can take considerably more effluent and there is a strong potential for recycled water use from the are agricultural sources, if the storage ponds are expanded. The current storage pond has a capacity of 59.2 acre feet. The objective of the project is to increase the storage capacity of the ponds to allow for utilization of the entire design capacity of the treatment facility. The treatment plant produces high quality tertiary treated water which can be used for recycling. Increasing the capacity of the flow would also improve ground water quality since there would be no need for septic tanks. The design phase would include development of plans and specifications for the construction of the new 86 acre feet storage pond. All environmental documentation and permitting would be completed. The District would complete construction of a new storage pond with increased capacity. The new pond would have a storage capacity of 86 acre feet. The new storage pond would insure that all existing infill and existing septic facilities would be able to tie into the facility. This would have a positive impact on the groundwater in the area. The original wastewater treatment was built due to public health concerns. although the plant has reduced the problem further improvement to eliminate the septic tanks is a very positive move.

Project Number	Proponent	Project Name	Project Description
26	Tuolumne Me-Wuk Tribal Council	Tuolumne Rancheria Septic Abandonment Project	a. The Tuolumne Rancheria has 73 residential septic systems; a great majority of which are failing. Failing septic systems contribute to degradation of water quality. The US Indian Health Services and the US Environmental Protection Agency are currently conducting a planning study to determine the feasibility of constructing an on-site sewer system. The proposed T-S IRWMP project is the actual abandonment of the septic systems after the sewer system installation. b. The project's objective is to mitigate the potential for watershed degradation due to failing septic systems and associated pollutants impacting ground and surface waters. c. In the the Spring of 2012, the USEPA funded a planning grant on behalf of the Tuolumne Me-Wuk Tribal Council and Indian Health Services to conduct a septic to sewer feasibility study of the Tuolumne Rancheria. Once completed, the study will be followed up by a design phase, NEPA review and construction phase, depending on availability of funding. Septic abandonment will be addressed as an integral part of the overall project. d. A report documenting all abandoned systems will be complied. In addition, as part of the Tribe's Clean Water Act 106 monitoring program, continued water quality testing of on-site surface water conditions will be conducted. e. Through the proper abandonment of failing septic systems expected outcomes include the measurable decrease of contaminants entering surface and groundwater systems, thereby improving water quality. f. Beneficiaries of this project include the Tuolumne Rancheria community, downstream landowners and others with interest in the overall health and stainability of the watershed. g. The Tuolumne Rancheria is a DAC as of the 2000 Census.
27	Groveland Community Services District	Big Oak Flat- Sewer LS #16 Reconstruction	The Groveland Community Services District, Groveland, CA (GCSD) Sewer Lift Station (#16) adjacent to State Highway 120 at the west end of the Big Oak Flat Community is in serious need of reconstruction. This sewer lift station pumps an average of 1 0,000 gallons of sewage a day, 365 days per year via a 7,000'+ force main up a very steep grade to a gravity break over and into a 6" gravity sewer line, which goes to the District's Sewer Treatment Plant. This is the single most needed capital improvement project in all of GCSD. The current lift station was constructed in 1976 and needs to be reconstructed in order to dramatically reduce the potential of a sewage spill into the adjacent Rattiesnake Creek (which is tributary to Lake Don Pedro and the Tuolumne River) in the future. The objective of this project is to not only reconstruct this lift station with state-of-the-art equipment (compatible with equipment that the District already has, so that parts can be interchangeable and operators have a familiarity and knowledge of other existing similar equipment), but to provide redundancy and back-up pumping capability at the lift station. Should a pump at the reconstructed lift station fail or need to be removed or taken out of service for maintenance reasons. the second pump system would be put into action and the operation resume immediately.The design of this lift station reconstruction, will mirror in many ways, existing lift station designs (the best of the best) that we already have in other portions of the District. in order to keep reconstruction design costs down. This will result in simplified construction drawings and specifications (utilizing existing specifications) for use in bidding of this reconstruction work. The expected outcome of this project will be to provide a reconstructed lift station for the Big Oak Flat Community (Disadvantaged Community) that is reliable and will serve the needs of the community for many years to come.The beneficiaries of this project will be: GCSD; the entire Big Oak Flat Community (which is a Disadvantaged Community based on median household income); the folks who use Don Pedro Reservoir and the TUOlumne River for swimming, boating and drinking/irrigation water; the flora and fauna that live along the Rattlesnake Creek, etc.GCSD will be partnering with the Tuclumne-Staruslaus IRWM and SFPUC, Hetch-Hetchy Water and Power Division to accomplish this project.
28	Groveland Community Services District	Big Oak Flat-Water Distribution System Improvements	The Big Oak Flat Community (portion of Groveland Community Services District (GCSD)) water distribution system is in serious need of improvement. The proposed project consists of miscellaneous water distribution system upgrades to provide better and more reliable water service in Big Oak Flat. The water distribution system in Big Oak Flat is aged and. undersized to provide adequate service, Most of the water distribution system in Big Oak Flat was constructed berore the 1960's. The water distribution system in Big Oak Flat is within two separate pressure zones. Most of the water distribution pipeline that supply water to Big Oak Flat area are 4" in diameter. Serious compliance deficiencies were identified in Big Oak Flat during the preparation 01 the 2001 GCSD Water Master Plan. Water distribution modeling indicated that the water system in Big Oak Flat was unable to supply adequate fire flows primarily due to the undersized pipes. Modeling results were also confirmed by Tuolumne County Fire Hydrant Test Results. None of the fire hydrants in Big Oak Flat was able to provide adequate fire flow. In addition to inadequate fire flows, frequent water main breaks take place in this part of the system causing service interruptions. The objective 01 this project is to improve the existing water distribution system in order to provide: adequate fire news. adequate and reliable water supply to residents and businesses, and to reduce the amount of water lost in the distribution system. The conceptual design of these water distribution system improvements has already been done and we are anxious to go forward with final design and implementation. The expected outcome of this project is to be able to provide the Big Oak Flat Community with abundant, reliable water supply. that meets all of the needs of its businesses and residents, especially the need to provide proper, adequate fire now. The beneficiaries of this project will be: GCSD; the entire Big Oak Flat Community (which is a Disadvantaged Community (DAC), based on median household income); all of the folks in the GCSD and Hetch-Hetchy service area because of reduced loss of water from the distribution system, etc. GCSD will be partnering with the Tuolumne-Stanislaus IRWM and Tuolumne County Public works Department to accomplish this project. This is a very important project to GCSD and to the Disadvantaged Community of Big Oak Flat.
29	Groveland Community Services District	Groveland Townsite-Water Distribution System Improvements	The Groveland Townsite (portion of Groveland Community Services District {GCSD)) water distribution system is in serious need of improvement. The proposed project consists of miscellaneous water distribution system upgrades to provide better and more reliable water service in Groveland. The water distribution system in Groveland is aged and undersized to prevue adequate service. Most other water distribution system in Groveland was constructed before the 1960's. The water distribution system in Groveland is within two separate pressure zones. Most of the water distribution pipeline that supply water to Groveland area are 4" in diameter. Serious compliance deficiencies were identified in Groveland during the preparation of the 2001 GCSD Water Master Plan. Water distribution modeling indicated that the water system in Groveland was unable to supply adequate fire flows primarily due to the undersized pipes. Modeling results were also confirmed by Tuolumne County Fire Hydrant Test Results. None of the fire hydrants in Groveland were able to provide adequate fire flow. In addition to inadequate fire flows, frequent water main breaks take place in this part of the system causing service interruptions. The objective of this project is to improve the existing water distribution system in order to provide: adequate fire flows, adequate and reliable water supply to residents and businesses. and to reduce the amount of water lost in the distribution system. The conceptual design of these water distribution system improvements has already been done and we are anxious to go forward with final design and implementation. The expected outcome of this project is to be able to provide the Groveland Townsite with abundant, reliable water supply, that meets all of the needs of its businesses and residents especially the need to provide proper, adequate fire flow. The beneficiaries of this project will be: GCSD; the entire Groveland Community (which is a Disadvantaged Community, (DAC) based on median household income); all of the folks in the GCSD and Hetch-Hetchy service area because of reduced loss of water from the distribution system, etc. GCSD will be partnering with the Tuolumne-Stanislaus IRWM and Tuolumne County Public Works Department to accomplish this project. This is a very important project to GCSD and to the Disadvantaged Community of Groveland.

Appendix E.3

Project Sorts

Tuolumne–Stanislaus Average of TRC Project Scores – Sorted by Total Average Score

8/14/2013

Project No.	Project Name	Project Proponent	Part 2- TS IRWM Objectives	Part 3 + 4 - IRWM Program Preferences and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Score (Statistics of the TRC Review Panel)				Readiness to Proceed	Project Cost			Start Date
	Maximum Points Possible		*56*	*54*	*48*	*158*				*24*				
	Range of Points		*7-38*	*8-33*	*24-40*	*44-91*				*8-24*				
						Average	Min	Max	Δmin/max	Score	Grant Request	Match	Total	
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	**91**	40	109	69	14	NQ	NQ	$20,000,000	3/1/2014
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	**87**	46	107	61	8	NQ	NQ	$225,000	
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	**78**	55	92	37	18	$162,250	$66,934	$264,731	3/1/2008
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	**76**	55	91	36	19	$557,000	$1,380,556	$1,937,556	8/1/2012
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	**73**	59	86	27	18	$25,725	$21,900	$47,625	8/1/2012
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	**75**	43	87	44	16	NQ	NQ	$1,200,000	3/1/2015
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	**70**	47	87	40	11	NQ	NQ	$18,500,000	12/1/2014
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	31	**68**	50	83	33	15	NQ	NQ *	$5,500,000	1/1/2013
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	**66**	51	92	41	24	NQ	$5,000	$450,000	5/1/2013
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	**66**	43	83	40	19	$199,935	$103,810	$303,745	4/1/2010
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	**65**	42	86	44	20	$248,452	$221,852	$470,304	7/15/2014
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	**62**	45	84	39	18	NQ	$5,000	$125,000	5/1/2013
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	**63**	40	75	35	17	NQ	NQ	$20,000	5/1/2014
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	**63**	53	74	21	15	NQ	NQ	$109,500	5/1/2014
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	**62**	32	86	54	20	$702,000	$246,820	$948,800	5/9/2012
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	**61**	53	80	27	20	NQ	NQ *	$978,500	1/1/2013
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	**62**	44	82	38	11	$295,000	$2,343,495	$2,638,495	9/1/2019
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	**60**	48	73	25	19	NQ	$5,000 *	$1,369,000	9/1/2012
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	**60**	41	73	32	15	NQ	NQ	$1,200,000	6/1/2013
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	**60**	38	78	40	14	NQ	NQ *	$23,900,000	3/1/2014
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	**59**	48	73	25	19	NQ	$5,000 *	$1,232,000	9/1/2012
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	**58**	46	68	22	19	NQ	$5,000 *	$672,000	9/1/2012
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	**58**	47	75	28	21	NQ	NQ *	$250,000	1/1/2013
16	Small Acreage Land Stewardship Program	Tuolumne County Resource Conservation District	15	12	30	**57**	44	73	29	16	NQ	NQ	$242,375	1/1/2013
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	**53**	31	68	37	15	NQ	NQ	$8,000,000	3/1/2014
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	**51**	39	64	25	19	NQ	NQ	$90,000	5/1/2013
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	**49**	36	72	36	20	NQ	NQ *	$872,000	12/1/2012
1	Water Quality Monitoring Enhancement Program	Tuolumne County Resource Conservation District	9	8	28	**45**	32	68	36	15	NQ	NQ	$92,000	1/1/2013
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	**45**	32	64	32	11	NQ	NQ	$1,000,000	6/1/2013

Note: Light blue = Total scores of 66-91; Grey=total scores of 60-65; Yellow=total scores of 59 and below.

Tuolumne–Stanislaus Average of TRC Project Scores – Sorted by IRWM Program Preferences and Statewide Priorities

8/14/2013

Project No.	Project Name	Project Proponent	Part 2- TS IRWM Objectives	Part 3 + 4 - IRWM Program Preferences and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Score (Statistics of the TRC Review Panel)				Readiness to Proceed	Project Cost			Start Date
	Maximum Points Possible		*56*	*54*	*48*	*158*				*24*				
	Range of Points		*7-38*	*8-33*	*24-40*	*44-91*				*8-24*				
						Average	Min	Max	Δmin/max	Score	Grant Request	Match	Total	
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	**87**	46	107	61	8	NQ	NQ	$225,000	
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	**91**	40	109	69	14	NQ	NQ	$20,000,000	3/1/2014
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	31	**68**	50	83	33	15	NQ	NQ *	$5,500,000	1/1/2013
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	**63**	53	74	21	15	NQ	NQ	$109,500	5/1/2014
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	**78**	55	92	37	18	$162,250	$66,934	$264,731	3/1/2008
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	**58**	47	75	28	21	NQ	NQ *	$250,000	1/1/2013
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	**60**	38	78	40	14	NQ	NQ *	$23,900,000	3/1/2014
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	**76**	55	91	36	19	$557,000	$1,380,556	$1,937,556	8/1/2012
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	**66**	51	92	41	24	NQ	$5,000	$450,000	5/1/2013
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	**73**	59	86	27	18	$25,725	$21,900	$47,625	8/1/2012
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	**61**	53	80	27	20	NQ	NQ *	$978,500	1/1/2013
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	**70**	47	87	40	11	NQ	NQ	$18,500,000	12/1/2014
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	**63**	40	75	35	17	NQ	NQ	$20,000	5/1/2014
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	**62**	44	82	38	11	$295,000	$2,343,495	$2,638,495	9/1/2019
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	**66**	43	83	40	19	$199,935	$103,810	$303,745	4/1/2010
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	**62**	32	86	54	20	$702,000	$246,820	$948,800	5/9/2012
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	**59**	48	73	25	19	NQ	$5,000 *	$1,232,000	9/1/2012
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	**60**	48	73	25	19	NQ	$5,000 *	$1,369,000	9/1/2012
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	**62**	45	84	39	18	NQ	$5,000	$125,000	5/1/2013
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	**60**	41	73	32	15	NQ	NQ	$1,200,000	6/1/2013
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	**65**	42	86	44	20	$248,452	$221,852	$470,304	7/15/2014
16	Small Acreage Land Stewardship Program	Tuolumne County Resource Conservation District	15	12	30	**57**	44	73	29	16	NQ	NQ	$242,375	1/1/2013
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	**74**	43	87	44	16	NQ	NQ	$1,200,000	3/1/2015
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	**58**	46	68	22	19	NQ	$5,000 *	$672,000	9/1/2012
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	**53**	31	68	37	15	NQ	NQ	$8,000,000	3/1/2014
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	**49**	36	72	36	20	NQ	NQ *	$872,000	12/1/2012
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	**45**	32	64	32	11	NQ	NQ	$1,000,000	6/1/2013
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	**51**	39	64	25	19	NQ	NQ	$90,000	5/1/2013
1	Water Quality Monitoring Enhancement Program	Tuolumne County Resource Conservation District	9	8	28	**45**	32	68	36	15	NQ	NQ	$92,000	1/1/2013

Note: Light blue = Total scores of 66-91; Grey=total scores of 60-65; Yellow=total scores of 59 and below.

Tuolumne–Stanislaus Average of TRC Project Scores – Sorted by Mandatory Selection Components

8/14/2013

Project No.	Project Name	Project Proponent	Part 2- TS IRWM Objectives	Part 3 + 4 - IRWM Program Preferences and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Score (Statistics of the TRC Review Panel)				Readiness to Proceed	Project Cost			Start Date
	Maximum Points Possible		*56*	*54*	*48*	*158*				*24*				
	Range of Points		*7-38*	*8-33*	*24-40*	*44-91*				*8-24*				
						Average	Min	Max	Δmin/max	Score	Grant Request	Match	Total	
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	**66**	51	92	41	24	NQ	$5,000	$450,000	5/1/2013
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	**74**	43	87	44	16	NQ	NQ	$1,200,000	3/1/2015
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	**58**	46	68	22	19	NQ	$5,000 *	$672,000	9/1/2012
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	**78**	55	92	37	18	$162,250	$66,934	$264,731	3/1/2008
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	**58**	47	75	28	21	NQ	NQ *	$250,000	1/1/2013
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	**61**	53	80	27	20	NQ	NQ *	$978,500	1/1/2013
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	**60**	38	78	40	14	NQ	NQ *	$23,900,000	3/1/2014
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	**66**	43	83	40	19	$199,935	$103,810	$303,745	4/1/2010
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	**60**	48	73	25	19	NQ	$5,000 *	$1,369,000	9/1/2012
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	**62**	45	84	39	18	NQ	$5,000	$125,000	5/1/2013
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	**59**	48	73	25	19	NQ	$5,000 *	$1,232,000	9/1/2012
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	**76**	55	91	36	19	$557,000	$1,380,556	$1,937,556	8/1/2012
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	**73**	59	86	27	18	$25,725	$21,900	$47,625	8/1/2012
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	**62**	32	86	54	20	$702,000	$246,820	$948,800	5/9/2012
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	**65**	42	86	44	20	$248,452	$221,852	$470,304	7/15/2014
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	**91**	40	109	69	14	NQ	NQ	$20,000,000	3/1/2014
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16	Small Acreage Land Stewardship Program	Tuolumne County Resource Conservation District	15	12	30	**57**	44	73	29	16	NQ	NQ	$242,375	1/1/2013
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	**53**	31	68	37	15	NQ	NQ	$8,000,000	3/1/2014
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	**60**	41	73	32	15	NQ	NQ	$1,200,000	6/1/2013
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	**70**	47	87	40	11	NQ	NQ	$18,500,000	12/1/2014
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	**63**	53	74	21	15	NQ	NQ	$109,500	5/1/2014
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	**51**	39	64	25	19	NQ	NQ	$90,000	5/1/2013
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	**49**	36	72	36	20	NQ	NQ *	$872,000	12/1/2012
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	**63**	40	75	35	17	NQ	NQ	$20,000	5/1/2014
1	Water Quality Monitoring Enhancement Program	Tuolumne County Resource Conservation District	9	8	28	**45**	32	68	36	15	NQ	NQ	$92,000	1/1/2013
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	**87**	46	107	61	8	NQ	NQ	$225,000	
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	**62**	44	82	38	11	$295,000	$2,343,495	$2,638,495	9/1/2019
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	**45**	32	64	32	11	NQ	NQ	$1,000,000	6/1/2013

Note: Light blue = Total scores of 66-91; Grey=total scores of 60-65; Yellow=total scores of 59 and below.

Tuolumne–Stanislaus Average of TRC Project Scores – Sorted by Readiness to Proceed

8/14/2013

Project No.	Project Name	Project Proponent	Part 2- TS IRWM Objectives	Part 3 + 4 - IRWM Program Preferences and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Score (Statistics of the TRC Review Panel)				Readiness to Proceed	Project Cost			Start Date
	Maximum Points Possible		*56*	*54*	*48*	*158*				*24*				
	Range of Points		*7-38*	*8-33*	*24-40*	*44-91*				*8-24*				
						Average	Min	Max	Δmin/max	Score	Grant Request	Match	Total	
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	**66**	51	92	41	24	NQ	$5,000	$450,000	5/1/2013
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	**58**	47	75	28	21	NQ	NQ *	$250,000	1/1/2013
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	**61**	53	80	27	20	NQ	NQ *	$978,500	1/1/2013
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	**49**	36	72	36	20	NQ	NQ *	$872,000	12/1/2012
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	**62**	32	86	54	20	$702,000	$246,820	$948,800	5/9/2012
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	**65**	42	86	44	20	$248,452	$221,852	$470,304	7/15/2014
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	**51**	39	64	25	19	NQ	NQ	$90,000	5/1/2013
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	**66**	43	83	40	19	$199,935	$103,810	$303,745	4/1/2010
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	**58**	46	68	22	19	NQ	$5,000 *	$672,000	9/1/2012
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	**60**	48	73	25	19	NQ	$5,000 *	$1,369,000	9/1/2012
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	**59**	48	73	25	19	NQ	$5,000 *	$1,232,000	9/1/2012
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	**76**	55	91	36	19	$557,000	$1,380,556	$1,937,556	8/1/2012
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	**62**	45	84	39	18	NQ	$5,000	$125,000	5/1/2013
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	**78**	55	92	37	18	$162,250	$66,934	$264,731	3/1/2008
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	**73**	59	86	27	18	$25,725	$21,900	$47,625	8/1/2012
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	**63**	40	75	35	17	NQ	NQ	$20,000	5/1/2014
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	**74**	43	87	44	16	NQ	NQ	$1,200,000	3/1/2015
16	Small Acreage Land Stewardship Program	Tuolumne County Resource Conservation District	15	12	30	**57**	44	73	29	16	NQ	NQ	$242,375	1/1/2013
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	**63**	53	74	21	15	NQ	NQ	$109,500	5/1/2014
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	31	**68**	50	83	33	15	NQ	NQ *	$5,500,000	1/1/2013
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	**60**	41	73	32	15	NQ	NQ	$1,200,000	6/1/2013
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	**53**	31	68	37	15	NQ	NQ	$8,000,000	3/1/2014
1	Water Quality Monitoring Enhancement Program	Tuolumne County Resource Conservation District	9	8	28	**45**	32	68	36	15	NQ	NQ	$92,000	1/1/2013
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	**60**	38	78	40	14	NQ	NQ *	$23,900,000	3/1/2014
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	**91**	40	109	69	14	NQ	NQ	$20,000,000	3/1/2014
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	**45**	32	64	32	11	NQ	NQ	$1,000,000	6/1/2013
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	**62**	44	82	38	11	$295,000	$2,343,495	$2,638,495	9/1/2019
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	**70**	47	87	40	11	NQ	NQ	$18,500,000	12/1/2014
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	**87**	46	107	61	8	NQ	NQ	$225,000	

Note: Light blue = Total scores of 66-91; Grey=total scores of 60-65; Yellow=total scores of 59 and below.

Tuolumne–Stanislaus Average of TRC Project Scores – Sorted by Primary Objective

8/14/2013

Project No.	Project Name	Project Proponent	Part 2- TS IRWM Objectives	Part 3 + 4 - IRWM Program Preferences and Statewide Priorities	Part 5 - Mandatory Selection Components	Total Score (Statistics of the TRC Review Panel)				Readiness to Proceed	Project Cost			Primary Objective	Start Date
	Maximum Points Possible		*56*	*54*	*48*	*158*				*24*					
	Range of Points		*7-38*	*8-33*	*24-40*	*44-91*				*8-24*					
						Average	Min	Max	Δmin/max	Score	Grant Request	Match	Total		
15	Irrigation Line Replacement Project - SH 4 from Utica Rd. to Tom Bell Rd.	Union Public Utility District	10	10	29	**49**	36	72	36	20	NQ	NQ *	$872,000	A	12/1/2012
12	Tamarack Springs Source Improvement Project	Tamarack Springs Mutual Water Company	13	8	30	**51**	39	64	25	19	NQ	NQ	$90,000	A	5/1/2013
29	Groveland Townsite-Water Distribution System Improvements	Groveland Community Services District	14	13	33	**60**	48	73	25	19	NQ	$5,000 *	$1,369,000	A	9/1/2012
28	Big Oak Flat-Water Distribution System Improvements	Groveland Community Services District	14	13	32	**59**	48	73	25	19	NQ	$5,000 *	$1,232,000	A	9/1/2012
14	City of Angels Camp Secondary Water Supply	City of Angels Camp	12	9	24	**45**	32	64	32	11	NQ	NQ	$1,000,000	A	6/1/2013
10	Prather-Medusa Stream Channel Restoration and Road Decommissioning	Stanislaus National Forest	21	13	31	**65**	42	86	44	20	$248,452	$221,852	$470,304	B	7/15/2014
6	South Fork Stanislaus River watershed restoration - Lyons	Stanislaus National Forest	20	13	33	**66**	43	83	40	19	$199,935	$103,810	$303,745	B	4/1/2010
16	Small Acreage Land Stewardship Program	Tuolumne County Resource Conservation District	15	12	30	**57**	44	73	29	16	NQ	NQ	$242,375	B	1/1/2013
26	Tuolumne Rancheria Septic Abandonment Project	Tuolumne Me-Wuk Tribal Council	12	21	30	**63**	53	74	21	15	NQ	NQ	$109,500	B	5/1/2014
1	Water Quality Monitoring Enhancement Program	Tuolumne County Resource Conservation District	9	8	28	**45**	32	68	36	15	NQ	NQ	$92,000	B	1/1/2013
18	Phoenix Lake Preservation and Restoration	Tuolumne Utilities District	38	22	31	**91**	40	109	69	14	NQ	NQ	$20,000,000	B	3/1/2014
23	Twain Harte/TUD/Me-Wuk/Tuolumne Sewer Interceptor	Twain Harte CSD, Tuolumne Me-Wuk Tribal Council, TUD, Tuolumne Sanitary District	28	33	26	**87**	46	107	61	8	NQ	NQ	$225,000	B	
27	Big Oak Flat- Sewer LS #16 Reconstruction	Groveland Community Services District	13	11	34	**58**	46	68	22	19	NQ	$5,000 *	$672,000	C	9/1/2012
2	Wastewater Treatment Facilities Improvement Project	Murphys Sanitary District	16	21	31	**68**	50	83	33	15	NQ	NQ *	$5,500,000	C	1/1/2013
24	Filter Backwash Water Settling Ponds and Recycling Project	City of Angels Camp	17	13	30	**60**	41	73	32	15	NQ	NQ	$1,200,000	C	6/1/2013
19	West Ranch Recycled Water Reservoir	Tuolumne Utilities District	9	18	33	**60**	38	78	40	14	NQ	NQ *	$23,900,000	C	3/1/2014
11	Mi-Wok Complex Thinning, Murphy Ranch Area	US Forest Service, Stanislaus National Forest	17	13	32	**62**	32	86	54	20	$702,000	$246,820	$948,800	D	5/9/2012
9	Upper South Fork Stanislaus River Watershed Restoration and Water Quality Enhancement Project	Stanislaus National Forest	26	18	32	**76**	55	91	36	19	$557,000	$1,380,556	$1,937,556	D	8/1/2012
21	Meadow and Watershed Restoration, Foothill Horizons Outdoor School	Tuolumne River Trust	17	13	32	**62**	45	84	39	18	NQ	$5,000	$125,000	E	5/1/2013
5	Tuolumne-Stanislaus Meadow Protection & Restoration	Stanislaus National Forest	24	20	34	**78**	55	92	37	18	$162,250	$66,934	$264,731	E	3/1/2008
4	Shell Meadow Restoration Project	Stanislaus National Forest	25	16	32	**73**	59	86	27	18	$25,725	$21,900	$47,625	E	8/1/2012
3	Murphy Ranch Meadow Restoration	Tuolumne Band of Me-Wuk Indians	19	15	29	**63**	40	75	35	17	NQ	NQ	$20,000	E	5/1/2014
8	Douglas Creek - Middle Fork Stanislaus River Water Quality Improvement Project	Stanislaus National Forest	23	14	25	**62**	44	82	38	11	$295,000	$2,343,495	$2,638,495	E	9/1/2019
13	Phoenix Bypass Ditch Pipeline	Tuolumne Utilities District	27	12	35	**74**	43	87	44	16	NQ	NQ	$1,200,000	K	3/1/2015
22	Watershed Outreach, Stewardship, and Water Efficiency Incentives	Tuolumne River Trust	9	17	40	**66**	51	92	41	24	NQ	$5,000	$450,000	L	5/1/2013
17	In-Home Water Conservation for the DAC	Amador Tuolumne Community Action Agency	7	18	33	**58**	47	75	28	21	NQ	NQ *	$250,000	L	1/1/2013
25	Douglas Flat/Vallecito Storage Ponds	Calaveras County Water District	13	15	33	**61**	53	80	27	20	NQ	NQ *	$978,500	L	1/1/2013
20	Section 4 Raw Water Storage	Tuolumne Utilities District	12	11	30	**53**	31	68	37	15	NQ	NQ	$8,000,000	M	3/1/2014
7	New Lyons Reservoir Planning, Environmental Compliance, Design and Permitting	Tuolumne Utilities District	25	15	30	**70**	47	87	40	11	NQ	NQ	$18,500,000	M	12/1/2014

Note: Light blue = Total scores of 66-91; Grey=total scores of 60-65; Yellow=total scores of 59 and below.

Appendix E.4

Project List Updates

Updated Project Lists will be provided as they are prepared, at least annually

Appendix F

Objectives Tracking Table

Objectives Tracking Table

Summary of Objectives is found on Page 4 of this table

Line No.	Measurable Planning Target	Priority of Associated Objective	Anticipated Completion Date	Related Projects	Suggested Activities	Lead Organization	Project	Study	Program
1	**B.I.** Reduction of erosion from roads at five (5) high priority hydrologically-connected segments every five (5) years	High	Continuous	6, 10, 11, 21	(a) Inventory and prioritize hydrologically-connected segments of roads with high erosion potential. (b) Conduct projects at five segments every five years.		X	X	
2	**B.XI**. Reduce pollutant loading on water bodies	High	Continuous	19	(a) Identify and prioritize areas where pollutant loading can be reduced. (b) Conduct projects and/or programs to reduce pollutant loading on water bodies.		X	X	X
3	**F.II.** Coordination with state, federal, and tribal governments; non-governmental organizations to identify sites with at-risk species where threats can be corrected or reduced with coordination meetings on an annual basis.	Medium	Continuous		(a) Conduct coordination meetings annually to identify sites with at-risk species.				X
4	**K.II.** Improve interagency collaboration by holding annual meeting with action plan for implementation.	High	Continuous		(a) Conduct annual meeting with action plan for implementation.				X
5	**L.III.** Improve interagency collaboration to cost-effectively deliver WUE programs by conducting annual coordination meetings by September 30 of each year.	Medium	Continuous		(a) Convene WUE Committee.				X
6	**N.IV.** Support jurisdictional agencies to develop and improve implementation of stormwater best management practices by conducting annual coordination meetings by September 30 of each year.	High	Continuous		(a) Convene Stormwater Management Committee and conduct annual coordination meetings to support development and implementation of BMPs.				X
7	**E.II.** Restoration of ecosystem function to 2 meadows per year beginning in 2014 and continuing within the planning horizon.	Medium	2014	3, 4, 5, 6, 8, 9, 21	(a) Restore 2 meadows per year.		X		
8	**B.II.** Evaluation of the impact of stormwater, runoff, and onsite wastewater treatment systems on raw water conveyance and/or storage by 2015.	High	2015		(a) Conduct evaluation of the impacts of stormwater, runoff and onsite wastewater treatment systems on raw water conveyance and storage.			X	
9	**E.I.** Summarize, synthesize, and prioritize available meadow information and identify high priority meadows by 2015.	Medium	2015		(a) Create inventory and prioritization for rehabilitation of meadows.			X	
10	**F.I.** Evaluation of opportunities for coordination in the ongoing protection of natural systems on a biannual basis with first evaluation due 2015.	Medium	2015		(a) Conduct a biannual evaluation of opportunities for coordination of protection of natural systems.				X
11	**F.IV.** Maintain the continued presence of species such as Yosemite Toad, Foothill Yellow Legged Frog, Sierra Nevada Yellow-Legged Frog, and habitat for the California Red-legged frog as evaluated through biannual reporting with first evaluation due 2015.	Medium	2015		(a) Conduct biannual evaluation of the continued presence of species of interest within the region.			X	
12	**F.V.** Maintain the continued presence of hardhead, Chinook salmon, and steelhead in the Stanislaus River as evaluated through biannual reporting with first evaluation due 2015.	Medium	2015		(a) Conduct biannual evaluation of the continued presence of hardhead, Chinook salmon, and steelhead in the Stanislaus River.			X	
13	**H.IV.** Coordinate with County/local jurisdiction to identify where existing drainages are conveyed into raw water conveyance and/or not allow development downstream of raw water conveyance spill locations by 2015. Coordinate with H-I. to implement improvements.	Medium	2015		(a) Conduct a survey to identify where existing drainages are conveyed into raw water conveyance and determine whether it is appropriate to not allow development downstream of raw water conveyance spill locations.			X	
14	**A.I.** Determination of which water distribution systems including those in DACs have water supply deficiencies (e.g. adequate fire flow, storage, contamination, end of their useful life, etc.) and evaluation of options to remedy the issues (such as providing alternative source(s) of supply or additional treatment) by 2016	High	2016		(a) Create inventory of water distribution systems, whether DAC, and summary of water supply deficiencies (e.g. supply, treatment, distribution, fire storage, etc.)			X	
15	**G.V.** Reduction in invasive infestation such as himalayan blackberry, bull thistle, mulldin, and star thistle by 2 acres/year of riparian habitat, wetlands, and vernal pools starting in 2016.	Medium	2016		(a) Develop Invasive Species Management Plan targetting reduction in areas of invasive infestation by 2 acres/year. (b) Implement projects identified in management plan.		X		

Objectives Tracking Table

Summary of Objectives is found on Page 4 of this table

Line No.	Measurable Planning Target	Priority of Associated Objective	Anticipated Completion Date	Related Projects	Suggested Activities	Lead Organization	Project	Study	Program
16	**M.I.** Identify supply sources vulnerable to contamination, climate change, and/or interruption from human or nature-caused effects by 2016.	High	2016	1	(a) Create inventory of vulnerable supply sources.			X	
17	**N.II.** Identify outputs to better determine the values of Ecosystem Services of Watersheds by 2016 and monitor and report on select outputs annually.	High	2016		(a) Conduct a study to identify outputs that better determine the values of Ecosystem Services of Watersheds. (b) Develop a program to monitor and report on select outputs annually.			X	X
18	**B.IV**. Evaluate and identify appropriate stormwater BMPs for application throughout the region by 2017.	High	2017	6, 16	(a) Develop stormwater BMPs.			X	
19	**C.II.** Evaluation of Sanitary Sewer Overflows, occurrences and causes, impacts, and costs associated with system upgrades to reduce frequency should occur every five years with first evaluation due by 2017.	High	2017		(a) Conduct an inventory of sanitary sewer overflows and develop recommendations for reducing their frequency, including prioritization of system upgrades.			X	
20	**G.I.** Completion of an inventory and prioritization of areas of riparian plant habitat by 2017.	Medium	2017		(a) Create inventory and prioritization of areas of riparian plant habitat.			X	
21	**J.I.** Completion of a baseline water infrastructure (e.g. pumps, motors, water treatment plants, pipelines) energy efficiency and greenhouse gas (GHG) emissions study by 2017.	Medium	2017		(a) Conduct a baseline study to identify energy efficiency and greenhouse gas emissions.			X	
22	**N.III.** Work collaboratively to incorporate supported tribal watershed values into regional land use and natural resources planning efforts by identifying suggested planning targets by 2017. Conduct biannual reviews with tribal representatives to confirm this activity is on track.	High	2017		(a) Conduct biannual reviews with tribal representatives to confirm collaborative planning efforts.				X
23	**N.V.** Develop a process by 2017 which influences land use and resource management actions that take place outside the region that may limit access to watershed resources within the region.	High	2017		(a) Develop a process to influence land use and resource management actions that take place outside the region, but affect the region.				X
24	**B.VII.** Identification and monitoring of areas where failing septic systems are contaminating surface water and/or groundwater by 2018.	High	2018	23, 26	(a) Create program that inventories and monitors areas with suspected contamination of surface water and/or groundwater due to failing septic systems.				X
25	**G.II.** Restoration of 4 acres of riparian habitat by 2018	Medium	2018	3, 4, 5, 8, 9, 21	(a) Restore 4 acres of riparian habitat.		X		
26	**H.II.** Evaluation of feasibility of permeable surfaces and other innovative projects in new or existing impervious areas to attenuate flood events in up to 3 locations by 2018 and implementation within the planning horizon.	Medium	2018		(a) Conduct investigation for areas where conversion of impervious areas to permeable surfaces may attenuate flood events. (b) Implement improvement projects at 3 locations.		X	X	
27	**I.I.** Evaluation of wind, solar, biomass, or, hydroelectric opportunities for increased energy production by 2018.	Medium	2018	7	(a) Conduct energy management evaluationo identify areas for application of wind, solar, biomass or hydroelectric projects are feasible.			X	
28	**K.I.** Documenting and reporting on beneficial uses of raw water conveyance systems and identify areas for improved efficiency and reliability by 2018.	High	2018	13	(a) Conduct a study to document beneficial uses of raw water conveyance systems and identify areas for improvement.			X	

Objectives Tracking Table

Summary of Objectives is found on Page 4 of this table

Line No.	Measurable Planning Target	Priority of Associated Objective	Anticipated Completion Date	Related Projects	Suggested Activities	Lead Organization	Project	Study	Program
29	**K.IV.** Continue and improve flow monitoring and analyze flow data annually to identify operational and maintenance improvements by 2018.	High	2018		(a) Analyze flow data annually to identify operation and maintenance improvements.			X	
30	**M.II.** Evaluate the potential opportunities and challenges presented by new storage facilities that may improve the reliability of existing supplies and projected water supply needs by 2018.	High	2018	7, 14, 20	(a) Conduct a study that investigates the potential opportunities for new storage facilities.			X	
31	**M.III.** Identify potential conjunctive use projects that may improve in-region supply reliability by 2018.	High	2018	14	(a) Conduct a study that identifies potential conjunctive use projects.			X	
32	**M.V.** Evaluate potential to reoperate existing facilities to increase supply availability and reliability by 2018.	High	2018		(a) Conduct a study that evaluates the current operation of existing facilities and identifies how re-operation might improve supply.			X	
33	**M.VI.** Evaluate ability and opportunities for multi-agency water supply facilities and interties by 2018.	High	2018		(a) Conduct a study to identify water supply opportunities for multi-agency collaboration			X	
34	**B.VI**. Confirmation and monitoring of sources of bacterial and other toxic contamination (such as mercury) and development of plans to reduce contaminants. Monitoring to occur at least annually and plan development to occur by 2019.	High	2019	1, 16, 18	(a) Create a program to monitor sources of contamination on an annual basis. Program should include development of a plan to reduce contaminants.				X
35	**H.I.** Identify funding source and develop grant application to identify substandard drainage structures and implement improvements needed to reduce risk of structural failure by 2019.	Medium	2019		(a) Identify funding source and develop grant application. (b) Conduct inventory of substandard drainage structures and prioritized list for improvements. (c) Implement improvement projects.		X	X	
36	**N.I.** Evaluate, draft, and propose integrated land use and natural resources planning standards that measurably improve degraded water quality, forest functions, watershed reliability for beneficial uses, biodiversity and reduce flood and wildfire risk and damage potential by 2019.	High	2019		(a) Convene Resources Planning Committee (b) Develop recommended land use and natural resources planning standards.				X
37	**B.VIII.** Identify and prioritize areas for extension of collection system and providing wastewater treatment to areas that are currently Onsite Waste Treatment Systems (OWTS) by 2020	High	2020	23, 26	(a) Conduct inventory and prioritization of areas where extension of an existing collection system is feasible.			X	
38	**C.IV.** Evaluate and develop, if appropriate, recommendations to increase mandatory distance for collection system extensions by 2020.	High	2020		(a) Conduct a study that evaluates and develops recommendations to increase mandatory distance for collection system extensions.			X	
39	**C.V.** All drinking water meets Title 22 primary and iron and manganese secondary standards by 2020.	High	2020	12, 13, 18, 24	(a) Create inventory of all water systems (including small and DAC systems) where Title 22 primary and iron and manganese standards are not currently being met. (b) Conduct system upgrades to meet all drinking water standards.		X	X	
40	**D.I.** Establish acres requiring fuel management in the Region by 2019 and establish fuels management program by 2020 so that fuel load is reduced by 30% within the planning horizon to reduce fire risk.	High	2020		(a) Create inventory of acreage requiring fuel management. (b) Establish fuels management program.			X	X

Objectives Tracking Table

Summary of Objectives is found on Page 4 of this table

Line No.	Measurable Planning Target	Priority of Associated Objective	Anticipated Completion Date	Related Projects	Suggested Activities	Lead Organization	Project	Study	Program
41	**D.II.** Increase annual average acres of forest thinned on both USFS and private forest lands by at least 20% a year over 2012 levels by 2020.	High	2020	11	(a) Confirm 2012 baseline forest fuels management levels, and identify projects needed to increase thinning by 20%.		X		
42	**G.IV.** Inventory and locate invasive species by 2020.	Medium	2020		(a) Create inventory of areas with invasive species.			X	
43	**H.III.** Coordinate IRWM with Local Hazard Mitigation Plan updates to improve regional flood management by addressing preparedness, response, and post flood actions throughout the planning horizon to be reported on a 5-year basis with the first report due 2020.	Medium	2020		(a) Coordination of IRWM with Local Hazard Mitigation updates. (b) Report on a 5-year basis.				X
44	**L.I.** Meeting water use efficiency GPCD targets identified in UWMPs by 2020.	Medium	2020	13, 15, 17, 22, 23, 28, 29	(a) Identify areas where GPCD targets may not be met by 2020 and conduct programs to help agencies meet target.				X
45	**L.II.** Increase of regional water reuse where locally cost effective as necessary to meet GPCD targets in compliance with SBX7-7 by 2020.	Medium	2020	2, 17, 19, 21, 23, 25	(a) Conduct study to identify areas where water reuse is locally cost effective. (b) Implement water reuse projects as appropriate.			X	
46	**B.V.** Reduce sanitary sewer collection system inflow and infiltration rates to 25,000 gallons/day/mile by 2022	High	2022		(a) Baseline sanitary sewer collection system inflow and infiltration rates for each system and develop recommendations for decreasing I/I rates. (b) Complete improvements to reduce I/I rates to 25,000 gallons/day/mile.		X	X	
47	**C.III.** Annual wastewater collection system preventable spill events per mile are reduced by a minimum of 20 percent over 2012 levels by 2022.	High	2022	27	(a) Create an inventory of preventable wastewater spill events including their location and prioritize system improvements to meet 20 percent reduction. (b) Implement projects to reduce preventable wastewater spills.		X	X	
48	**I.II.** Implementation of 2 locally cost effective renewable energy projects by 2022.	Medium	2022		(a) Implement 2 renewable projects.		X		
49	**B.III.** Inventory, development and phased implementation of a roadside drainage and erosion management program for existing roads. Identify funding source and develop grant application to prepare prioritized road inventory in non-Federal lands by 2018, Coordinated Federal/Local BMPs shall be developed by 2019 and implemented within the planning horizon with maintenance of high priority Federal/Local roads by 2025.	High	2025	18, 21	(a)Conduct an inventory of roadside drainage and erosion issues on non-Federal lands. (b) Develop a roadside drainage and erosion management program for existing roads.				X
50	**B.IX.** Correction of five (5) areas where failing septic systems or other wastewater facilities are contaminating surface water and/or groundwater by 2025 including implementation of prioritized extensions/corrections within planning horizon.	High	2025	19, 23, 26, 27	(a) Correct five prioritized areas identified in Measureable Target B.VII or B.VIII.		X		
51	**C.I.** All wastewater treatment plant discharges comply with NPDES/WDR permits by 2025. Reduction of treated effluent discharges to surface waters is the desired goal where cost effective within planning horizon.	High	2025	2, 19, 25	(a) Conduct projects at wastewater treatment plants to comply with NPDES/WDR permits. (b) Identify other wastewater systems with NPDES/WDR compliance requirements		X		
52	**K.III.** Identification and completion of 6 high priority capital improvement projects (i.e. ditch lining, controls, diversions, storage, etc.) to raw water conveyance systems, where needed, by 2025.	High	2025	13, 15	(a) Conduct 6 capital improvement projects to raw water conveyance systems.		X		
53	**A.II.** Improvement of water supply and/or distribution in four (4) DAC and/or urban communities within the planning horizon.	High	2035	7, 12, 14, 15, 28, 29	(a) Identify high priority water distribution systems for improvement. (b) Conduct at least four improvement projects.		X	X	

Objectives Tracking Table

Summary of Objectives is found on Page 4 of this table

Line No.	Measurable Planning Target	Priority of Associated Objective	Anticipated Completion Date	Related Projects	Suggested Activities	Lead Organization	Project	Study	Program
54	**A.III.** Evaluate fire protection storage/conveyance at all community water systems by 2020 and make improvements to at least 10 systems by 2035.	High	2035	15, 28, 29	(a) Evaluate regional fire protection storage/conveyance deficiencies. (b) Conduct projects in 10 communities.		X	X	
55	**D.III.** Identify prime areas for improved water yield, water quality protection, and/or ecosystem function by 2019 and implement 5 projects within the Planning Horizon.	High	2035	1,3, 4, 5, 6, 8, 9, 10, 18, 21	(a) Conduct study to prioritize areas where projects for improved water yield, water quality protection and/or ecosystem function should be conducted. (b) Conduct prioritized projects.		X	X	
56	**F.III.** Implementation of corrective projects at 5 sites within planning horizon.	Medium	2035	4, 9	(a) Conduct corrective projects at 5 sites.		X		
57	**G.III.** No net loss of wetland habitat as measured by inventory and follow-up inventories every five years to be reported in 2020, 2025, 2030, and 2035.	Medium	2035		(a) Conduct Measureable Target G.I. (b) Re-inventory riparian areas every five years.			X	
58	**J.II.** Upgrade infrastructure to address energy efficiency and GHG emissions by 2035.	Medium	2035	13, 28, 29	(a) Conduct improvement projects to improve energy efficiency and GHG emissions			X	
59	**M.IV.** Develop diversified water supply portfolios during planning horizon.	High	2035	7, 14, 20					
60	**B.X.** Compliance with the proposed Statewide Septic Systems Policy for OWTS systems, particularly those adjacent to 303(d) listed water bodies for coliform within 10 years of adopted policy	High	10 yrs after adopted policy		(a) Conduct an inventory of areas where the statewide septic systems policy is not being met and prioritize areas for improvement. (b) Conduct projects to comply with Statewide Septic Systems Policy.			X	

Objectives Summary

A. Improve water supply infrastructure within DAC and urban areas that have declining water quantity/quality or other water system reliability issues (e.g. fireflow, contamination, etc.). **(HIGH)**
B. Reduce contamination in groundwater, natural streams, raw water conveyance systems, and reservoirs from the negative impacts of stormwater, urban runoff, and nuisance water. **(HIGH)**
C. Improve infrastructure to meet wastewater discharge/disposal requirements and deliver drinking water that meets drinking water standards and customer expectations. **(HIGH)**
D. Improve watershed health in support of increased water yield and ecosystem function. **(HIGH)**
E. Improve the condition and ecosystem function of meadows. **(MEDIUM)**
F. Assist in the protection and recovery of sensitive special status, threatened, culturally sensitive, and endangered native aquatic and other water dependent species in the region. **(MEDIUM)**
G. Identify, preserve, and promote the regeneration and restoration of wetlands, vernal pools, and native plant riparian habitat; reduce invasive species. **(MEDIUM)**
H. Reduce the risk of localized flooding in urban areas. **(MEDIUM)**
I. Increase renewable energy production for water management. **(MEDIUM)**
J. Improve energy efficiency of water and wastewater system infrastructure. **(MEDIUM)**
K. Improve efficiency and reliability of man-made water conveyance systems. **(HIGH)**
L. Increase current and future water use efficiency (WUE) by both municipal (residential and commercial) and agricultural end users. **(MEDIUM)**
M. Develop sufficient reliable and affordable water supplies to meet regional demands of existing and projected water supply needs under a multi-year drought now and into the future. **(HIGH)**
N. Improve integrated land use and natural resource planning to support watershed management actions that restore, sustain and enhance watershed functions. **(HIGH)**