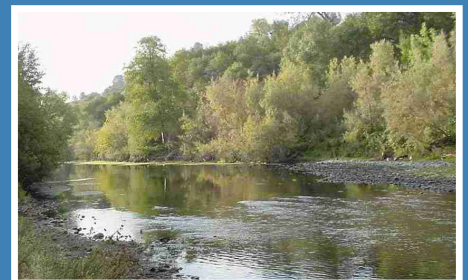
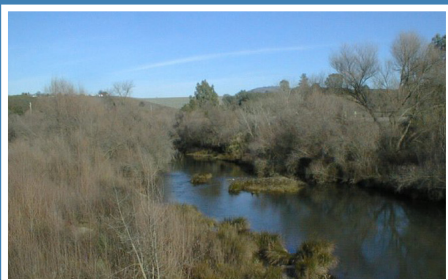
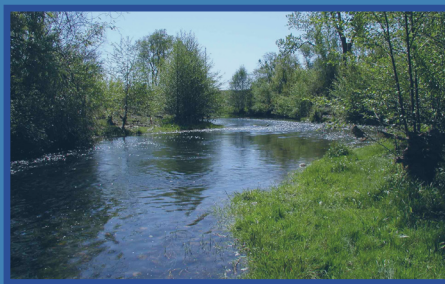
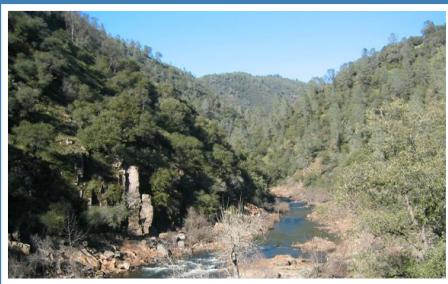


Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan



Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan

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Water and Environment

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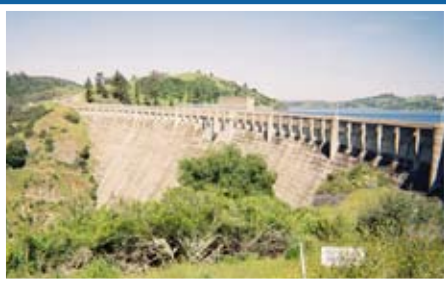
- Appendix A - Memorandum of Understanding
- Appendix B - IRWMP Adoption
- Appendix C - Prioritization Documentation
- Appendix D - Public Involvement Documentation

List of Abbreviations

ACOE	Army Corps of Engineers
AF	Acre-foot
AFY	Acre-foot per Year
ARSA	Amador Regional Sanitation Authority
ASR	Aquifer storage and recovery
AWA	Amador Water Agency
AWS	Amador Water System
BMP	Best Management Practice
CANS	Camanche North Shore
CASS	Camanche South Shore
CAWP	Central Amador Water Project
CEQA	California Environmental Quality Act
CCWD	Calaveras County Water District
cfs	Cubic feet per second
CPUD	Calaveras Public Utility District
CSA	County Service Area
CWC	California Water Code
DHS	Department of Health Services
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
FEMA	Federal Emergency Management Act
FS	Feasibility Study
I&I	Inflow and Infiltration
IRWM	Integrated regional water management
IRWMP	Integrated regional water management plan
JVID	Jackson Valley Irrigation District
M/A/C	Mokelumne/Amador/Calaveras
MFI	Median family income
MGD	Million gallons per day
MHI	Median household income
MOU	Memorandum of understanding
MW	Megawatts

NOAA	National Oceanic and Atmospheric Administration
NPS	Non-point source
NSJWCD	North San Joaquin Water Conservation District
PAC	Plan Advisory Committee
PG&E	Pacific Gas and Electric Company
PHAW	Protect Historic Amador Waterways
Prop 50	Proposition 50
RWQCB	Regional Water Quality Control Board
SEWD	Stockton East Water District
SSMP	Sewer System Management Plan
SSO	Sewer system overflow
SWRCB	State Water Resources Control Board
TMDL	Total maximum daily load
TPZ	Timberland Preservation Zone
USGS	United States Geological Survey
USDA	United States Department of Agriculture
UWMP	Urban Water Management Plan
WID	Woodbridge Irrigation District
WMS	Water management strategy
WSWPCF	White Slough Water Pollution Control Facility
WTP	Water treatment plant
WWTP	Wastewater treatment plant

Executive Summary



Executive Summary

As noted in the recent update of the *California Water Plan* entitled *Update 2005*, the State of California continues to face ever growing demands on its water resources. In order to provide a reliable water supply and preserve water quality, the State is looking towards integrated regional water management as a key in crafting a successful plan for managing California's limited supplies. The State "...is placing more emphasis on integrated regional water management because it

- Makes better use of existing local resources;
- Provides for coordination and improved efficiency and flexibility in the actions of local agencies and governments within a region;
- Integrates all aspects of water management, including water quality, local surface water, groundwater, conservation, recycled water, conveyance, ecosystem restoration, and imported supplies; and
- Reflects regional diversity and values when setting management objectives.”

Integrated regional water management is a comprehensive approach to determine the appropriate mix of demand and supply management options that provide long-term, reliable water supply at the lowest reasonable cost and with the highest possible benefits to customers, economic development and the environment.

This document presents an Integrated Regional Water Management Plan (IRWMP) for the Mokelumne, Amador, and Calaveras (M/A/C) region, encompassing the majority of the Mokelumne and Calaveras River watersheds, Amador County, and parts of Alpine, Calaveras and San Joaquin County. This document has been created by agencies and organizations within the cohesive region in order to better manage existing resources and plan for future conditions. The IRWMP reflects the region's diversity and goals for ensuring a reliable water supply, reduction in flood-related impacts, and preservation of water quality and the environment.

ES-1 Background and Authority

As noted above, there has been a growing emphasis on regional partnerships, resource planning, and project implementation. This push to regional resource management was reflected in Proposition (Prop) 50, a bond issue passed by California voters in 2002, which authorized the State to dedicate \$12 million to developing IRWMPs, such as this one, to help identify and plan multi-benefit projects with local, regional, and statewide value. The proposition also amended California Water Code to add Section 79560 *et seq*, creating the competitive Prop 50 grant program in support of the development and implementation of IRWMPs.

Many of the contributors to this Plan have participated in regional planning well before IRWMPs were formalized by the State. This IRWMP expanded on existing relationships and partnerships and, through adoption of a Memorandum of Understanding (MOU), formed the Mokelumne/Amador/Calaveras (or M/A/C) IRWM region. Signatories to the MOU include:

- | | |
|--|---------------------------------------|
| • Amador Water Agency | • East Bay Municipal Utility District |
| • Amador County | • City of Jackson |
| • Amador Regional Sanitation Authority | • City of Plymouth |
| • Calaveras County Water District | • City of Sutter Creek |

IRWMPs are regional documents whose regions do not necessarily correspond to any particular agency or political boundary. The regional boundaries are instead set by those agencies participating in the IRWMP

and are often a juxtaposition of political, agency and environmental boundaries. The M/A/C IRWMP region includes all of Amador County and portions of Calaveras County, San Joaquin County, and Alpine County, as well as most of the Mokelumne and Calaveras River watersheds, encompassing approximately 1.25 million acres. Figure ES-1 shows the boundaries of the region.

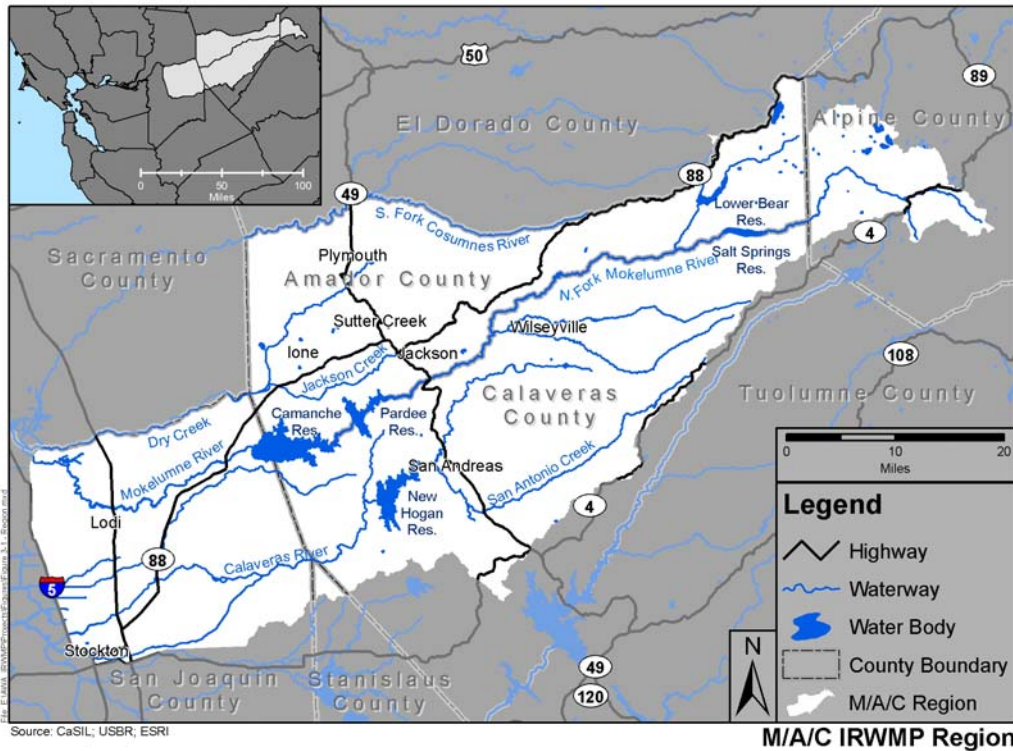


Figure ES - 1: M/A/C IRWMP Region

ES-2 Local and Regional Integration

As part of the IRWMP preparation, local planning documents were reviewed and incorporated into the regional strategies, goals and objectives for water resource management. The IRWMP is intended to act as an umbrella document, as shown in Figure ES-2, which refers to many local planning documents but at the same time can be used as a source of information for other documents. The IRWMP is not intended to drive other planning processes nor do all of the projects need to be implemented. Updates to the local planning documents should be reflected in updates to the IRWMP.

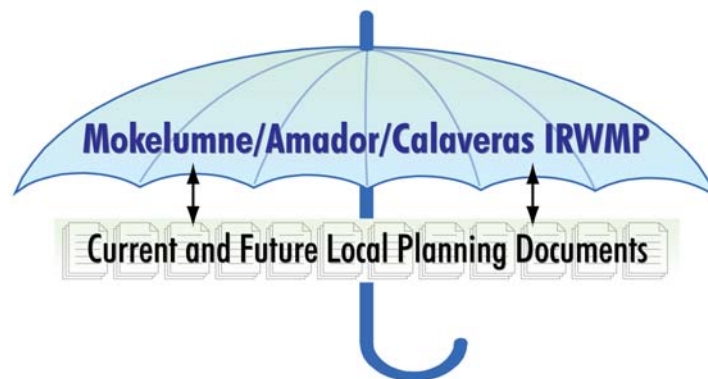


Figure ES - 2: IRWMP and Local Planning Relationship

Regional stakeholders, including disadvantaged communities, were invited to provide input to and share in the creation of the strategies, goals, and objectives that formed the foundation of the plan. Through stakeholder input and planning, an assortment of water resource management strategies and project options would be identified and prioritized to meet the goals and objectives as defined by the stakeholders. Stakeholder and public acceptance is a key component of any integrated plan, and to that end, the communities' priorities were reflected in the Region's, and therefore the Plan's, goals and objectives.

To recognize the importance of the State influence on integrated water management, the M/A/C IRWMP incorporated the Statewide Priorities, as outlined in the Prop 50 *Integrated Regional Water Management Grant Program Guidelines*, for integrated resource management. The M/A/C agencies have sought and will continue to seek the active involvement of federal and State agencies in the Plan's development, updates, and implementation. Support from federal, state, local and non-governmental citizen-based organizations is essential for the successful implementation of the Plan.

ES-3 Goals and Objectives

In addition to the Statewide Priorities, a consensus-based approach was used to develop the regional goals and objectives during the M/A/C IRWMP planning process. Five specific regional goals were identified along with corresponding measurable objectives for each goal. These goals are as follows:

- *Water Supply Goal* - Improve regional water supply reliability, reduce dependence on imported water, promote water conservation, water reuse, and protect watershed communities from drought with a focus on interagency conjunctive use of regional water resources.
- *Flood Protection Goal* - Ensure flood protection strategies are developed and implemented through a collaborative and watershed-wide approach and are designed to maximize opportunities for comprehensive management of water resources.
- *Water Quality Goal* - Protect and improve water quality for beneficial uses consistent with regional community interests and the RWQCB Basin Plan through planning and implementation in cooperation with local and state agencies and regional stakeholders.
- *Environmental Protection and Enhancement Goal* - Work with the community and environmental stewards to preserve the environmental wealth and well-being of the Mokelumne and Calaveras River watersheds by identifying opportunities to assess, restore and enhance natural resources of streams and watershed when developing water supply, water quality, and flood protection strategies.
- *Regional Communication and Cooperation Goal* - Develop a forum for regional communication, cooperation, and education, including models for partnerships and inter-basin cooperation, protocols for reducing inconsistencies in water management strategies between regional entities, and strategies for maintaining resource costs within the local socioeconomic environment.

Compliance with one or more regional goal and Statewide priority was used as part of the IRWMP project screening and prioritization process.

ES-4 Project Prioritization

Project descriptions were developed for the M/A/C region through solicitation of stakeholders and receipt of project information. The IRWMP is not intended to be a collection of all available information for any single project but the descriptions are used to describe, catalog, and prioritize the projects. Projects were screened to ensure that they helped to meet at least one regional goal and utilized at least one appropriate water management strategy. Those projects that met this criterion were further developed, where appropriate, to ensure that maximum benefits were being achieved by each project.

Following project development, all projects were prioritized through a multi-step collaborative process. Participating agencies first prioritized the projects according to the project's relative importance to the region. This resulted in three groups of projects. The projects were then prioritized within their groups according to relative benefits provided to the region. Readiness to implement the project was used as the final filter to determine project priority.

The prioritized list reflects the interests of the region as a whole. It is not intended to dictate the order of project implementation nor the value of any project to a particular agency. Design readiness, funding availability, and a driving need by an agency are all factors that will play heavily into the actual implementation order.

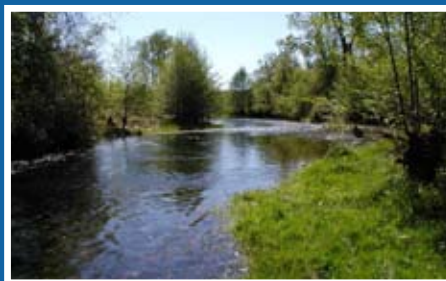
Prioritization is a dynamic part of the process due to changing conditions and needs of the IRWM planning region as well as project status. Regional priorities and goals will shift over time. This change should be reflected in the IRWMP. As projects are further planned, designed, and implemented, the IRWMP project descriptions and prioritization will need to be updated to reflect the most recent information.

ES-5 Implementation

The IRWMP's implementation plan was also developed using a consensus-based approach. The Plan provides:

- Criteria for evaluating a project's technical and economic feasibility;
- Measures for evaluating the success of the plan implementation;
- A structure for data collection and dissemination;
- Alternatives for project funding;
- A format for regular plan updates; and
- A strategy for continued stakeholder participation.

Chapter 1
Introduction



Chapter 1 Introduction

1.1 IRWMP Background

In 2002, the voters of the State of California recognized and codified the need for integrated regional planning for the management of water resources with the passage of Proposition 50 (Prop 50), the Water Security, Clean Drinking Water, Coastal and Beach Protection Act. Central to Prop 50 is the preparation of Integrated Regional Water Management Plans (IRWMPs). IRWMPs define the region and identify the strategies that allow for regional management of water resources in at least four main areas: water supply, groundwater management, ecosystem restoration, and water quality.

The IRWMP is a living plan, intended to be updated regularly, which summarizes regional goals and objectives and identifies strategies, projects, and programs intended to fulfill those goals and objectives. Projects and programs included in the IRWMP are designed to integrate multiple strategies and projects to provide multiple benefits locally and regionally. Some of these benefits are to:

- Support and improve local and regional water supply reliability;
- Contribute to the long-term attainment and maintenance of water quality standards;
- Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas;
- Implement safe drinking water and water quality projects that serve disadvantaged communities; and
- Implement groundwater management and recharge projects.

The IRWMP developed for a region may also contribute to the achievement of Statewide Priorities. As identified in the *Integrated Regional Water Management Grant Program Guidelines* (November 2004), these Priorities include:

- Reduce conflict between water users or resolve water rights disputes, including interregional water rights issues;
- Implement Total Maximum Daily Loads (TMDLs) that are established or under development;
- Implement Regional Water Quality Control Board (RWQCB) Watershed Management Initiative Chapters, plans, and policies;
- Implement the State Water Resources Control Board's (SWRCB's) Non-point Source (NPS) Pollution Plan;
- Assist in meeting Delta Water Quality Objectives;
- Implement recommendations of the floodplain management task force, desalination task force, recycling task force, or state species recovery plan;
- Address environmental justice concerns; and
- Assist in achieving one or more goals of the CALFED Bay-Delta Program.

Recognizing that all the State's IRWMP priorities may not be reflected in local goals and objectives for regional water management (nor that it is reasonable to expect that all the regional water management needs can or should be reflected in statewide objectives), the State recommends that all projects should meet one or more of the objectives of protecting communities from drought, protecting and improving water quality, and improving local water security by reducing dependence on imported water. Examples of projects that may meet the State's recommended criteria include:

- Programs for water supply reliability, water conservation, and water use efficiency;
- Storm water capture, storage, treatment, and management;

- Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands;
- NPS pollution reduction, management, and monitoring;
- Groundwater recharge and management projects;
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies;
- Water banking, water exchange, water reclamation, and improvement of water quality;
- Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat; and
- Watershed management planning and implementation.

This IRWMP has been prepared for the Mokelumne, Amador & Calaveras (M/A/C) region for water management. It is consistent with State guidelines, priorities and objectives for regional planning, and reflects the local resources and environment as contained in California Water Code (CWC) §79570 *et seq.*, but also serves as a basis for a longer-term process that exceeds the minimum requirements of that section.

1.2 IRWMP Standards

The State of California has established a number of minimum standards. This IRWMP has been constructed to meet or surpass each of those standards. The standards include documentation of:

- *Regional Agency* – Describe the regional agency responsible for the development and implementation of the Plan, as well as their responsibilities related to water. Demonstrate that all agencies regulated by the Public Utilities Commission, that were necessary to address the objectives and water management strategies of the Plan were involved in the planning process.
- *Region Description* – Explain why the region is an appropriate area for an integrated regional water management plan. Describe internal boundaries, major water related infrastructure, and major land-use divisions with the region. Describe the quality and quantity of water resources and the water supplies and demand for a minimum of a 20-year planning horizon. Describe ecological processes, environmental resources, the social and cultural makeup of the regional community, and economic conditions and trends within the region.
- *Objectives* – Identify objectives for the plan and how they were determined. Major water related objectives which must be included are water supply, groundwater management, ecosystem restoration, and water quality.
- *Water Management Strategies* – Document the range of water management strategies considered to meet the objectives. The strategies may include: ecosystem restoration, environmental and habitat protection and improvement, water supply reliability, flood management, groundwater management, recreation and public access, storm water capture and management, water conservation, water quality protection and improvement, water recycling, wetlands enhancement and creation, conjunctive use, desalination, imported water, land use planning, NPS pollution control, surface storage, watershed planning, water and wastewater treatment, and water transfers.
- *Integration* – Discuss how the mix of water management strategies work together to achieve the objectives and the added benefits of the integration of multiple water management strategies.
- *Regional Priorities* – Discuss short- and long-term priorities for the implementation of the Plan and the process for modifying these priorities in response to regional changes.

- *Implementation* – Identify specific projects, tasks, and studies, either ongoing or planned, by which the Plan will be implemented. Identify linkages between projects and the agency(ies) responsible for project implementation. Identify the current status of each element of the Plan, including a timeline for all projects and identify the institutional structure that will ensure Plan implementation.
- *Impacts and Benefits* – Discuss impacts and benefits at a screening level from Plan implementation. Identify advantages of the regional plan, which objectives necessitate a regional solution, interregional benefits and impacts, and discuss the added benefits of the regional plan rather than individual local efforts. Describe benefits and impacts to environmental justice and disadvantaged communities.
- *Technical Analysis and Plan Performance* – Discuss data, technical methods, analyses used in development of the Plan, measures that will be used to evaluate Project and Plan performance, and monitoring systems that will be used to gather performance data.
- *Data Management* – Include mechanisms by which data will be managed, presented to stakeholders and the public, and how the data collection will support statewide data needs. Identify data gaps where additional monitoring is needed by assessing the state of existing monitoring efforts for water quantity and quality.
- *Financing* – Identify potential funding for Plan implementation and ongoing support/financing for operation and maintenance of all implemented projects.
- *Statewide Priorities* – Identify statewide priorities that will be met by the Plan or specific projects in the Plan. The statewide priorities include:
 - *Relation to Local Planning* – Discuss how the IRWMP relates to programs established by local agencies and the dynamics and linkages between the Plan and the local planning documents. Demonstrate coordination with local land use planning decision-makers.
 - *Stakeholder Involvement* – Identify stakeholders included in developing the Plan and how they were identified, how they participated, and how they influenced decisions regarding water management. Include documentation of stakeholder involvement such as signatory status or letters of support from those who many not have adopted the Plan. Identify and discuss possible obstacles to Plan implementation.
- *Coordination* – Identify State or federal agencies involved with strategies, actions, and projects and also areas where an agency can assist in communication, cooperation, or implementation of Plan components.

Chapter 2
IRWMP Development



Chapter 2 M/A/C IRWMP Development

2.1 Resource Management & Coordination

2.1.1 Regional Water Management & Coordination

The M/A/C integrated regional water management (IRWM) planning region was formed based on a cooperative effort by Amador Water Agency (AWA), Calaveras County Water District (CCWD), Amador County, City of Jackson, City of Sutter Creek, City of Plymouth, Amador Regional Sanitation Authority (ARSA), and East Bay Municipal Utility District (EBMUD). These organizations represent the partnering agencies for the M/A/C IRWM planning region. These agencies entered into a Memorandum of Understanding (MOU) dated October 3, 2006 for the purpose of coordinating water resources planning and implementation activities (see Appendix A). Proof of adoption by these agencies is provided in Appendix B. Table 2-1 summarizes the roles and responsibilities of the M/A/C IRWMP partnering organizations.

Table 2-1: Partnering Organizations for M/A/C IRWMP Process

Partnering Organization	Description of Authority
Amador Water Agency (AWA)	Formed in 1959 to provide water and wastewater services to residents of Amador County, AWA uses water from the North Fork of the Mokelumne River for 6,600 service connections in western Amador County. AWA's water system serves the areas of Jackson, Martell, Sutter Creek, Sutter Hill, Ione, Amador City, and Drytown with treated water from two water treatment plants at Sutter Hill and Ione. This system also serves untreated water from the Amador Canal to hundreds of customers between Lake Tabeaud and Sutter Hill, and Sutter Hill and Ione. It also serves the Central Amador Water Project (CAWP) system, the Camanche Water System, and La Mel Heights. CAWP provides wholesale treated water to "upcountry" communities such as Pine Grove, Pioneer, and the Mace Meadows area. AWA's wastewater system serves the communities of Fairway Pines, Tiger Creek Estates, Gayla Manor, Wildwood Estates, Surrey Junction, Jackson Pines, Pine Grove, Martell, Viewpoint Estates, Eagles Nest, and Lake Camanche Village Unit 6.
Amador County	Formed in 1854 with the division of Calaveras County, Amador County is authorized to carry out flood control and storm water management through its Public Works Department and the implementation of environmental health programs. These include the control of toxic materials, sewage management and the protection of water supplies through its Environmental Health Department. Amador County has jurisdiction over land use designations and therefore has an indirect impact on water management.

Partnering Organization	Description of Authority
Amador Regional Sanitation Authority (ARSA)	A joint powers authority consisting of Amador County, Sutter Creek and Amador City for the primary purpose of transporting effluent from the secondary treatment facility at Sutter Creek to the treatment facility at Ione. The effluent receives tertiary treatment at the Ione facility. Mule Creek State Prison and the Preston School of Industry, a CYA facility, also partially discharge to ARSA facilities.
Calaveras County Water District (CCWD)	CCWD is a public, special non-profit district formed in 1946 with authority to acquire, control, distribute, store, spread, sink, treat, purify, reclaim, process and salvage any water for beneficial use, to provide sewer service, to sell treated or untreated water, and to acquire or construct hydroelectric facilities. Its service boundaries coincide with Calaveras County boundaries. CCWD provides water service to 12,200 municipal customers and wastewater services to approximately 4,300 customers. Of the five water supply systems maintained by CCWD, only three are located within the M/A/C IRWMP Region (Jenny Lind, West Point and Wilseyville).
East Bay Municipal Utility District (EBMUD)	EBMUD is a publicly owned utility formed in 1923 to provide water services permitted by the Municipal Utility District Act passed by California Legislature in 1921. EBMUD's water system serves approximately 1.3 million people in a 325-square-mile area in Alameda and Contra Costa counties near San Francisco. EBMUD was granted wastewater responsibilities for a special district in 1944. EBMUD's wastewater system serves approximately 640,000 people in an 83-square-mile area of Alameda and Contra Costa counties. EBMUD also provides water and wastewater services to its recreation areas at Pardee and Camanche North Shore in Amador County and Camanche South Shore in Calaveras County.
Jackson, City of	Founded in 1848 as part of the California Gold Rush, the city was incorporated in 1905 and became the county seat in 1943. Jackson is a city of about 4,000 people in a 3.5-square-mile area. The City relies on AWA for water service but maintains its own wastewater treatment facilities. Currently, tertiary discharge from the wastewater treatment plant is discharged to Jackson Creek.
Plymouth, City of	Established in the 1850's with adjacent Pokerville, Plymouth became a separate entity in 1871 with the purchase of the nearby Plymouth mine. Plymouth was incorporated in 1917. Today, Plymouth is a city of approximately 1,000 people over 1-square-mile. The City supplies domestic sanitary sewer facilities, storm sewer, water treatment and wastewater treatment facilities to city residents. Treated wastewater is used for spray irrigation on pastures. Water service is provided via an open channel from Cosumnes River and groundwater wells.

Partnering Organization	Description of Authority
Sutter Creek, City of	Founded in 1847 as a saw mill, the discovery of gold nearby in 1848 converted the city to a mining town. The City was incorporated in September 1854. Sutter Creek is a city of approximately 2,900 people in a 2-square-mile area. It provides local wastewater treatment services to city residents of Sutter Creek and Martell. AWA provides the City's water services.

Also included within the IRWMP region are many other entities or stakeholders with interests in regional water planning. These stakeholders play a crucial role in the development of the Plan, and were identified through discussions with local agencies and organizations with jurisdiction, projects and stakeholder experience in the M/A/C IRWMP region. They provide a variety of ideas, values, cultures, and backgrounds that encompass the region. These stakeholders include, but are not limited to:

- Calaveras County
- Calaveras Public Utilities District
- Eastern San Joaquin Groundwater Banking Authority
- City of Ione
- Jackson Valley Irrigation District
- City of Lodi
- Mokelumne River Forum
- Mokelumne Cosumnes Watershed Alliance
- Pacific Gas and Electric Company (PG&E)
- Protect Historic Amador Waterways (PHAW)
- Upper Mokelumne River Watershed Council

Interested stakeholders have been participating through stakeholder meetings, correspondence, and other communication with the MOU signatories. Stakeholders identified to date are described in further detail in Table 2-2.

Table 2-2: Stakeholders in M/A/C IRWMP Process

Stakeholder	Description of Authority/Interests
Calaveras County	Created in 1850 at the time of statehood. Parts of the county's territory were given to Amador County in 1854 and Alpine County in 1864.
Calaveras Public Utilities District	Publicly owned utility established in 1934 to provide water to San Andreas, Mokelumne Hill and outlying areas. Pumps over 300 million gallons of water per year for 1,850 customers in the 35-square-mile District serving a population of almost 6,500 people.

Stakeholder	Description of Authority/Interests
Northeastern San Joaquin Groundwater Banking Authority	Formed in 2001 as joint powers authority to collectively develop locally supported groundwater projects to strengthen water supply reliability in Eastern San Joaquin County.
Ione, City of	Ione is a city of approximately 7,500 residents in a 5-square-mile area. The City has secondary and tertiary wastewater treatment facilities and relies on AWA for potable water service.
Jackson Valley Irrigation District	Organized in 1956 and contains 12,800 acres along Jackson Creek in Amador County. Owned by farmers and ranchers to control, distribute, salvage any water, including sewage for beneficial use, and irrigation.
Lodi, City of	Incorporated as a General Law city in 1906. The City provides water and sewer services to approximately 62,000 residents in an area of 12-square-miles. Depends solely on groundwater for its water supply.
Mokelumne River Forum	Created by agencies that rely on the Mokelumne River as a water supply to discuss River basin issues. The forum aims at improving water reliability through regionally supported projects, creating long-term, cooperative working relationships among Mokelumne water interests, maintaining and improving regional economic health, and preventing environmental degradation that can affect water quality.
Mokelumne Cosumnes Watershed Alliance	Facilitates communication, identifies and supports conflict resolution, optimizes resources, identifies and pursues funding opportunities, and improves the integration of various environmental, flood control, and beneficial use opportunities in the Mokelumne and Cosumnes watersheds.
Pacific Gas & Electric Company (PG&E)	Incorporated in California in 1905. Provides natural gas and electric service to approximately 15 million people in a 70,000-square-mile area in northern and central CA. Regulated by the California Public Utilities Commission (CPUC).
Protect Historic Amador Waterways (PHAW)	Formed in May 2001 to protect Amador County's historic waterways.

Stakeholder	Description of Authority/Interests
Upper Mokelumne River Watershed Council	Formed in 2000. Supports land owners, local governments, and stakeholders with water quality monitoring, watershed planning, resource conservation, watershed restoration, and public outreach on the Upper Mokelumne River, Dry Creek, and Upper Calaveras River watersheds.

As shown in the participant lists above, there are small agencies and organizations represented as well as agencies that could form a region on their own. This provides opportunities to take advantage of projects of many scales and scopes but also requires coordination with local and regional planning. It is also recognized that additional stakeholders may be added to the regional process as they are identified as part of the Plan implementation, and all newly identified stakeholders are invited to participate throughout the entirety of the IRWMP process.

What may not be apparent in the current stakeholder list is the level of participation by “disadvantaged” communities. The cities of Jackson, Plymouth, Mokelumne Hill, Rail Road Flat, San Andreas, West Point, and August are considered disadvantaged communities by California’s standards, due to their low median household income (MHI). Disadvantaged communities and their participation are described further in Chapter 3. These communities have been, and will continue to be, encouraged to actively participate in the planning process and to proactively address environmental justice concerns.

The M/A/C IRWMP process is built on the premise that after much stakeholder input and planning, an assortment of integrated, feasibility, cost-effective, and environmentally-sound water resource management strategies and options would be identified, prioritized, and developed to meet an array of needs, goals and objectives defined by the stakeholders within the region. The desired outcome for this IRWMP is an implementation plan that meets the goals and objectives determined throughout the planning process and one that reflects the communities’ priorities as identified through stakeholder outreach and involvement. Stakeholder and public acceptance is a key component of any integrated plan. As a result, implementation success will involve water management strategies that address the concerns of local communities and reflect the public’s interests and values within the region. Additionally, it is recognized that the IRWMP is a living document that will evolve and be updated in the future as projects are implemented and goals and objectives change. As such, the cooperating entities listed above and others to be added to the list will continue to meet regularly to update and carry out the goals, objectives and strategies of the IRWMP. Stakeholder participation will continue to be essential to the M/A/C IRWMP process and implementation of its projects and strategies. This continuing stakeholder involvement is envisioned to occur through multiple avenues, including workshops, board meetings and presentations, group meetings and personal communications (e.g., email groups). Stakeholder and public meetings will be held to allow interested parties a forum in which to share their ideas and concerns and to address the PAC, as well as a place to identify, discuss and resolve regional conflicts associated with projects. These meetings will also be used to share information, discuss IRWMP progress, review key deliverables, collect comments and input, and gain consensus.

2.1.2 Coordination with State and Federal Agencies

In order to adequately plan and implement the integrated water management strategies recommended in this Plan, it is imperative that this IRWMP process actively involve federal, state, and local regulatory agencies and jurisdictional agencies in the Plan implementation. Originally, identification of these agencies occurred on a project-specific basis, depending on the requirements and needs of each effort. With the integrated nature of this Plan, these federal, state and local agencies have, and will continue to be, an integral part of the management process. Table 2-3 lists federal and state regulatory agencies, as

well as local land-use planning agencies, that will be central to implementing the projects described herein.

Table 2-3: Federal, State, and Local Coordinating Agencies

Federal	State	Local
U.S. Environmental Protection Agency	California Department of Transportation	Amador County
National Marine Fisheries Service	California Public Utilities Commission	Calaveras County
U. S. Bureau of Reclamation	California Department of Health Services	Alpine County
U. S. Army Corps of Engineers	California Department of Fish and Game	San Joaquin County
U.S. Fish and Wildlife Service	California Department of Parks and Recreation	Amador Regional Sanitation Authority
U.S. Geological Survey	California Department of Water Resources	
U.S. Forest Service	Regional Water Quality Control Board – Central Valley	
	State Water Resources Control Board	

Regulatory and jurisdictional involvement is vital to the eventual implementation of the water management strategies identified in this plan. While project coordination has already begun with several of the afore-mentioned agencies, greater coordination and involvement with the IRWMP effort is anticipated as this plan and the associated projects evolve. The on-going IRWMP effort will continue to communicate, coordinate, and collaborate at all steps of the process with the appropriate local, State and Federal agencies. Participation by these agencies is anticipated to result in the development of more enhanced and integrated water management strategies. It will also lead to a more streamlined regulatory and permitting process resulting from coordination activities such as preliminary consultations and continual permit support and feedback.

2.2 IRWMP Development Process

The IRWMP development process for the M/A/C region is composed of several inter-dependent steps, designed to facilitate a collaborative process resulting in the preparation of an integrated plan, formally adopted by all member agencies, and implemented to ensure water supply reliability, protect local water quality, mitigate and/or prevent floods, and assess, protect, and improve local environmental habitats. The IRWMP development process steps included:

1. Region definition;
2. Regional goals and objectives identification;
3. IRWM project identification;
4. IRWM project screening, development and prioritization; and
5. IRWM plan implementation.

Using extensive input from stakeholders and consulting agencies, the M/A/C IRWMP Plan Advisory Committee (PAC) has created a plan for integrating water resources. The plan consists of establishing short- and long-term goals and objectives, a description of the existing regional conditions, a description

of the strategies employed to address regional water management issues, information on the public involvement and outreach taken in developing the IRWMP, and a discussion of the method of evaluation and use of data generated through implementation of the IRWMP. The analyses of the projects include a discussion of the current water management objectives, capabilities, and economic conditions, and identification of the risks associated with their implementation. This IRWMP also describes the roles of the stakeholders, their respective tasks, and challenges of plan implementation (regulatory compliance, timelines, costs, etc.)

The IRWMP, as envisioned by the PAC and other stakeholders in this process, will foster voluntary cooperation between agencies in the region and integration of the on-going projects and strategies currently taking place in the region. The greatest benefit for the region can be realized through the integration of current and future water-related activities.

2.2.1 Region Definition

The M/A/C region is ideal for regional water management planning since it is dependent predominantly on surface water (and associated precipitation) for water supply. The region is also dependent on the Mokelumne and Calaveras Rivers for water conveyance, recreation, and economic stability. Initially, the region was defined generally as the Mokelumne River watershed upstream of the western boundary of Amador County. The Eastern San Joaquin portion of the region was added to the planning region to include the potential for aquifer storage and recovery of surplus water supplies. The IRWM region was later expanded to include the Calaveras River watershed. This portion of the region was added as it was recognized that water management organizations in both the Mokelumne and Calaveras River watershed could expand water supply reliability and benefits resulting from the transfer of water between watersheds. The specific boundaries of the region and how they were chosen are described in Chapter 3.

2.2.2 IRWMP Goals and Objectives

The second step in the IRWMP development process was the identification and development of regional goals and objectives. Several workshops were conducted to outline, develop and formalize the goals, intended to broadly outline the IRWMP direction, and to create measurable objectives to provide a basis for decision making, guide work efforts, and reflect project benefits. Development and summary of the M/A/C regional goals and objectives is discussed in Chapter 4.

2.2.3 Project Identification

Projects were identified and proposed by participating agencies based on the IRWMP goals and objectives. These projects range from conceptual to designed in terms of readiness to proceed and from local flood control to inter-regional water supply projects in scope. Agencies submitted projects that were included in their own master plans and other public documents. Once the project descriptions were submitted to the IRWMP process, they were developed further to identify missing details and to check for overlaps between agencies.

2.2.4 Project Screening

In this process, the proposed projects were screened for current status (i.e. conceptual, under construction) and the region-imposed criterion in which each project had to meet at least one regional goal and objective. If a project was either currently under construction and/or did not meet a regional goal or objective, it was removed from the project list. This step ensured that upon completion, projects that could be implemented according to guidelines and were determined feasible were focused on. Chapter 6 discusses Preliminary Screening in more detail.

2.2.5 Project Development

During project development, projects were evaluated to determine if some could be combined for synergistic effects or if the projects needed to be modified or possibly divided into multiple projects to improve the overall benefits. Project Development is further discussed in Chapter 6.

2.2.6 Project Prioritization

Once the projects were developed and defined, they were prioritized in order to determine the project's relative importance to the region. Prioritization of the projects is achieved through a consensus process. Consensus was achieved through a two-tiered screening and prioritization process which ultimately resulted in an order of projects that most effectively meet regional and state goals and objectives, are ready for implementation, and will provide the most benefits for its investment. Prioritization is a dynamic part of the process due to changing conditions and needs of the IRWM planning region as well as project and funding status.

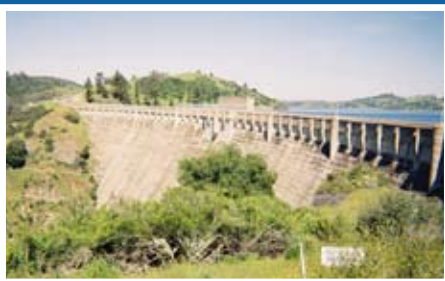
2.2.7 Plan Implementation

IRWM Plan implementation consists of more than just implementing the adopted plan. Plan implementation includes providing:

- Criteria for evaluating a project's technical and economic feasibility;
- Measures for evaluating the success of the plan implementation;
- A structure for data collection and dissemination;
- Alternatives for project funding;
- A format for regular plan updates; and
- A strategy for continued stakeholder participation.

Chapter 7 of this IRWMP provides all the required plan elements for successful implementation of the projects contained herein as well as required criteria, measures and strategies as discussed above to ensure regular and timely plan updates and stakeholder/public participation.

Chapter 3
Regional Description



Chapter 3 Regional Description

The M/A/C IRWMP region incorporates all of Amador County and sizeable portions of three other counties – Calaveras, San Joaquin, and Alpine, as well as several cities and water management organizations. Figure 3-1 shows the M/A/C IRWMP region; a geographic shapefile of the region has been provided with this report.

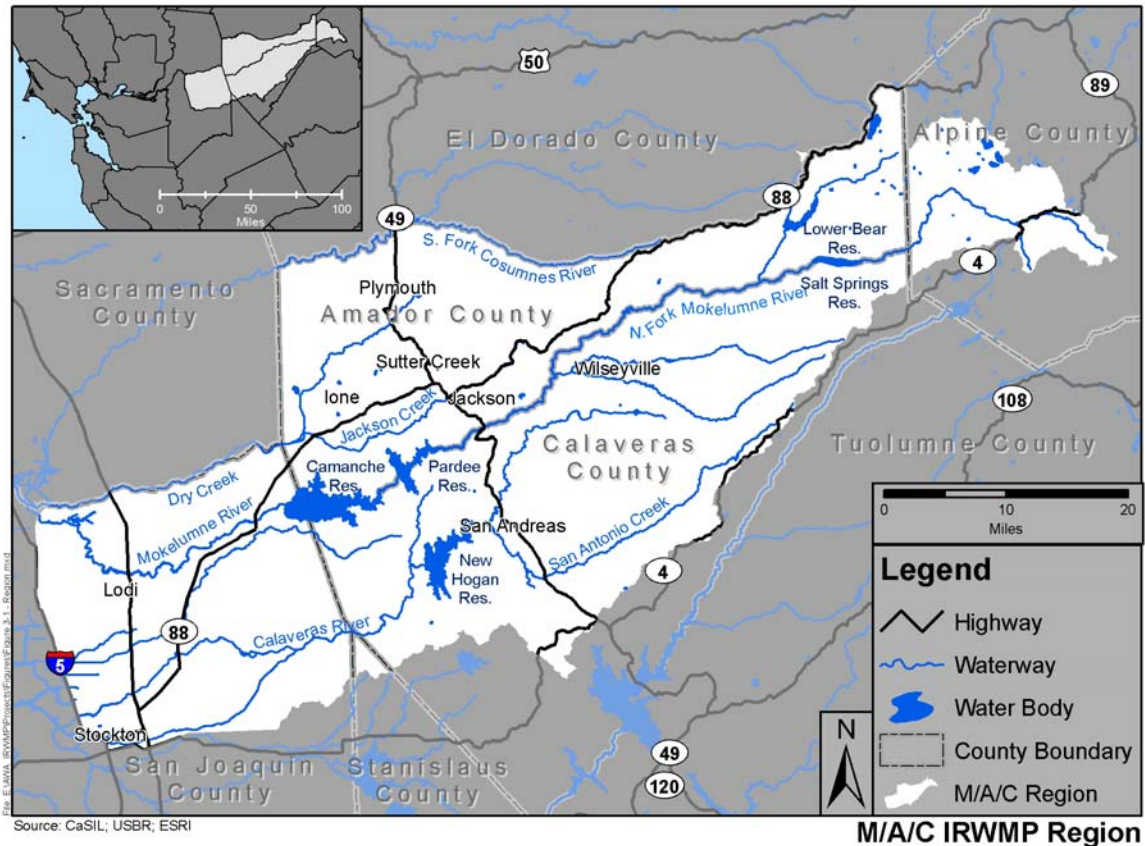


Figure 3-1: M/A/C IRWMP Region

The approximately 1.25 million acre region (about 1,950 square miles) is located in the Sierra Nevada foothills, approximately 45 miles southeast of Sacramento. Situated in a transitional zone between the San Joaquin Valley and the Sierra Nevada, the region stretches across varied topography and microclimates. Warm, dry summers and mild winters are predominant in the western foothills with temperature ranging from the middle 30s to the high 90s (in degrees Fahrenheit). Mild summers and cold winters characterize the mountainous eastern region with temperatures ranging from the low 20s to the middle 80s. Hot, dry summers and mild winters prevail in the Central Valley portion of the region with temperatures ranging from middle 30s to highs in excess of 100 °F.

The primary source of water in the region is the Mokelumne and Calaveras River watersheds (and to a lesser extent, the Cosumnes River watershed), with snowmelt and rainfall from the Sierra Mountain Range transported via the rivers and their tributaries. Although the region is famous for its historic mining and existing active mines (asbestos, gold, industrial minerals, limestone, sand and gravel), current land uses also include cattle ranching, orchards, timber, vineyards and row crops.

The M/A/C IRWMP region was formed using physical, political and social boundaries. The Mokelumne River watershed forms the eastern border, while the Calaveras River watershed forms the southern

boundary. The Amador County boundary generally follows the Mokelumne watershed boundary and roughly defines the northern border. The southwestern boundary of the region extends to Interstate Highway 5 (I-5) in San Joaquin County, encompassing an aquifer storage and recovery (ASR) project, a conceptual project identified as part of this plan. This region was defined based on similar water supply and demand characteristics and the opportunities to facilitate water resources protection, development and security. The following sections describe the region in more detail.

3.1 Watershed Description

The topography of the M/A/C IRWMP region varies greatly. The western edge of the region is in the Central Valley, west of Lodi, and is very close to sea level. The eastern edge of the region is in the Sierra Nevada mountain range at the headwaters of the Mokelumne River at an elevation well over 9,500 feet. The terrain from east to west becomes gentler as the mountains and foothills give way to the Central Valley. Figure 3-2 depicts the topography of the region.

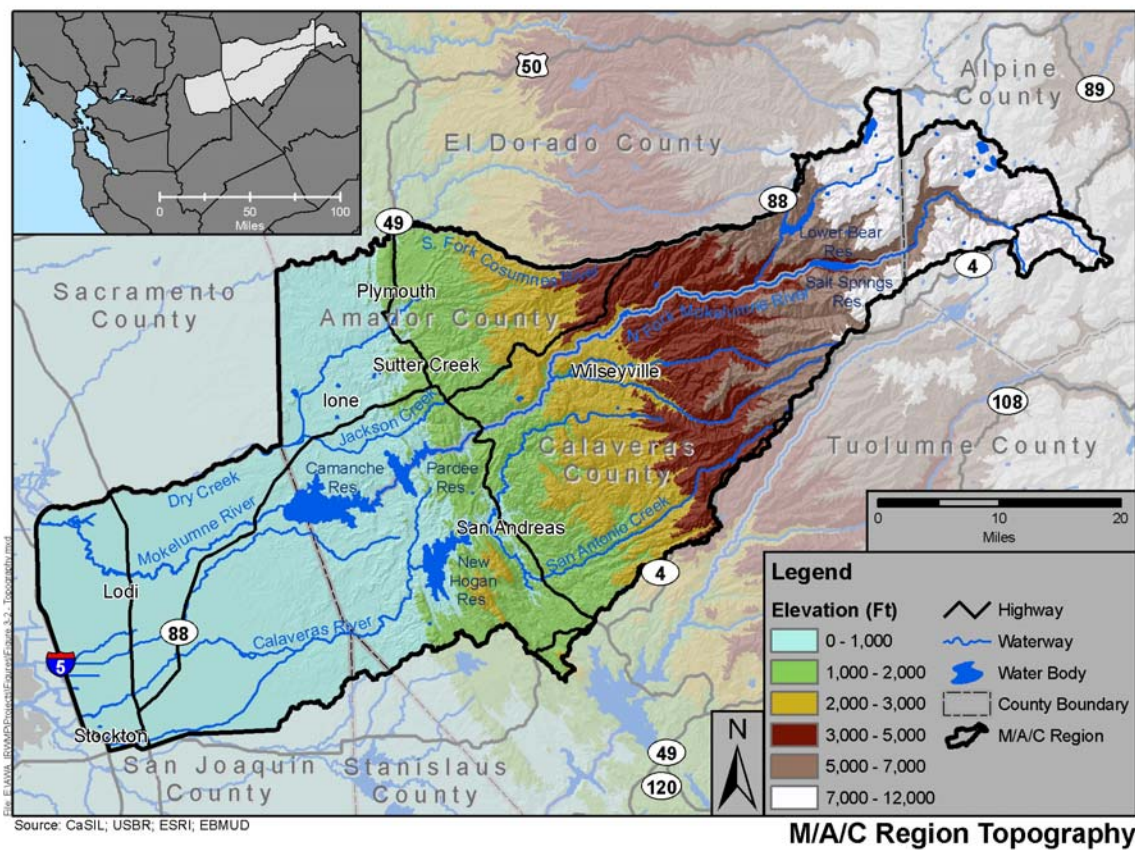


Figure 3-2: M/A/C Region Topography

The topography of the region has defined multiple watersheds within the region. The two watersheds (Mokelumne and Calaveras) that dominate the region are described below. The watersheds of the region, as defined by the California Interagency Watershed Mapping Committee, are shown in Figure 3-3.

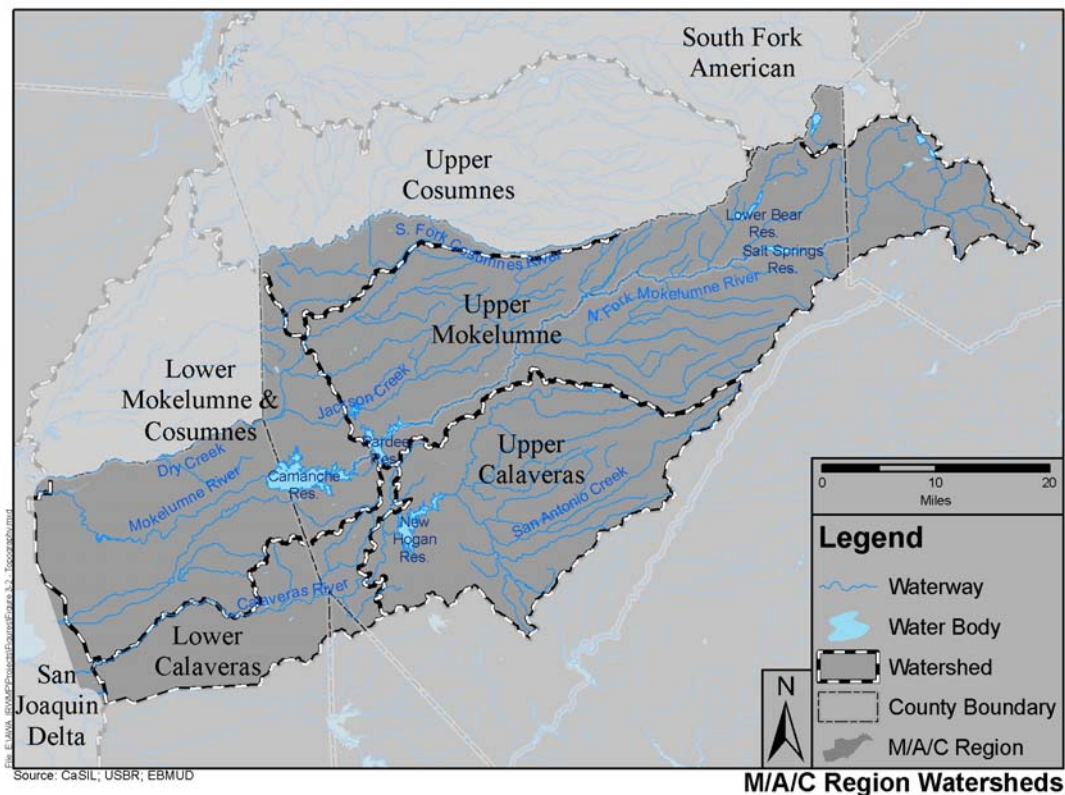


Figure 3-3: M/A/C Region Watersheds

3.1.1 Mokelumne River Watershed

The Mokelumne River originates in the Sierra Nevada and flows west to its confluence with the San Joaquin River in the Central Valley. With a watershed encompassing approximately 660 square miles, the annual average runoff of the Mokelumne River at Pardee Reservoir is 753,000 acre-feet, with the majority of flow derived from snowmelt. Annual precipitation and streamflow in the Mokelumne River is extremely variable both month to month and year to year. Stream flow is modified by upstream diversions and regulated by reservoir storage operations for hydroelectric power generation and water supply. The Mokelumne River watershed is typically subdivided into the Upper Mokelumne River Watershed, extending from its upper reaches in eastern Alpine County to the southwestern side of Pardee Reservoir, and the Lower Mokelumne River watershed, extending from its shared boundary with the upper watershed, southwest through the river's confluence with the Cosumnes River.

As the Mokelumne River traverses the foothills to the Central Valley, the Mokelumne River and its tributaries pass through several lakes and reservoirs, including Amador Lake, Henderson Reservoir, Lower Bear River Reservoir, Mosquito Lake, Tiger Creek Reservoir, Salt Springs Reservoir, Pardee Reservoir, and Camanche Reservoir. Early settlers used the Mokelumne River during the second half of the 19th century for mining, hydropower development, and steamboat transportation. The most notable effect on the river, however, resulted from mining activity following the discovery of gold in 1848 and copper in 1861. Gold mining in the Mokelumne River watershed peaked in 1854, and declined steadily thereafter. Copper was discovered in 1861 and mined heavily between 1899 and 1919. Mine effluent discharged into the river eliminated all downstream aquatic life, including salmon runs, in 1943 and 1944. Today, the Mokelumne River is used as a water supply for AWA, EBMUD, and other local water districts and agencies. PG&E and EBMUD also use the river for hydroelectric development. Restoration activities began on the river in 1992 to improve the impacted aquatic community, resulting in increased salmon runs over the past few years. The watershed is also owned, and managed, by a variety of public

and private entities. Notable landowners in the Mokelumne River watershed include the U.S. Forest Service, Sierra Pacific Industries, and PG&E.

Upper Mokelumne River Watershed

As previously noted, the Mokelumne River originates in the Sierra Nevada and flows west to its confluence with the Cosumnes River. The upper portion of the Mokelumne River watershed lies predominantly within the 105,165 acre Mokelumne Wilderness. The Mokelumne Wilderness, a federal wilderness area protected under the Wilderness Act of 1964, straddles the crest of the central Sierra Nevada, within the Stanislaus, El Dorado, and Toiyabe National Forests as well as portions of Calaveras, Alpine, and Amador Counties. Watersheds within the Mokelumne Wilderness area drain to the Mokelumne River on the west slope and the Carson River on the east slope.

The Upper Mokelumne River watershed is defined as all lands that drain into the North Fork, Middle Fork, South Fork, and Main Stem of the Mokelumne River with the southwestern edge of Pardee Reservoir as the downstream boundary. This approximately 550 square mile watershed is located within Alpine, Amador and Calaveras Counties. The North Fork watershed is the largest tributary at 370 square miles and contributes 85% of the river flow.

The Upper Mokelumne River watershed topography is rugged, with elevations ranging from 600 to 10,400 feet. The watershed contains important habitat for sensitive species, is used by outdoor recreation enthusiasts throughout the year, and is the source of drinking water for people living in and outside of the watershed. Land and water resource management decisions in the watershed are made by a variety of public and private entities, including the U.S. Forest Service, Sierra Pacific Industries, EBMUD, and PG&E. To address areas of mutual concern pertaining to water supply, water quality management and the preservation of the environment within the Upper Mokelumne River watershed, the Upper Mokelumne River Watershed Authority (Authority) was formed under a joint powers authority in 2000 to undertake watershed assessment and planning projects. Members of the Authority include Alpine County Water Agency, AWA, CCWD, CPUD, EBMUD, JVID, and Alpine, Amador and Calaveras Counties.

Lower Mokelumne River Watershed

The Lower Mokelumne River watershed encompasses 80 square miles and flows from Highway 49 to the River's confluence with the Cosumnes and San Joaquin Rivers. The watershed for the Lower Mokelumne River includes portions of Amador, Sacramento and San Joaquin counties, the lower edge of Pardee Reservoir, Camanche Reservoir, and the confluence of the Cosumnes and Mokelumne Rivers. The Lower Mokelumne River is used heavily for water supply, hydroelectric generation and recreation, and, at the same time, contains a broad and diverse array of environmental habitats. Habitats along the lower river, especially at its confluence with the Cosumnes River, are considered to support some of the most significant valley floodplain forests and wetlands remaining in the Central Valley.

Like the Upper Mokelumne River, land and water resource management decisions are made by a variety of entities including the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management, Sacramento and San Joaquin Counties, and EBMUD. A non-governmental organization involved in the management of the Lower Mokelumne River is the Mokelumne Cosumnes Watershed Alliance. The Mokelumne Cosumnes Watershed Alliance is an alliance of many organizations interested in management of the lower Cosumnes and Mokelumne Rivers, and includes the California Department of Water Resources, California Department of Fish and Game, EBMUD, San Joaquin and Sacramento Counties, NOAA Fisheries, and the Sacramento Area Flood Control Agency, as well as many others. The study area for this organization includes a 17-mile reach of the Mokelumne River from the Woodbridge Irrigation District Dam downstream to Lost Slough, and a 28-mile reach on the Cosumnes River from the Folsom South Canal downstream to the confluence with the Mokelumne River.

3.1.2 Calaveras River Watershed

The Calaveras River watershed drains approximately 470 square miles of land above the foothill line in Calaveras and San Joaquin Counties. As shown above in Figure 3-3, the Calaveras River watershed is a tributary to the San Joaquin River Delta system and is located in Calaveras, Stanislaus, and San Joaquin counties. The majority of the watershed lies in the northwestern region of Calaveras County with the western-most portion of the watershed in San Joaquin County and a small, southwestern area falling within the Stanislaus County border.

Like the Mokelumne River, the Calaveras River watershed may be divided into the Upper Calaveras River watershed and the Lower Calaveras River Watershed, with the dividing line occurring just west of New Hogan Reservoir. Flow in the Calaveras River is primarily derived by rainfall with almost no contribution by snowmelt. New Hogan Dam was constructed on the Calaveras River in 1963 for flood control, and municipal, industrial and irrigation purposes, and releases from New Hogan Dam currently control flows on the Lower Calaveras River. The upper watershed above New Hogan reservoir covers 363 square miles with an average annual runoff of about 166,000 acre-feet.

The Lower Calaveras River – Mormon Slough area is below New Hogan Dam. The watershed for this portion of the river encompasses approximately 115,000 acres and receives up to 90,000 acre-feet of surface water supply from the Calaveras River. The four main tributaries below New Hogan are Cosgrove Creek, South Gulch, Indian Creek, and Duck Creek. Cosgrove Creek provides the largest run-off contribution to the Calaveras River, which has been as much as 8,500 acre-feet in some years.

As with the Mokelumne River, land and water resource management decisions for the Calaveras River are made by a variety of entities, including many of the same organizations as for the Lower Mokelumne River. One additional organization involved in the preservation and management of the Calaveras River is the Calaveras River Watershed Stewardship Group. They focus on the lower Calaveras River below the New Hogan Dam. Members of this group include the U.S. Fish and Wildlife Service, the California Department of Fish and Game, Stockton East Water District, Calaveras County Water District, NOAA Fisheries, California Department of Water Resources, City of Stockton, and California Department of Conservation

3.2 Ecological and Environmental Resources

The M/A/C IRWMP region is a largely natural area with much of it designated as rural or open space. There is an abundance of water features in the form of rivers, creeks, ponds, lakes, and reservoirs. As such, the region provides a great deal of varied habitat for numerous species. The Upper Mokelumne River has been designated as a scenic waterway.

There are a number of special status biological species in the M/A/C IRWMP region. Table 3-1 summarizes the species that are listed in the 08/06 California Natural Diversity Database designated as “Threatened” or “Endangered”. Additionally, there are several “Special” animal and plant species in the M/A/C region that have been designated as such by either the California Department of Fish and Game or the California Native Plant Society due to declining population levels, limited ranges and/or continuing threats that make them vulnerable to extinction.

Table 3-1: Special-Status Species Potentially within the M/A/C IRWMP Region

Species Common Name	State Status	Federal Status
Bald Eagle	Endangered	Threatened
Boggs Lake Hedge-hyssop	Endangered	None
California Red-legged Frog	None	Threatened
California Tiger Salamander	None	Threatened
California Wolverine	Threatened	None
Delta Button-celery	Endangered	None
Giant Garter Snake	Threatened	Threatened
Ione Buckwheat	Endangered	Endangered
Ione Manzanita	None	Threatened
Irish Hill Buckwheat	Endangered	Endangered
Lahontan Cutthroat Trout	None	Threatened
Mountain Yellow-legged Frog	None	Endangered
Palmate-bracted Bird's-beak	Endangered	Endangered
Succulent Owl's-clover	Endangered	Threatened
Swainson's Hawk	Threatened	None
Calley Elderberry Longhorn Beetle	None	Threatened
Vernal Pool Fairy Shrimp	None	Threatened
Vernal Pool Tadpole Shrimp	None	Endangered

Source: California Natural Diversity Database 08/06

In addition to these special-status species, the M/A/C region is home to a wide variety of plant and animal life in many different environments, including riparian, wetland, forest, and alpine. Wildlife in the area includes noteworthy rainbow and brown trout fisheries, black bear and deer populations, furbearers, 119 different bird species - including peregrine falcons, cliff swallows, spotted owls, and many more, and a vast array of amphibians and reptiles-including foothill yellow-legged frogs, western fence lizards, Gilbert skink, western rattlesnake, and pacific treefrog.

3.3 Water-Related Infrastructure

Surface water provides the majority of water supply in the M/A/C IRWMP Region. Associated with the surface water bodies in the region are several major water-related infrastructures. Figure 3-4 shows the major water infrastructure within the study region, highlighting the importance of the Mokelumne and Calaveras Rivers. The water infrastructure includes major conveyance pathways, water treatment plants, pump stations, and water storage facilities. Specifically, the following infrastructures may be found on Figure 3-4:

- Amador Water System – Uses Mokelumne River water transported via PG&E's Electra Tunnel to Lake Tabeaud. Lake Tabeaud then feeds the Amador Canal, transporting water to treatment plants in Sutter Hill and Ione. The Amador Canal is being replaced with an 8 mile pipeline

project. Consists of 100 miles of water main piping, and twenty-three miles of conveyance canals.

- Buckhorn, Ione and Tanner Water Treatment Plants – Located in Pioneer, Ione and Sutter Hill, respectively, these three water treatment plants are owned and operated by AWA and provide treated surface water to AWA’s service area.
- Calaveras River – Primary source of, and transportation method for CCWD and Stockton East Water District (SEWD). It also provides water to riparian users.
- Camanche Reservoir and Dam – Owned and operated by EBMUD, Camanche Reservoir has a capacity of 417,120 AF. Camanche Reservoir is operated for flood control and to meet instream flow requirements and downstream entitlements. Incidental hydroelectric power generation also occurs at the Camanche Reservoir. Water supplies from the Mokelumne River are withdrawn for Woodbridge Irrigation District (WID) and the North San Joaquin Water Conservation District (NSJWCD) at Camanche Reservoir, depending on EBMUD supply requirements.
- Central Amador Water Project System – Provides wholesale treated water to “upcountry” communities in Amador County such as Pine Grove, Pioneer, and the Mace Meadows area. Water is diverted from the downstream Tiger Creek Afterbay and pumped to the Buckhorn Treatment Plant located in Pioneer to be treated and distributed to the local communities.
- Groundwater Wells – A single groundwater well is used by AWS to supply La Mel Heights customers, located in the La Mel Heights Subdivision, and three groundwater wells located in the Lake Camanche area are used to supply Lake Camanche residents.
- Ione Pipeline - Transports raw water from the Tanner Reservoir to the Ione Water Treatment Plant where it is treated for use by customers of Ione.
- Jenny Lind System – The source of water for the Jenny Lind Improvement District is an infiltration gallery one mile below the New Hogan Dam on the Calaveras River. Water allocation is highly dependent on the water year. CCWD’s water allocation for this system is 30,928 AF plus riparian water rights of 350 AF. Water for the system is treated at the Jenny Lind Water Treatment Plant. The New Hogan WTP capacity is rated at 45 MGD, projected to be 50 MGD by August 2006 and delivers water to the City of Stockton. Five MGD is also delivered to Jenny Lind WTP, which will be augmented with a new regional facility within the next 5 years.
- Lake Tabeaud – Used by AWA to divert water from the Mokelumne River. It has a storage capacity of 1,170 AF. Water from Lake Tabeaud is conveyed by pipeline to the Tanner Water Treatment Plant where it is treated for use by the customers of Jackson, Sutter Creek, Amador City, and Drytown.
- Mokelumne Aqueducts – Raw water from Pardee Reservoir is moved through the Pardee Tunnel to the three Mokelumne Aqueducts near Valley Springs in Calaveras County. All three steel pipelines extend 82.2 miles from the Pardee Tunnel to the east end of the Lafayette Aqueduct in Walnut Creek, east of San Francisco Bay.
- Mokelumne River - Primary source of, and transportation method for water for the 1.3 million EBMUD customers in the East San Francisco Bay Area. Collects melted snows of Alpine, Amador, and Calaveras counties. EBMUD has water rights and facilities to divert up to a daily maximum of 325 MGD from the River. It is also a source for PG&E, AWA, CPUD, JVID, CCWD, the North San Joaquin Water Conservation District, WID, and senior appropriators.

- New Hogan Reservoir and Dam – Stores approximately 317,000 AF of water for municipal, industrial, irrigation, and flood control purposes. Flood control releases are controlled by the U.S. Army Corp of Engineers with SEWD operating the reservoir at all other times.
- New York Ranch Reservoir - The reservoir, located just southwest of the intersection of Ridge and Climax Roads, currently serves as a holding basin for water flowing along the Amador Canal from Lake Tabeaud to the Tanner Reservoir near Sutter Hill.
- Pardee Reservoir and Dam – Owned and operated by EBMUD, Pardee Reservoir has a capacity of 197,950 AF and is operated as a water supply reservoir. Water from Pardee is conveyed by the Mokelumne Aqueducts to the EBMUD service area approximately 91 miles away. Incidental hydroelectric power generation (23.6 MW) also occurs at Pardee Dam.
- Tanner Reservoir – Stores raw water transferred from Lake Tabeaud via the Amador Canal and pipeline. The raw water is then transferred to the Ione Water Treatment Plant via the Ione Pipeline in order to be treated for use by customers of Ione.
- Tiger Creek Reservoir (Forebay and Afterbay) – The combined capacity of the Forebay and Afterbay is approximately 4,000 AF. The Tiger Creek reservoirs are used by Pacific Gas and Electric Company (PG&E) for power generation. AWA currently uses water stored in the Tiger Creek Afterbay for water supply. Water is pumped from the afterbay to Buckhorn Water Treatment Plant where it is treated and ready for use by the customers of Pine Grove, Pine Acres, Sunset Heights, Fairway Pines, Jackson Pines, Pioneer, Gayla Manor, Ranch House Estates, Pine Park East, Toma Lane, Sierra Highlands, Silver Lake Pines, Ridgeway Pines, Rabb Park, and Mace Meadows. Water from the afterbay also gravity feeds to the PG&E Tiger Creek Powerhouse Memcor Plant where it is treated and serves the PG&E Conference Center.
- West Point/Wilseyville System – Sources of water for the West Point and Wilseyville water system are Bear Creek and the Middle Fork of the Mokelumne River. CCWD has water rights for a year-round diversion of 4 cfs and 150 AF of storage rights on Bear Creek for a total potential supply of 1,980 AF.

Additionally, wastewater treatment facilities are managed by individual entities with discharges to either local water bodies or land application on local fields.

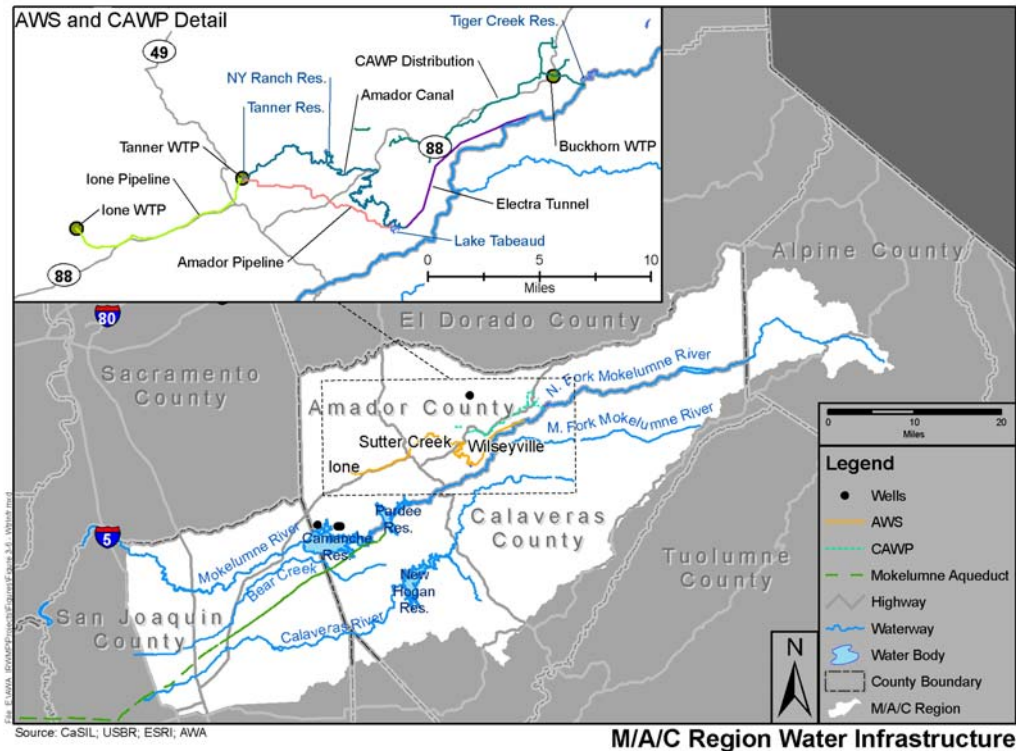


Figure 3-4: M/A/C Water Infrastructure

3.4 Political

The M/A/C IRWMP region contains numerous internal boundaries that are generally associated with counties, cities, and special districts. The various boundaries delineate jurisdiction and responsibility for land use planning and various municipal services. This section summarizes the major political boundaries within the planning region.

3.4.1 Counties

The M/A/C IRWM planning region includes all of Amador County and areas within Alpine, Calaveras, and San Joaquin Counties. County jurisdiction generally includes land use planning, development, tax assessment, elections, health and well being, as well as other services. Water and wastewater purveyors within the counties can also be responsible for water and wastewater services in unincorporated areas (outside city boundaries) such as the Volcano and Fiddletown areas in Amador County or the Jenny Lind area in Calaveras County.

3.4.2 Cities

The incorporated cities or census-designated places within the M/A/C IRWM planning region are summarized in Table 3-2, below. Figure 3-5 shows the boundaries for these cities throughout the region.

Table 3-2: Incorporated Cities or Census-Designated Places in M/A/C IRWMP Region

County	City
Alpine	None
Amador	Amador City Ione Jackson Plymouth Sutter Creek
Calaveras	Arnold Dorrington Rancho Calaveras San Andreas Valley Springs Wallace West Point
San Joaquin	August Country Club Lodi Morada North Woodbridge South Woodbridge Stockton Lockeford

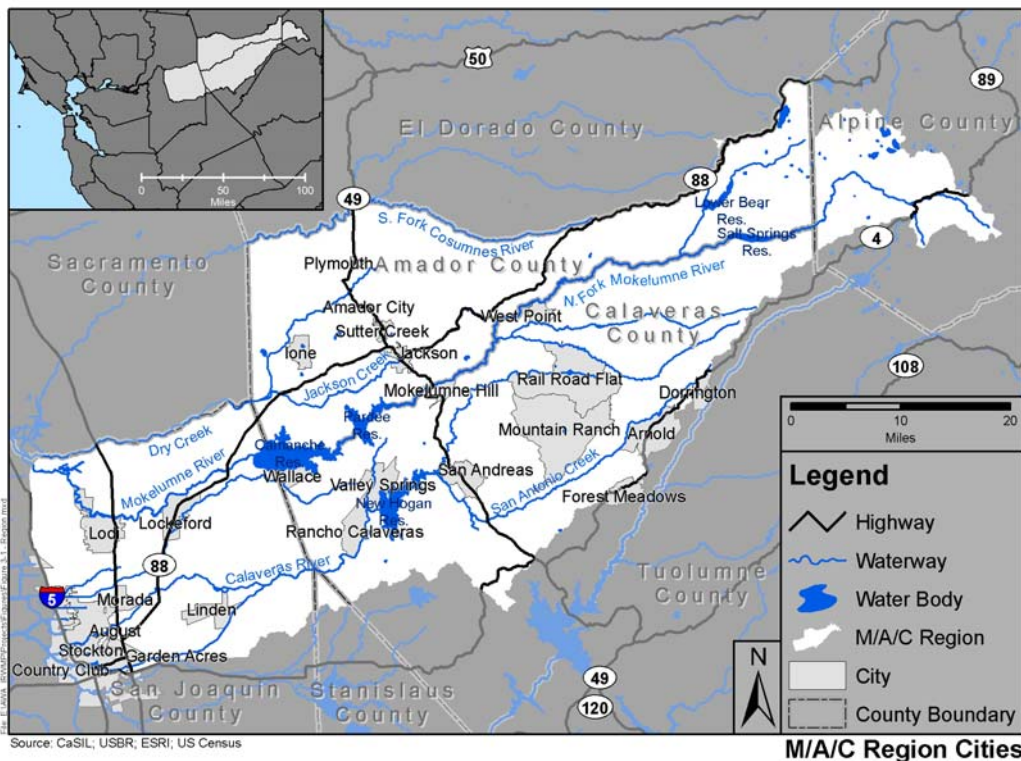


Figure 3-5: M/A/C IRWMP City Boundaries

3.4.3 Special Districts

As described above, water or wastewater services may also be served by a special district rather than municipal services. AWA, CCWD, CPUD, EBMUD, JVID and ARSA are six such districts, described above in Tables 2-1 and 2-2, within the M/A/C IRWM planning region. There are also two smaller special districts located within the Calaveras County portion of the IRWMP region: Wallace Community Service District, which provides domestic water and wastewater services in Wallace Lake Estates and the surrounding areas, and Valley Springs Public Utility District, which provides groundwater supplies and wastewater management services in the town of Valley Springs. Within the San Joaquin County portion of the IRWM planning region are the Woodbridge Irrigation District (WID), Woodbridge Sanitary District (WSD), Stockton East Water District (SEWD), and the North San Joaquin Water Conservation District (NSJWCD).

In addition to these water and wastewater districts, special districts of importance include those agencies that have the authority to manage water resources within their region. In the IRWM planning region, Pacific Gas and Electric Company (PG&E) is authorized to manage river flows for the purpose of hydroelectric power generation, and the counties and cities share the responsibility to manage water flows in the region for the purpose of addressing flood control and drainage issues, each in their respective jurisdictions. Such responsibilities include flood prevention, flood control project planning, drainage services, and maintenance and operations of existing flood control and drainage infrastructure.

3.5 Socioeconomic

Socioeconomics includes land use, disadvantaged communities within the region, water demand, and cultural resources. This section summarizes the intertwining social and economic factors within the M/A/C IRWM planning region.

3.5.1 Land Use

Land use data are critical for identifying and evaluating a multitude of water resources management characteristics including water use, wastewater production, storm water runoff, environmental habitats, and other natural resources. Land use data are available from the California Department of Water Resources (DWR), United States Geological Survey (USGS) and local governmental agencies. Figure 3-6 summarizes the major land use divisions for the M/A/C IRWM planning region. Development within the region, both urban and rural, is clustered around the major cities and highways. Agriculture, grazing, and open spaces dominate land uses and represent a relatively large portion of the total region land use. Other industries outside the urban setting include mining and timber harvesting where the majority of the land cover is forest, shrub and grassland.

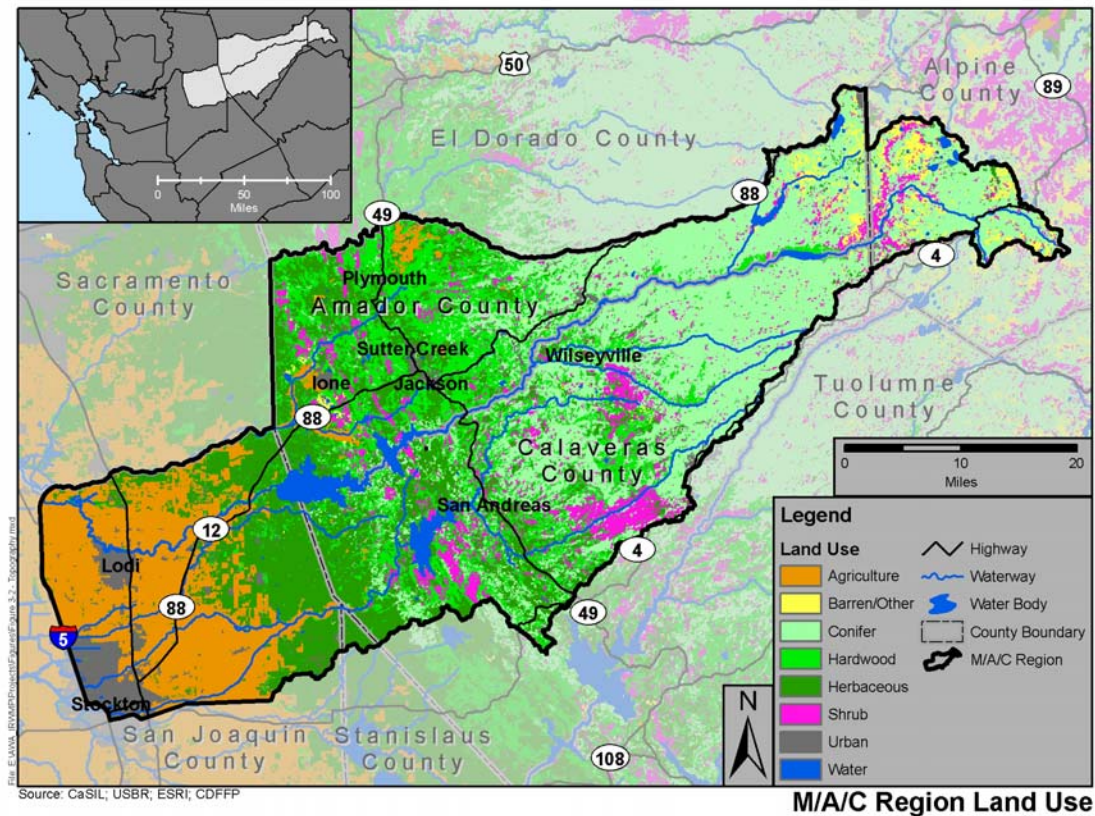


Figure 3-6: M/A/C Region Land Use

General land use trends in the region include significant development of rural and agricultural areas associated with sudden population increases in Plymouth and Sutter Creek (Amador County), Kirkwood and Bear Valley (Alpine County), the Rancho Calaveras and La Contenta areas (Calaveras County) and Lodi (San Joaquin County). A second land use trend is a shift from grazing to viticulture and viticulture to residential development. More specific regional land use data for each of the counties in the region are summarized below.

Amador County

Over the last few years, there has been increasing urbanization and a decrease in the number of people employed in farming. Currently, there is an offer pending for residential development over a 30,000-acre area in the western portion of Amador County. Continued agriculture and preservation of agriculture lands is encouraged by the County though. The primary farming commodities are wine grapes and cattle. Grazing on public lands is still a custom and part of the County's culture. Large land holdings for timber harvesting of softwood forests exist in areas designated as Timberland Preservation Zones (TLZ), but significant urban pressure continues to grow. The Amador County General Plan is currently undergoing major review for an upcoming update. This IRWMP is not intended to drive the General Plan Update or to induce growth.

Calaveras County

Based on land use capability, the General Plan divides Calaveras County into two categories: Natural Resource Lands and Community Development Lands. Natural Resource Lands are used for agriculture, timber and mining, or contain sensitive habitat. The Community Development Lands are already developed or slated for future development. In this way, communities will be developed at higher densities and Natural Resource Lands density will be restricted to ensure future use, conservation, and the

use of resources. Natural Resource Land is approximately 55% of land use distribution (22% of that designated for Timber or Dam Areas), whereas 43% is designated as Community Development Land. The remaining 2% is designated for the City of Angels and its sphere. The Calaveras County General Plan is also being updated soon. As with the Amador General Plan, this IRWMP is not intended to drive the General Plan Update or to induce growth.

Alpine County

Due to Alpine County's topography, minimal development pressure, and citizen appreciation for the conservation of the forest and mountain meadow environment, development will be concentrated in Kirkwood and Bear Valley, two ski-resort communities, according to the Land Use Element of Alpine County's General Plan. This will allow for most of the County to be designated as Open Space or Wilderness. Two types of residential subdivisions will be recognized – standard and conservation. Lots in a standard subdivision will be a minimum of 20 acres whereas in a conservation subdivision, residential lot sizes will be reduced. County population is expected to continue to grow at a slow and steady rate with increases over the next 10 years due primarily to demographic changes of age and household size. Population increases will directly increase demands for public services and facilities, including fire protection, sewage disposal, water systems, and other utilities.

San Joaquin County

San Joaquin County is expected to have a dramatic population increase, focused in the urban areas with a corresponding decrease in agricultural lands, in which the agricultural lands will be converted to urban land. According to the San Joaquin County Water Management Plan, there have been land use trends of increasing vineyards, orchards, and urban areas, with decreasing amounts of land for pasture and farmstead crops in the last 30 years. These trends are expected to continue into the future, but with an increasing demand for urban development.

3.5.2 Disadvantaged Communities and Environmental Justice

A “disadvantaged community” is defined by the State of California as a community with an annual median household income (MHI) that is less than 80% of the statewide MHI [CA Water Code, Section 79505.5(a)]. The 2000 State MHI was \$47,493; therefore, communities with an average MHI of \$37,994 are considered disadvantaged communities.

Based on the 2000 Census for median household income, the cities of Jackson (Amador County), Plymouth (Amador County), Mokelumne Hill (Calaveras County), Rail Road Flat (Calaveras County), San Andreas (Calaveras County), West Point (Calaveras County), and August (San Joaquin County) are disadvantaged communities. AWA also recently performed a survey in 2005 of the Camanche region and identified the North Shore Lake Camanche Unit 6 & Recreation Areas area as a disadvantaged community as well. The M/A/C IRWMP region also contains Amador City (Amador County) and Mountain Ranch (Calaveras County) that do not qualify as a “disadvantaged community” by the MHI indicator, but do have Median Family Incomes (MFIs) that are well below 80% of the state MFI. Table 3-3 summarizes the 2000 Census data and the MHI statistics.

Table 3-3: Median Household Income Statistics

City (County)	Median Household Income	Percent of State MHI
California	\$47,493 (80% = \$37,994)	
Jackson (Amador)	\$35,944	76%
Plymouth (Amador)	\$37,262	78%
North Shore Lake Camanche Unit 6 & Recreation Areas ^a (Amador)	\$36,000-\$36,999	77%
Mokelumne Hill (Calaveras)	\$35,526	75%
Rail Road Flat (Calaveras)	\$35,938	76%
San Andreas (Calaveras)	\$32,500	68%
West Point (Calaveras)	\$25,417	54%
August (San Joaquin)	\$25,222	53%

a. Mercy Housing performed survey and provided MHI.

Table 3-4 summarizes the 2000 Census data and the MFI statistics.

Table 3-4: Median Family Income Statistics

City (County)	Median Family Income	Percent of State MFI
California	\$53,025 (80% = \$42,420)	
Amador City (Amador)	\$39,861	75%
Mokelumne Hill (Calaveras)	\$37,237	70%
Mountain Ranch (Calaveras)	\$39,324	74%
Rail Road Flat (Calaveras)	\$35,278	67%
San Andreas (Calaveras)	\$37,969	72%
West Point (Calaveras)	\$27,794	52%
August (San Joaquin)	\$26,676	50%

There are no disadvantaged communities in the portion of Alpine County within the M/A/C IRWM planning region.

A brief description of each disadvantaged community follows in Table 3-5. These data are summarized from the 2000 Census conducted by the U.S. Census Bureau. For comparison purposes, the State average “per capita” income is \$22,711 with an average family size of 3.43 persons, an average household size of 2.72, and a median age of 33.3 years.

Overall, the disadvantaged communities in the M/A/C IRWMP region were smaller than those in the State with a higher median age. This indicates that many of the households in the M/A/C IRWMP region are maintained by older persons, most likely retired and living on fixed incomes.

Table 3-5: 2000 Census Demographic Statistics for Disadvantaged Communities

City (County)	Population	No. of Households	No. of Families	Ave. Family Size	Ave. Household Size	Median Age	Per Capita Income
California	33,871,653	--	--	3.43	2.72	33.3	\$22,711
Amador City (Amador)	196	85	54	2.76	2.31	42	\$17,963
Jackson (Amador)	3,989	1,746	1,023	2.74	2.13	47	\$21,399
North Shore Lake Camanche Unit 6 and Recreation Areas (Amador) ^a	--	398	--	--	--	--	\$36,000-\$36,999
Plymouth (Amador)	980	392	272	2.99	2.50	39	\$16,197
Mokelumne Hill (Calaveras)	774	340	227	2.71	2.28	46	\$17,281
Mountain Ranch (Calaveras)	1,557	656	474	2.76	2.37	50	\$19,594
Rail Road Flat (Calaveras)	549	240	150	2.72	2.29	47	\$18,454
San Andreas (Calaveras)	2,615	1,097	652	2.85	2.24	43	\$16,813
West Point (Calaveras)	746	305	203	2.86	2.43	45	\$11,439
August (San Joaquin)	7,808	2,412	1,736	3.78	3.23	29	\$11,037

a. Data developed outside of Census 2000 by Mercy Housing (Jan. 2006)

Figure 3-7 shows the locations of these communities as well as summarizes whether or not the communities are less than 80% of the State MHI, MFI, or both.

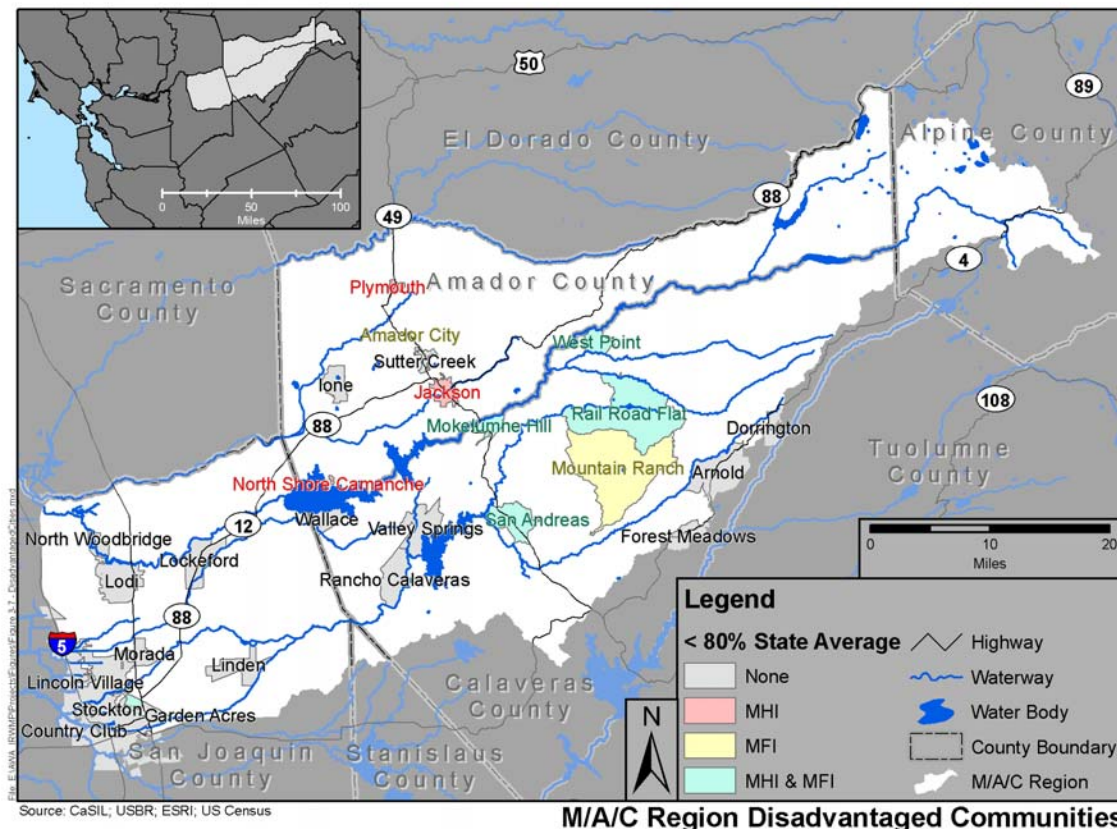


Figure 3-7: M/A/C Region Disadvantaged Communities

Environmental justice is addressed by ensuring that all stakeholders have access to the decision-making process and that minority and/or low-income populations do not bear disproportionately high and adverse human health or environmental impacts. The main environmental justice issue for the M/A/C IRWMP region is the presence of disadvantaged communities located throughout Amador and Calaveras Counties. Increases in water or wastewater service rates that could accompany the implementation of several projects discussed herein may potentially affect these communities. A priority of the IRWMP PAC is to seek external grant funding or subventions to offset the cost of implementing new, and often expensive, projects. External funding assistance will help offset costs to existing rate payers in the region, especially those rate payers with a limited ability to pay, and help ensure that those rate payers are affected as little as possible. Additionally, the M/A/C IRWMP component projects will be reviewed for compliance with CEQA, NEPA, and any other local, state, and federal requirements. Through any necessary environmental documentation review, compliance with Executive Order 12898 will be addressed as applicable to a specific project.

Construction of project facilities will create short-term environmental impacts (noise, dust, traffic disruption) at neighboring land uses. A preliminary analysis of the areas affected by construction of project facilities will ensure that these construction nuisance impacts will not be borne predominantly by any minority population or low-income group.

3.5.3 Water Demand

The regional water demands included in this section are based on the best available information and projections. Demand is very sensitive to population and land use and the increasing demand reflects regional trends. To help offset increasing demands, agencies are implementing demand management measures as described in their respective Urban Water Management Plans.

Amador County

Like many foothill communities, the cities within Amador and unincorporated areas are experiencing an urbanization trend. These additional people and their corresponding need for potable water along with water supply variability drive the need to secure additional supply and control over existing water supply. Additional urbanization and other land use shifts that could be introduced in the upcoming General Plan update would exacerbate this requirement of AWA.

The domestic sector of AWA's water service customers includes permanent and seasonal, single and multi-family residences. Since JVID is the primary supplier of agricultural water, AWA does not supply agricultural water except for incidental purposes. AWA also serves water or recycled water to several commercial/industrial consumers and golf courses.

Table 3-6 summarizes the quantity of raw and treated water delivered to AWS, CAWP retail, Lake Camanche Village and La Mel Heights customers, not including sales to individual communities or CAWP wholesales. AWA currently uses Amador Canal to transfer the AWS surface water from Lake Tabeaud to Tanner Reservoir, but almost half of the diverted water is lost due to open ditch conveyance leakage. Decreasing these losses would increase supply, reliability, and efficiency.

Table 3-6: Past, Current and Projected Water Deliveries in the AWS, Lake Camanche Village and La Mel Heights, CAWP Retail, AFY^a

Water Type	2005	2010	2015	2020	2025	2030
CAWP (sales and retail)		1286.1	1483.7	1711.6	1974.7	2278.1 ^b
AWS (including sales and raw water)	6247 ^c	7562.5	8724.6	10065.1	11611.7	13396
La Mel Heights		25.4	26.4	26.4	26.4	26.4
Lake Camanche Village		298	343.8	396.7	457.6	527.9
Recycled water	807	807	807	807	807	807
Canal Transmission Losses	4543	0	0	0	0	0
TOTAL	11597	9979	11385.5	13006.9	14877.4	17035.4

Footnotes:

- Based on 2.9% population growth rate with Year 2004 as the base year.
- The Agency recognizes that this projection exceeds the projected surface water diversions that will be available for the CAWP system in 2030.
- Data not available to show similar distribution as for future demands.

Because of growth in the area and concerns with groundwater quality and basin overdraft, the Lake Camanche Village area is planning to phase out the use of groundwater. There are currently plans for a joint surface water treatment plant project between EBMUD, AWA, and CCWD to supply surface water to this area beginning by the year 2015. This project is still in the planning stages.

The La Mel Heights area has restricted growth potential and build out will be achieved in the next ten years. Therefore, the amount of groundwater projected to be pumped is held constant after the year 2012. To help meet the water demand in La Mel Heights, AWA completed the construction of a second well which has a yield of 40 to 80 AFY. Depending upon the operational safe yield of the new well once constructed, the original well may continue being used or, ideally, kept as a reliable back-up for the new well. Table 3-7 summarizes the amount of groundwater expected to be pumped through 2030.

Table 3-7: Amount of Groundwater Projected to be Pumped, AFY

Basin Name	2010	2015	2020	2025	2030
San Joaquin Valley Cosumnes Basin 5-22.16 ^a (Lake Camanche Village wells)	298.0	0	0	0	0
Unclassified Groundwater Aquifer (La Mel Heights well) ^b	25.4	26.4	26.4	26.4	26.4
% of AWA's Total Supply	1.8%	0.2%	0.1%	0.1%	0.1%

Footnotes:

- Groundwater use is assumed to be discontinued in Lake Camanche area by 2015.
- La Mel Heights area assumed to be built out by 2012.

Overall, domestic water demand for the AWA service area is assumed to increase at the same rate as the county population growth rate. The high county growth rate is expected to average 2.9 percent annually according to Amador County's General Plan Housing Element. This growth rate is conservative and allows the Agency to plan for highest reasonable demand projections. The following tables – Table 3-8 and Table 3-9 describe current and projected maximum available water supplies and demand for AWA.

Table 3-8: AWA - Past, Current, & Future Water Supplies, AFY

Water Supply Sources	2005	2010	2015	2020	2025	2030
Supplier produced groundwater ^a	281.3	323.5	26.4	26.4	26.4	26.4
Supplier surface diversions ^b	16150	17200	17543.8	17596.7	17657.6	17727.9
Recycled water ^c	807	807	807	807	807	807
<i>TOTAL</i> ^d	17238	18331	18377	18430	18491	18561

Footnotes:

Source: Amador Water Agency *Urban Water Management Plan 2005*.

- After 2015, only La Mel Heights area will be supplied with groundwater.
- After 2015, Lake Camanche Village will be supplied with surface water.
- Recycled water is not supplied by the Agency but is used in the Agency's service area. Future supply does not include several potential uses that are currently being investigated.
- Total does not reflect amount of water incidentally transferred out of supply to EBMUD.

Table 3-9: AWA - Future Water Demand^a, AFY

Demand	2010	2015	2020	2025	2030
CAWP (sales and retail)	1286.1	1483.7	1711.6	1974.7	2278.1 ^b
AWS (sales and raw water)	7562.5	8724.6	10065.1	11611.7	13396.0
La Mel Heights	25.4	26.4	26.4	26.4	26.4
Lake Camanche Village	298.0	343.8	396.7	457.6	527.9
Recycled Water	807.0	807.0	807.0	807.0	807.0
Canal Transmission Losses	0 ^c	0	0	0	0
<i>TOTAL</i>	9979.0	11386	13007	14877	17036

Footnotes:

- Based on 2.9% population growth rate with Year 2004 as base year.
- The Agency recognizes that this projection exceeds the existing surface water rights.
- Due to replacement of the Amador Canal with the Amador Transmission Pipeline.

Comparing Table 3-8 and Table 3-9 highlights the decreased future margin of safety that AWA is currently able to provide its future customers. Projects within the IRWMP will help to increase that margin to better accommodate current and future water demands.

Calaveras County

Calaveras County is experiencing growth from increased residential development with a population projection of 57,532 by 2010, according to the Calaveras County General Plan. Calaveras County is initiating a comprehensive update to its General Plan. This update may significantly increase population figures due to recent land use trends. As population increases, so will the need for public water. In addition to the population growth, Calaveras County boundaries overlap three separate watersheds. Only the Calaveras River watershed is currently included in the M/A/C region. There are aggressively growing water systems outside of the current southern boundary of the region that could be included in a future regional definition. This section will be updated with quantity and demand for these systems as the region is updated.

CCWD is the primary water service provider to Calaveras County, and in that capacity is participating in the IRWMP with the goal of developing its ability to efficiently use supplies among all of its service areas, and likewise with the goal of developing its ability to conjunctively use its surface and groundwater supplies. The projects anticipated under the IRWMP would protect and promote the health and welfare of Calaveras County residents by improving CCWD's ability to protect against localized drought, regulatory uncertainty, infrastructure limitations and other localized system issues.

CCWD

CCWD provides water service to over 12,000 municipal and residential/commercial customers through five independent water systems located throughout the County. These service areas are geographically distinct and do not currently interact or connect with one another. In the past, decisions were made to keep the water systems local. Due to recent trends in aggressive growth, regional systems have become more attractive to take advantage of economies of scale. However, since the water systems are still local there is no redundancy if the water supply for any particular system is not available. The regional projects proposed in this IRWMP will help connect the water systems and create a water supply safety net.

CCWD service areas are primarily domestic and light commercial, with no major industry or large agricultural demands. Most of Calaveras County is rural with many small communities, some of which on the western border are rapidly urbanizing. The annual growth rate is 2.7% (between 2001 and 2009) according to the Calaveras County Housing Element of their General Plan though this number is very sensitive to construction and is being constantly updated. Demand is expected to increase at the same rate as projected population growth.

Surface water is the sole source of supply for the five systems of CCWD, although three of the systems incorporate recycled water to irrigate golf courses. CCWD is looking to extend its recycled water use to additional agricultural acreages and public activities where water is unavailable. Groundwater is not a reliable source in much of the County at present because of the small yields of the fractured rock system in the foothills. There is an approximately 30,000 acre alluvial area within the San Joaquin groundwater basin, located in the Camanche / Valley Springs region in the northwest corner of Calaveras County (DWR Bulletin 118). CCWD has adopted a groundwater management plan which includes efforts to protect water supply reliability such as conjunctive use, groundwater recharge projects, as well as other measures. CCWD's current and future water supplies for the two water systems in the M/A/C region are included in Table 3-10.

Table 3-10: CCWD Past, Current, and Future Water Supplies, Thousand AFY

System	2005	2010	2015	2020	2025
Jenny Lind ^a	8 – 32	8 – 32	8 – 32	8 – 32	8 – 32
West Point/Wilseyville ^b	2.9	2.9	2.9	2.9	2.9

Footnotes:

- Watershed yield and water availability is highly variable due to the nature of a rain driven watershed and allocation agreements with SEWD and the Bureau of Reclamation.
- Bear Creek direct diversion right is 4 cfs for West Point.

Table 3-11 summarizes the currently-projected demand for CCWD's Jenny Lind and West Point/Wilseyville systems through the year 2025.

Table 3-11: CCWD Past, Current, and Projected Total Water Use per Year, AFY

System	2005	2010	2015	2020	2025
Jenny Lind	2,900	5,700	6,100	6,600	7,000
West Point/Wilseyville	400	430	450	470	490

Source: Current (as of printing) estimates for connections and water demand. These values are sensitive to development within the region and are subject to change.

Combined with projected growth and potential environmental demands CCWD is required to examine cost effective ways to maximize supply through increased storage to provide a safety net.

Table 3-12: Total CCWD Past, Current, and Projected Supply and Demand, TAFY

	2005	2010	2015	2020	2025
Jenny Lind System					
Supply Totals	8 – 32	8 – 32	8 – 32	8 – 32	8 – 32
Demand Totals ^a	2.9	5.7	6.1	6.6	7.0
Difference	5.1 – 29.1	2.3 – 26.3	1.9 – 25.9	1.4 – 25.4	1.0 – 25.0
West Point / Wilseyville System					
Supply Totals	2.9	2.9	2.9	2.9	2.9
Demand Totals ^a	.4	.4	.5	.5	.5
Difference	2.5	2.5	2.4	2.4	2.4

Footnotes:

- Based on current (as of printing) estimates for connections and water demand. These values are sensitive to development within the region and are subject to change.

Table 3-12 summarizes the supply, demand, and net supply for the two CCWD systems through the year 2025. The table shows that CCWD's water supplies can meet the demand for existing 20-year projections for the two water systems within the region. However, the variability in the supply and dependence on local, aging infrastructure cause CCWD to plan for additional water supply, system redundancy, and upgraded infrastructure to avoid water shortages.

CPUD

The Calaveras Public Utility District obtains its water at a diversion dam and pump station near the confluence of the Licking and South Forks of the Mokelumne River. Water is pumped to Jeff Davis Reservoir and gravity fed to a treatment plant, where it is then fed to storage tanks in Rail Road Flat, Mokelumne Hill, Paloma, and San Andreas. They also derive a small amount of agricultural water from the Calaveras River. The district's boundaries cover 21,543 acres, covering areas within and around the

communities of Mokelumne Hill and San Andreas. CPUD's Sphere of Influence (SOI) is L-shaped, covering an area of approximately 64,553 acres. In 2001, CPUD's water sales were 962 AF, approximately 9% of its water rights. CPUD has 1,720 customers with 82% being single-family residential customers, 6% multiple-family residential, 12% commercial and less than 1% agricultural.

CPUD's SOI could expand to encompass a total of 179,464 acres. The areas proposed for inclusion in the SOI currently rely on groundwater sources, in which availability and quality vary dramatically. The need for water in the proposed CPUD SOI depends on multiple factors including: continued growth in the area, density of new development, desire to have high quality water, need for fire protection, and availability of grants and loans to undertake expansion of the delivery system itself.

According to the County Water Master Plan, by 2010, future water needs supplied by CPUD are projected to be between 2,698 and 3,587 AFY. By 2040, water demand is projected to be between 4,335 AF and 5,898 AF annually. CPUD's water rights from the Mokelumne River amount to 10,950 AFY, so the supply should meet future water projections. The supply will be adequate until 2040 if demand follows the slower growth curve and until 2025 for the high demand curve.

Alpine County

Alpine County has a relatively slow steady population growth. The county population in 2003 was 1,223 people and by 2008, population is expected to increase 3.7% to 1268 people. Population is expected to grow faster in Bear Valley, Kirkwood, Markleeville, and Woodfords. Limited availability of water and sewer services can affect affordable housing and development in these areas, but Bear Valley, Kirkwood, and Markleeville have central water and sewer services. Most areas of the county are served by on-site well and septic systems.

San Joaquin County

The population of San Joaquin County is expected to increase dramatically over the next thirty years, especially in the urban areas. By 2030, the countywide population is expected to increase by 83%, from 579,712 to 1,060,442. The urban growth will cause a decrease in agricultural land, which will offset the urban water use increase, resulting in a much slower increase in water demand. There will be an agricultural water use decrease of 132,174 AF, but an increase in urban water use of 136,845 AF. Therefore, overall water demands within the County are projected to remain constant into the future. General Plans are completed city-by-city in San Joaquin County, so these Plans can provide specific information about water demand pertaining to the city in which the plan was written. Table 3-13 describes the current and projected water supplies until 2030 for the City of Lodi specifically, located in San Joaquin County. Since 2003, Lodi has purchased 6,000 AFY of surface water from Woodbridge Irrigation District (WID). Future water demands of Lodi are estimated based on a constant 1.5% annual increase in the City's demand and a 1.5% annual increase in the number of service connections. Demands are projected to increase from current demands by approximately 20%, from 19,800 AFY (2005) to 23,800 AFY (2030).

Table 3-13: Lodi – Current & Future Water Supplies, AFY

Water Supply Source	2005	2010	2015	2020	2025	2030
Groundwater ^a , AFY	17,300	15,000	15,000	15,000	15,000	15,000
WID Surface Water, AFY	6,000	6,000	6,000	6,000	6,000	6,000
Recycled Water ^b , AFY	7,200	7,700	8,300	8,940	9,630	10,380
Total ^c, AFY	30,500	28,700	29,300	29,900	30,600	31,400

Footnotes:

- Refer to Section 3.6.2 for more information.
- Based on the amount of wastewater treated during 2004, according to City staff. Future recycled water supplies are extrapolated from the 2004 amount. Assumes that the permitted capacity of White Slough Water Pollution Control Facility (WSWPCF) will be increased as necessary.
- Rounded to nearest hundred.

Extra-Regional Demands

East Bay Municipal Utilities District (EBMUD) is the primary extra-regional user of Mokelumne River water. On an average annual basis, approximately 90 percent of the water used by EBMUD comes from the Mokelumne River watershed. EBMUD has water rights that allows for delivery of up to a maximum of 325 million gallons per day (MGD) from the Mokelumne River, subject to the availability of Mokelumne River runoff and senior water rights of other users. EBMUD's position in the hierarchy of Mokelumne water users is determined by a variety of agreements between Mokelumne water rights holders, the appropriate water rights permits and licenses which have been issued by the State, pre-1914 rights, and riparian rights.

EBMUD's Mokelumne River supply facilities include Pardee Dam and Reservoir, located near Valley Springs, and Camanche Dam and Reservoir, located approximately 10 miles downstream. EBMUD diverts its water supply at Pardee Reservoir, moving stored water into the Pardee Tunnel, Mokelumne Aqueducts, and Lafayette Aqueducts and on to its primary users in the East Bay portion of the San Francisco Bay area.

3.5.4 Cultural Resources

Also known as the "Heart of the Mother Lode", this area was first developed when the California gold rush began. The cities were developed around and nearby the mines to support the prospectors and hard rock miners. Evidence of the area's past is visible with many historic buildings still standing and is a part of the current culture of the area. The area is now known for its vineyards and wines, small town charm and hospitality, scenic open space, and its history.

The M/A/C IRWMP region is home to approximately 130,000 people. These people consist of a diverse population representing a number of different races. Table 3-14 summarizes the results of the 2000 Census racial data for the region, not including San Joaquin County. The same dataset revealed that while about 80% of the population lived in urban areas, 98% of the region is considered rural. The population density therefore is 2000 people per square mile (as an average for the entire region), but the rural areas have a population density of about 40 people per square mile. The sparseness of people is what makes this region valuable as a watershed and ideal for habitat since there are minimal urban impacts to the region's water features.

Table 3-14: Racial Percentages in the M/A/C IRWMP Region

White	Hispanic	Asian	African American	American Indian	Islander	Multi-racial
84.3%	8.9%	1.3%	2.6%	1.7%	0.1%	2.0%

Note: Table does not reflect San Joaquin County population statistics.
 Source: California Department of Forestry and Fire Protection 2000 Census Block Group Data

3.6 Water Quality and Quantity

The M/A/C IRWMP regional water supply is dominated by the Mokelumne and Calaveras Rivers. In Amador County, only 2% of the domestic or treated water supply is from groundwater and 98% of the total supply is from the Mokelumne River. Calaveras County derives most of its water supplies from surface water and almost none from groundwater sources as does the portion of Alpine County located with the M/A/C IRWMP region. In the Eastern San Joaquin Groundwater Basin of San Joaquin County, approximately 60% of water supplies come from groundwater and 40% comes from surface water.

3.6.1 Surface Water

Surface Water Supplies

The winter snow pack in the Sierra Nevada Mountains to the east, serves as the primary source of water through the year for the Mokelumne River. There are four service areas in Amador County that “take” water from the Mokelumne. The larger two of the four, the Amador Water System and the Central Amador Water Project, have yearly allotments of 15,000 acre-feet (AF) and 1,150 AF (with a possibility of expanding to 2,200 AF), respectively. Currently, only 12,000 AF and 1,066 AF per year are used, respectively. The remaining two smaller service areas, Lake Camanche Area and La Mel Heights, use groundwater. JVID also has water rights to 3,800 AF per year from Pardee Reservoir for agricultural irrigation and CPUD pumps 920 AF per year from the South Fork of the Mokelumne River. EBMUD has water rights and facilities to divert 325 MGD (approximately 364,072 AFY from the Mokelumne River). CCWD uses Bear Creek water (a tributary of the Mokelumne River) as a primary source of water. The Mokelumne River serves as a backup source for the West Point, Wilseyville, and Bummerville water systems.

Communities in Calaveras County within the IRWM planning region also rely heavily on the Calaveras River as a source of water. Unlike the Mokelumne River, the Calaveras River depends almost totally on rainfall for its flows. River flows are controlled by New Hogan Dam and Reservoir, which is operated by Stockton East Water District (SEWD) and the U.S. Army Corps of Engineers. Both SEWD and CCWD have rights to the yield from New Hogan, with SEWD’s take subject to reductions based on CCWD’s future demands. CCWD, for the West Point/Wilseyville and Jenny Lind systems, currently uses approximately 3,300 AFY and currently estimates that it will need up to 7,500 AFY by 2025.

Surface Water Quality

The Mokelumne River provides high quality source water for most of the year. According to the Amador Urban Water Management Plan, the water becomes somewhat turbid during storm events. Additionally, there are some potential water quality issues at specific locations in the IRWMP region. Table 3-15 summarizes the impaired water bodies within the IRWMP region listed on the State Water Resources Control Board 303(d) list.

Table 3-15: Impaired Water Bodies within the M/A/C IRWMP region

Water Body	Pollutant	TMDL Priority	Estimated Size Affected
Bear Creek	Mercury	Medium	15 miles
Lower Bear Reservoir	Diazinon	Medium	21 miles
Upper Bear Reservoir	Mercury	Medium	10 miles
Lower Calaveras River	Diazinon	Low	5.8 miles
	Organic Enrichment	Low	
	Pathogens	Low	
Camanche Reservoir	Copper	Low	7,389 acres
	Zinc	Low	
Five Mile Slough (Alexandria Place to Fourteen Mile Slough)	Chloropyrifos	Medium	1.6 miles
	Diazinon	Medium	
	Organic Enrichment	Low	
	Pathogens	Low	
Lower Mokelumne River	Copper	Low	29 miles*
	Zinc	Low	
Mosher Slough (upstream of I-5)	Pathogens	Low	3.5 miles

* Not all 29 miles are necessarily within the study area
Source: 2002 CWA Section 303(d) List of Water Quality Limited Segment, Region 5.

Flooding

Flooding is a concern for many areas within the M/A/C IRWM planning region. Many cities are included in 100-year floodplains (of both the Mokelumne River and its tributaries), including Sutter Creek, Jackson, Ione, Lodi, Mokelumne Hill. In some cases, like in the City of Plymouth, flooding is due to an inadequate storm drainage system, unable to handle heavy storms during winter and spring seasons. The Calaveras County General Plan discusses three basic types of potential flood hazards: stream-side overbank flows, areas of flat terrain with slow surface drainage, and inundation due to structural dam failure. Flooding can occur from heavy rainfall, rapid snow melt, saturated soils, or a combination of these conditions. Also, increasing development leads to an increase in impervious surface areas and a decrease in natural vegetative cover, which reduces the detention and attenuation characteristics of the overland areas. Documented flooding in the past has caused the following general damages and impacts to areas within the region:

- Property Damage: Extensive water damage to building contents.
- Structural Damage: Structural damage to residential and commercial buildings, as well as sewer system pipes/infrastructure.
- Business/Economic Impact: Some businesses must close for a period of time after flooding.
- Road/School/Other Closures: Bridges routinely close during high-water periods and floods.

FEMA funds have been available after floods in the past to assist with recovery.

3.6.2 Groundwater

Groundwater quantity and quality in the M/A/C IRWMP region varies considerably from well site to well site due to the small and unpredictable yields of the fractured rock system that typifies the foothill geology. Groundwater accounts for approximately 2 percent of AWA's total water supplies. Outside of the San Joaquin area, it is only used in the communities of La Mel Heights and Lake Camanche Village at a total rate of approximately 200 AFY.

Wells serving the Lake Camanche Village area of Amador County are located within the Cosumnes Subbasin portion of the San Joaquin Valley Groundwater Basin. The Cosumnes subbasin is approximately 439 square miles in size, and is bounded on the north and west by the Cosumnes River, on the east by the bedrock of the Sierra Nevada Mountains, and on the south by the Mokelumne River. The groundwater level has paralleled the available surface water supply over the past 25 years. Table 3-16 summarizes the rise and fall of groundwater levels.

Table 3-16: Historic Groundwater Levels in Cosumnes Subbasin

Time Period	Change in Level	Change from Reference Level ^a
Mid-1960s	0	0
Mid-1960s - 1980	-20 to -30 feet	-20 to -30 feet
1980-1986	5 to 10 feet	-10 to -25 feet
1987-1992	-10 to -15 feet	-20 to -40 feet
1993-2000	15 to 20 feet	-5 to -20

Footnotes:

a. Reference level is taken to be the groundwater level during the mid-1960s.

Source: California's Groundwater Bulletin 118 Updated 2/04

As can be seen in the table, the groundwater levels in 2000 were approximately the same or slightly higher than those in the mid-1980s. The groundwater storage capacity is estimated to be about 6,000,000 acre-feet (AF) with an average specific yield of 7.4%. Basin inflows are estimated to be about 269,500 AFY. Water leaves the subbasin through subsurface flow (144,600 AFY), urban extraction (35,000 AFY), and agricultural extraction (94,200 AFY). Based on this water balance, the subbasin is in overdraft by about 4,300 AFY (DWR, 2006b)

Groundwater does not account for any of CCWD's total water supply. CCWD adopted a Groundwater Management Plan in 2001 and updated it in 2005, according to Senate Bill 1938. There is one well west of the Jenny Lind system in the Camanche/Valley Springs Area but it is not operated. Located in the northwestern portion of Calaveras County, the Camanche/Valley Springs area is part of the Eastern San Joaquin Subbasin (DWR, 2006a), which is identified by the California Department of Water Resources Bulletin 118 as being in the San Joaquin Valley Groundwater Basin. The Eastern San Joaquin Subbasin is approximately 1,105 square miles in size and is bounded on the south, southwest, and west by the Modesto, Delta-Mendota and Tracy Subbasins, respectively, and on the northwest and north by the Solano, South American, and Cosumnes Subbasins. The Solano and South American subbasins are located in the Sacramento Valley Groundwater Basin. The Eastern San Joaquin Subbasin is drained by the San Joaquin, Stanislaus, Calaveras and Mokelumne Rivers. Based on a 1990 study by the U.S. Bureau of Reclamation, annual groundwater extractions total about 731,000 AFY, which exceeds the estimated safe yield of 618,000 AFY, hence a state of overdraft was created. The Eastern San Joaquin Valley Subbasin is currently being managed under an AB3030 Groundwater Management Plan (GMP), prepared by the Northeastern San Joaquin County Groundwater Banking Authority. The Camanche/Valley Springs area is managed under a separate GMP, adopted by CCWD in 2001, for investigation of opportunities to improve management of groundwater resources in western Calaveras County.

The City of Lodi, in the western part of the IRWMP region, depends solely on groundwater from the Eastern San Joaquin Subbasin for its water supply. Groundwater in the Lodi area exists under unconfined and semi-confined conditions with most of the groundwater coming from the Mehrten Formation and unconsolidated continental deposits and older alluvium. Groundwater flow direction in the Lodi area is generally toward the south in agreement with the regional groundwater flow gradient but may vary from south-southwest to south-southeast with local gradients likely influenced by pumping from municipal supply wells. Pumping tests on municipal wells indicate that they possess a large capture zone, and thus have a large influence upon groundwater flow. Pumping of municipal supply wells in the City is performed between 100 and 500 feet below ground surface.

DWR has declared that the groundwater basin underlying Eastern San Joaquin County is overdrafted, and groundwater levels in San Joaquin County and the city of Lodi are generally decreasing. The groundwater levels also fluctuate over time depending on precipitation, aquifer recharge, and pumping demands. Overall, the average annual decrease in groundwater levels from 1927 to 2004 has been 0.39 feet per year. Groundwater elevations relative to mean sea level (MSL), and the corresponding annual precipitation from 1927 through 2004 are shown in Figure 3-8. Generally, groundwater elevations have decreased with the increase in population and water production. However, annual rainfall also influences groundwater elevation. The groundwater level increase from 1981 to 1984 can be partially attributed to the increase in annual rainfall from 1981 to 1983 (City of Lodi, 2006).

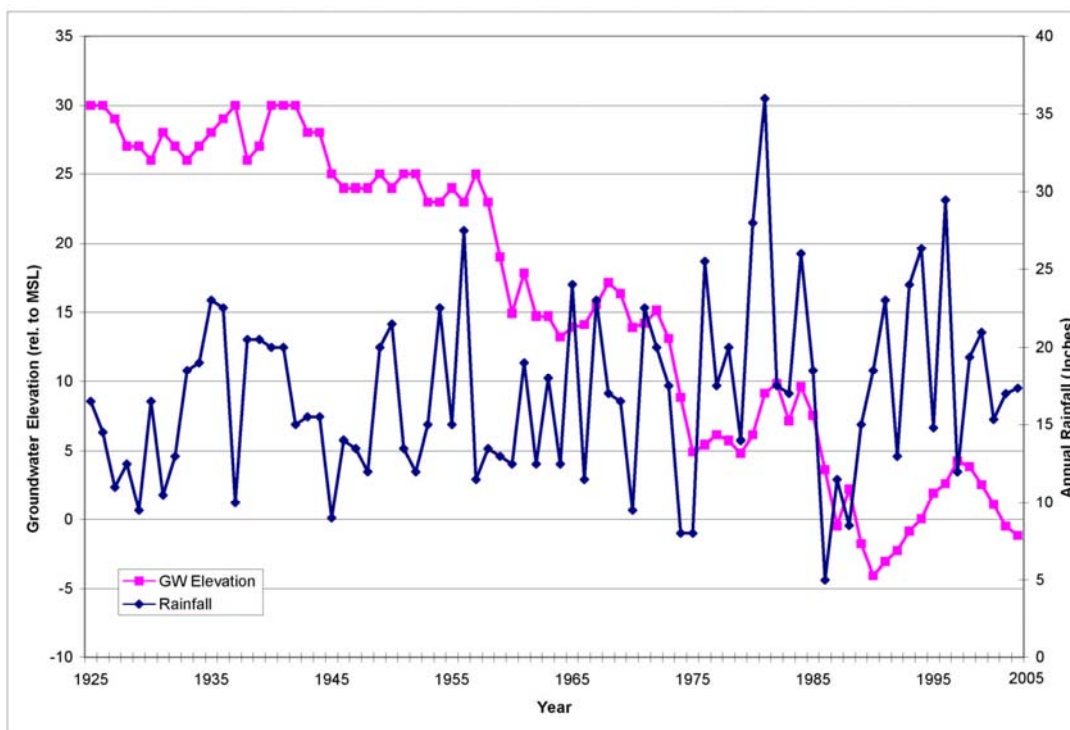


Figure 3-8: City of Lodi Historical Groundwater Elevation

Source: City of Lodi Public Works Department

3.6.3 Imported Water

San Joaquin County relies mostly on groundwater for water supply. Due to the state of overdraft of their groundwater basin, the County has had to import water. In 2003, the City of Lodi entered an agreement with Woodbridge Irrigation District (WID) to purchase 6,000 AFY of surface water for 40 years.

CCWD does not import water from outside their basin, but they have purchased water from CPUD in the past. During summer and fall months, water stored in Schaad's Reservoir from the Middle Fork of the Mokelumne River is supplied to the West Point area if the Bear Creek supply is inadequate. An agreement between CCWD and CPUD allows the supply of up to 100 AF annually.

3.6.4 Recycled Water

Several of the PAC members currently use recycled water to meet part of their water demands. The City of Ione operates a tertiary treatment facility, Castle Oaks Wastewater Reclamation Plant, which treats Amador Regional Sanitation Authority (ARSA) effluent from the City of Sutter Creek plant and produces a Title 22 effluent suitable for unrestricted reuse. The treated tertiary effluent is currently used to irrigate the Castle Oaks Golf Course. Additionally, a portion of the treated secondary effluent from the Sutter Creek Wastewater Treatment Plant to the ARSA outfall is delivered to the Bowers and Hoskins Ranches to irrigate land used for cattle grazing. The acreage of each irrigation plot is available but the amount of water delivered is unknown. The approximate amount of water delivered to each ranch was calculated using an irrigated pasture application rate of 2.5 AFY per acre of pasture. Table 3-17 summarizes the current recycled water uses in the ARSA service area. The recycled water use at these sites is not projected to increase due to the limited acreage of these sites.

Table 3-17: Recycled Water Uses in the ARSA Service Area, AFY

User Type	Treatment Level	2005	2010	2015	2020	2025	2030
Landscape (Castle Oaks Golf Course) ^a	Tertiary	557	557	557	557	557	557
Bowers Ranch Irrigation ^b	Secondary	100	100	100	100	100	100
Hoskins Ranch Irrigation ^c	Secondary	150	150	150	150	150	150
Landscape (Mace Meadows Golf Course)	WTP Backwash ^d	56	56	56	56	56	56
	TOTAL	863	863	863	863	863	863

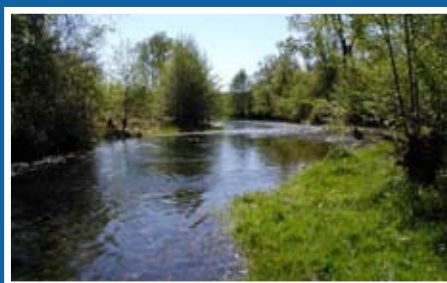
Footnotes:

- Based on Year 2004 Castle Oaks Reclamation Plant effluent of 557 AFY.
- Approximate delivery. Based on 40 acres of cow pasture and an Irrigated Pasture application rate of 2.5 AFY/acre.
- Approximate delivery. Based on 60 acres of cow pasture and an Irrigated Pasture application rate of 2.5 AFY/acre.
- Backwash water from Buckhorn Water Treatment Plant based on Year 2005 and 2006 average annual flows.

The City of Lodi's wastewater discharge permit requires an agronomic application rate. According to the Lodi's 2005 UWMP, approximately 2,500 AFY of secondary treated recycled water is currently used, primarily for irrigation in the area surrounding the White Slough Water Pollution Control Facility (WSWPCF). This represents approximately 35 percent of the total treated wastewater produced at WSWPCF. The City of Lodi discharges the non-irrigation water, treated to Title 22 tertiary standards, to the Delta. Lodi currently lacks the necessary infrastructure to distribute additional recycled water to more of its customers. CCWD also utilizes recycled wastewater currently in order to irrigate three golf courses. There are opportunities to use recycled water beyond golf course irrigation in the area, including dual use systems.

Chapter 4

IRWMP Goals and Objectives



Chapter 4 IRWMP Goals and Objectives

The goals and objectives of the M/A/C IRWMP were formed through a collaborative process between participating agencies. The goals and objectives form the backbone of the IRWMP and provide the structure for decision making for the IRWMP. This chapter discusses the development process, State goals that have been included in the M/A/C IRWMP, and region specific goals and the objectives used to measure success at meeting those goals.

4.1 Goal Development Process

Development of regional goals and objectives is a key step in the IRWMP process. Goals are established for broadly outlining the IRWMP direction, whereas objectives provide a basis for decision making, guide work efforts and may be used to evaluate project benefits.

The M/A/C IRWMP participants have chosen to include the State goals and priorities as described below as part of their IRWMP. Having those goals and priorities in place will keep the region's direction in line with that of the State and facilitate coordination with and integration into larger regions and projects.

A consensus-based approach was used to develop the IRWM regional goals and objectives for the M/A/C Region. All of the participants were invited to submit goals and objectives whether or not they were signatories to the Plan MOU. The ideas submitted by the PAC were reflective of the needs of the regional needs, issues, and priorities. These goals and objectives were then refined by the group over several months, resulting in a collaboratively-developed set of regional goals and objectives.

4.2 State Goals and Priorities

As identified in their *Integrated Regional Water Management Grant Program Guidelines*, the State of California developed the following Statewide Priorities for their Prop. 50 Chap. 8 program:

- To reduce conflict between water users or resolve water rights disputes, including interregional water rights issues;
- To implement TMDLs that currently exist or are under development;
- To implement the RWQCB Watershed Management Initiative Chapters, plans, and policies;
- To implement the SWRCB's Non-point Source Pollution Plan;
- To assist in meeting Delta Water Quality Objectives;
- To implement recommendations provided by the floodplain management task force, desalination task force, recycling task force, or state species recovery plan;
- To address environmental justice concerns; and
- To assist in achieving one or more goals of the CALFED Bay-Delta Program.

These Statewide goals and priorities were incorporated into the regional goals and objectives developed by the PAC for the M/A/C IRWMP. The *Guidelines* also lists Prop. 50 Chap. 8 preferences but these are not explicitly included in this Plan. Those preferences are specific to the implementation language for Prop. 50 and this document is designed to be non-program specific. The preferences are however, reflected in the goals, objectives, and projects however due to their general nature.

4.3 Regional Goals and Objectives

As previously discussed, the development process for the M/A/C IRWMP goals and objectives included identification of regional needs and issues, statewide priorities, and consideration of State priorities and

objectives. Based on these regional needs, issues and priorities, the following regional overall goals were developed:

Overall Goals:

- Goal 1: Develop a comprehensive IRWMP for the Mokelumne/Amador/Calaveras area that incorporates regional water supply, water quality, flood control and environmental protection and enhancement objectives consistent with those of Proposition 50, Chapter 8 (Prop. 50 Chap. 8).
- Goal 2: Improve and maximize coordination of individual water district, agency, and city plans, programs, and projects for mutual benefit and optimal regional gain.
- Goal 3: Identify, develop, and implement collaborative plans, programs, and projects that may be beyond the scope or capability of a single entity, but which would be of mutual benefit if implemented among multiple parties.
- Goal 4: Facilitate regional water management efforts that include multiple water supply, water quality, flood control, and environmental protection and enhancement objectives.
- Goal 5: Foster coordination, collaboration, and communication between entities and interested stakeholders to achieve greater efficiencies, enhance public services, and build public support for vital projects,
- Goal 6: To realize regional water management objectives at the least cost through mutual cooperation, elimination of redundancy and enhanced competitiveness for State and Federal grant funding.

For these overall goals, several regional specific goals were identified, and measurable objectives established for each specific goal. The specific goals and objectives are discussed below.

For clarity, a numbering system has been developed and implemented in the Project Summary Tables of the Project Descriptions. Each number corresponds with an objective for the five specified M/A/C IRWMP goals.

4.3.1 Water Supply Goal

The regional goal for water supply is *to improve regional water supply reliability, reduce dependence on imported water, promote water conservation, water reuse, and protect watershed communities from drought with a focus on interagency conjunctive use of regional water resources*. Measurable objectives established for this goal include:

1. Meeting 100% of urban and agricultural demand in wet to dry years, including the first year of water shortages.
2. Meeting 85% of urban and 75% of agricultural demands in second and subsequent years of water shortages.
3. Optimizing and sustaining the use of existing surface water entitlements from the Mokelumne and Calaveras Rivers.
4. Protecting existing water rights and county of origin protections.
5. Providing a variety of water supply sources to meet current demands.
6. Maximizing use of recycled water from wastewater treatment plant with an overall target reuse goal of 50% of plant effluent by 2020.
7. Optimizing the use of groundwater storage and conjunctive use options.
8. Implementing water conservation plans for both urban and agricultural uses.

9. Providing a variety of water supplies to support planned growth, anticipated increases in industrial and agricultural demand, and shifts in water supply availability resulting from climate changes.
10. Providing a reliable supply of water to meet alternative water uses such as fire suppression and municipal irrigation.

4.3.2 Flood Protection Goal

The regional goal for flood protection is *to ensure flood protection strategies are developed and implemented through a collaborative and watershed-wide approach and are designed to maximize opportunities for comprehensive management of water resources*. Measurable objectives for this goal include:

1. Developing outlines of regional projects and plans necessary to protect existing infrastructure from flooding and erosion from the 100-year event.
2. Working with stakeholders to preserve existing flood attenuation by implementing land management strategies throughout the watershed.
3. Developing approaches for adaptive management to minimize maintenance requirements and protect quality and availability of water while preserving ecologic and stream functions, and enhancing when appropriate.
4. Providing community benefits beyond flood protection, such as public access, open space, recreation, agricultural preservation, and economic development.

4.3.3 Water Quality Goal

The regional goal for water quality is *to protect and improve water quality for beneficial uses consistent with regional community interests and the RWQCB Basin Plan through planning and implementation in cooperation with local and state agencies and regional stakeholders*. Measurable objectives for this goal include:

1. Meeting or exceeding all applicable water quality regulatory standards.
2. Meeting or exceeding urban water quality targets established by stakeholders.
3. Delivering agricultural water to meet water quality guidelines established by stakeholders.
4. Meeting or exceeding recycled water quality targets established by stakeholders.
5. Aid in meeting Total Maximum Daily Loads established, or to be established, for the Mokelumne and Calaveras River watersheds.
6. Protecting surface waters from contamination and threat of contamination (including through SSOs and SSMPs).
7. Protecting groundwater basins from contamination and threat of contamination.
8. Managing existing land uses while preserving or enhancing environmental habitats.
9. Developing environmental water to meet water quality guidelines established by stakeholders.
10. Minimizing impacts from storm water through implementation of Best Management Practices or other detention projects.
11. Managing existing land uses for recycled water discharges and allowable water-based discharges.

4.3.4 Environmental Protection and Enhancement Goal

The environmental protection and enhancement goal is *to work with the community and environmental stewards to preserve the environmental wealth and well-being of the Mokelumne and Calaveras River watersheds by identifying opportunities to assess, restore and enhance natural resources of streams and watershed when developing water supply, water quality, and flood protection strategies*. Measurable objectives for this goal include:

1. Identifying opportunities to assess, protect, enhance, and/or restore natural resources when developing water management strategies.
2. Minimizing adverse effects on biological and cultural resources, including riparian habitats, habitats supporting sensitive plant or animal species, and archaeological sites when implementing strategies and projects.
3. Identifying opportunities for open spaces, trails and parks along creeks and other recreational projects in the watershed to be incorporated with water supply, water quality, or flood protection projects.
4. Projecting elements should maintain and, to the extent practicable, enhance the local environment and contribute to the long-term sustainability of agricultural, commercial, industrial, and urban land uses and activity within the basin.
5. Identifying opportunities to protect, enhance, or restore habitat to support Mokelumne (including Dry Creek, Sutter Creek and Jackson Creek) and Calaveras River watersheds in conjunction with water supply, water quality, or flood protection projects.

4.3.5 Regional Communication and Cooperation Goal

The regional communication and cooperation goal is *to develop a forum for regional communication, cooperation, and education, including models for partnerships and inter-basin cooperation, protocols for reducing inconsistencies in water management strategies between regional entities, and strategies for maintaining resource costs within the local socioeconomic environment.* The measurable objectives for this goal include:

1. Developing format for consensus decision-making by regional entities.
2. Creating prioritization strategy and protocols for integrated water management decision-making.
3. Fostering collaboration between regional entities to minimize and resolve potential conflicts.
4. Building relationships with State and Federal regulatory agencies and other water forums and agencies to facilitate permitting of water-related projects.
5. Opening and fostering lines of communications between regional and inter-regional entities to reduce inconsistencies in water management strategies and to maximize benefits from water-related projects.
6. Opening avenues of communication with general public and offer opportunities to provide feedback on the IRWM and water-related projects.
7. Identifying opportunities for public education about water supply, water quality, flood management, and environmental protection.
8. Maintaining water and wastewater rates to remain within the socioeconomic means of the community.

Chapter 5

Projects



Chapter 5 Projects

5.1 Project Collection

Project collection is a process where any agency or member of the public can submit a project idea for inclusion in the IRWMP. The project can be in any stage of development, from conceptual to design. All that is required is that the project can be described. There are many benefits to putting a project into the IRWMP. These include recognition by participating agencies that a project exists and at least partially fills a regional need and a greater potential for funding assistance from State funds. Almost fifty projects were collected for this first release of the IRWMP. Future releases will likely include new and updated projects.

5.2 Preliminary Screening

After a project is submitted for inclusion in the M/A/C IRWMP, it is screened for both current status and the region-imposed criterion that each project meet at least one regional goal and objective. Any project that is currently under construction and/or does not meet a regional goal or objective is removed from the project list. Those that do meet the minimum requirements will be included in the IRWMP in some form. They may be modified or merged with another project to increase benefits to the region. At the completion of the preliminary screening, about 32 projects remained for evaluation and prioritization.

5.3 Project Development

As mentioned above, projects are not always included in the IRWMP as originally submitted. Project development occurs after the initial project screening and involves evaluating projects that may be:

- Combined for synergistic effects;
- Similar to those already listed and would provide similar, broader benefits to the region; and
- Modified in such a way as to improve the overall project benefits and breadth of impacts.

The initial development process also identified five additional projects that were necessary to meet regional needs. The five projects are:

1. **Off-stream Storage on the Mokelumne and Calaveras Rivers** is similar in nature to the Off-stream Storage on the Cosumnes River and will provide similar benefits to residents in the Mokelumne watershed;
2. **Temperature Study - Mokelumne and Calaveras Rivers** is a means to provide important water and environmental quality information to the region for overall land and water resources management;
3. **Plymouth Pipeline Improvement Project** broadens the regional benefits resulting from improving water supply reliability and the availability of potable surface water within the region;
4. **Plymouth Wastewater Improvements Project** provides similar benefits as the North and South Shore Camanche and Pardee Recreation Area wastewater improvement projects provide and therefore broadens the breadth of benefits to the region; and
5. **Arroyo Ditch Pipe Conversion Project** is similar in nature to the Amador Canal and Ione Canal Pipe Conversion Project and will provide greater regional benefits for the reasons similar to those resulting from the Amador Canal conversion.

Four wastewater improvement projects that were initially listed as a single project were subdivided into the North Shore Camanche, South Shore Camanche, Pardee Recreation Area and Lake Camanche Wastewater Improvement Projects. While similar in nature, the different geographical locations of these

project areas provided sufficient impetus to separate the projects to allow for an overall evaluation of local as well as regional benefits.

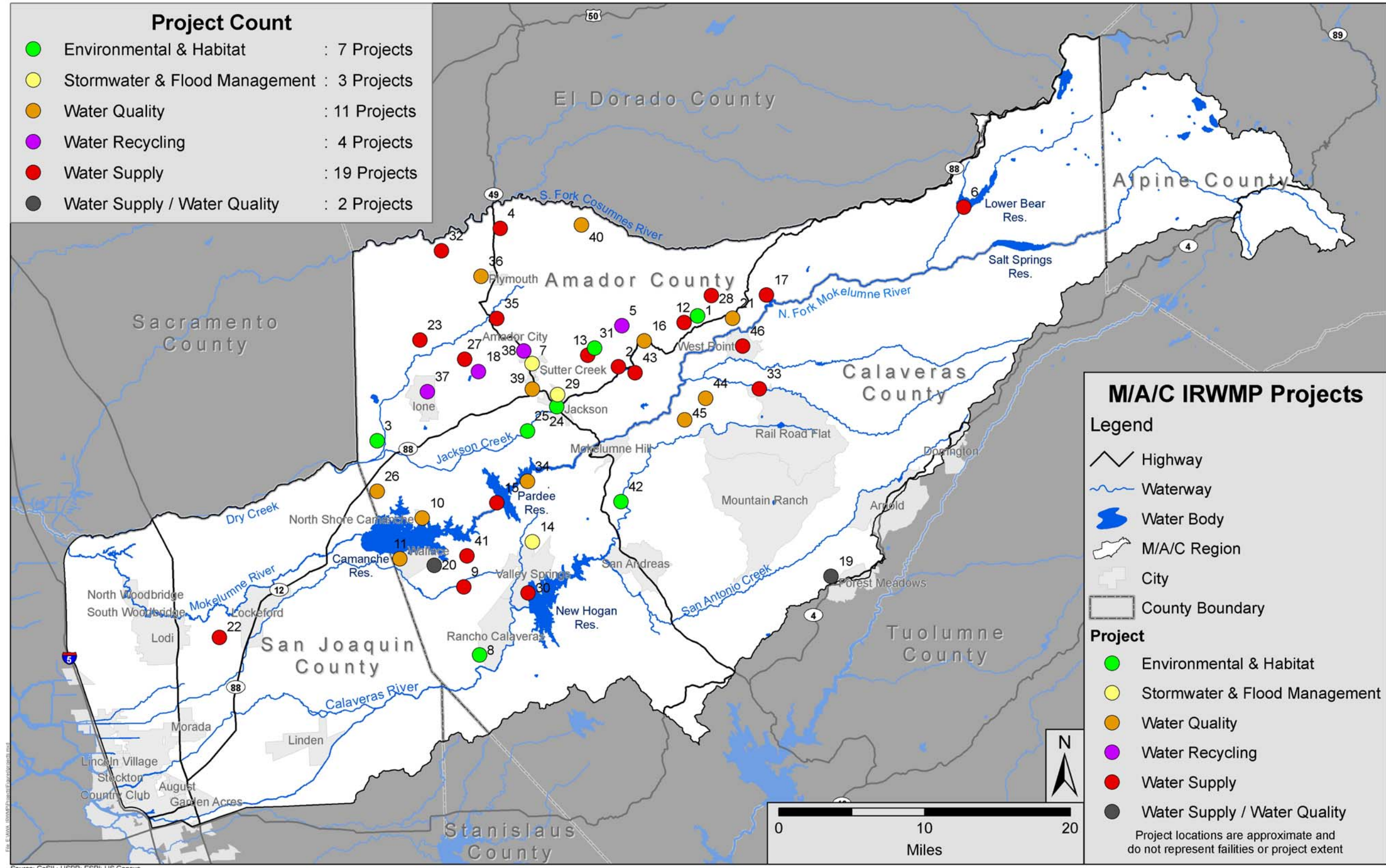
As a result of these modifications, the final project list used for prioritization contained a total of 46 projects sponsored by 11 different project proponents. Table 5-1 provides a list of the final M/A/C IRWMP projects and the responsible agency/project proponent. Associated with each project in the table is a number which corresponds to a location in Figure 5-1.

Table 5-1: M/A/C IRWMP Projects and Proponents

Number	Projects and Programs	Proponent
1	Amador Breached Dam Removal Project	Foothill Conservancy
2	Amador Canal & Lone Canal Pipe Conversion Project	AWA
3	Amador Dry Creek Watershed Assessment Implementation & Mgmt Plan	UMRWC
4	Arroyo Ditch Pipe Conversion Project	AWA/Plymouth
5	Backwash Water Reuse Project	AWA
6	Bear River Reservoir Expansion Project	AWA/CCWD/EBMUD/PG&E
7	Broad St. Storm Drain Diversion	Sutter Creek
8	Calaveras River Watershed Implementation Plan	UMRWC
9	Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD
10	Camanche North Shore Wastewater Improvements	EBMUD
11	Camanche South Shore Wastewater Improvements	EBMUD
12	CAWP Fire Storage	AWA
13	CAWP/AWS Inter-tie	AWA
14	Cosgrove Creek Project	CCWD
15	Enlarge Pardee Reservoir	AWA/CCWD/EBMUD
16	Gayla Manor Wastewater Project	AWA
17	Gravity Supply Line (GSL) Project	AWA
18	Henderson Reservoir Dam Reinforcing Buttress	ARSA
19	Hwy 4 Corridor Regional Water / Wastewater Project	CCWD
20	Hwy 12/26 Regional Water / Wastewater Project	CCWD
21	Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA

Number	Projects and Programs	Proponent
22	Ione Amador Plymouth Treated Water Loop	AWA
23	Jackson Creek Enhancement Project	Jackson
24	Jackson Creek Watershed Project	PHAW
25	Lake Camanche WW Improvement Project	AWA/EBMUD
26	Leak Testing and Repair Program	AWA
27	Low Pressure Flow Improvements	AWA
28	Marcucci Lane Culvert Project	Jackson
29	New Hogan Reservoir Pumping Project	CCWD
30	New York Ranch Reservoir Conservation & Management	AWA/Joint
31	Off-Stream Storage on Cosumnes River	AWA
32	Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMRWC
33	Pardee Recreation Area Wastewater Improvements	EBMUD
34	Plymouth Pipeline Improvement Project	AWA/Plymouth
35	Plymouth Wastewater Improvements	AWA/Plymouth
36	Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA
37	Reclaimed Wastewater Line Upgrade	ARSA
38	Regional Wastewater Project	Amador City/ARSA/AWA/ Ione/Jackson/Sutter Creek
39	River Pines Water and Wastewater Improvements	AWA
40	Inter-Regional Conjunctive Use Project	AWA/CCWD/EBMUD/SJ GBA
41	South Shore Camanche Regional WTP Project (Joint WTP)	AWA /CCWD/EBMUD
42	Temperature Study - Mokelumne and Calaveras Rivers	UMRWC
43	Treated Water to Residents Using Untreated Water	AWA
44	Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC
45	Upper Mokelumne River Watershed Management Plan	UMRWC
46	West Point Water Distribution Replacement Project	CCWD

Figure 5-1: M/A/C IRWMP Project Locations



5.4 Project Summaries

The following sections summarize the projects submitted for inclusion in the M/A/C IRWMP. Each section includes a brief description of the project as well as a summary table evaluating implementation information as well as a comparison of the project description to the IRWMP water management strategies and the regional goals and objectives.

5.4.1 Amador Breached Dam Removal Project

Three dams located on East Panther Creek, West Panther Creek, and Beaver Creek were breached as part of the relicensing agreement with PG&E and the Foothill Conservancy. The dams were breached but not removed, which is necessary to fully restore the three creeks to natural flows. This project will remove the dam structures, improving biological diversity.

Table 5-2: Amador Breached Dam Removal Project Summary

Project: Amador Breached Dam Removal Project	
Project Type: Environmental / Habitat	
Implementing Agency: Foothill Conservancy	
Design Status: Complete	
Environmental Documentation Status: Complete	
Permitting Status: Complete	
Estimated Implementation Dates: Not yet determined (funding dependent)	
Estimated Cost (year): \$500,000 (2006)	
Funding Sources Available: PG&E and other sources yet to be determined	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Ecosystem restoration • Environmental and habitat protection and improvement 	<ul style="list-style-type: none"> • Water quality protection and improvement
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	
<i>Water Quality</i>	9
<i>Environmental Protection and Enhancement</i>	1, 2, 5
<i>Regional Communication and Cooperation</i>	3

5.4.2 Amador Canal and Ione Canal Pipe Conversion Project

The Amador Canal is an earthen ditch that runs 23.2 miles from Lake Tabeaud to Tanner Reservoir on Ridge Road in Amador County, transporting raw water which becomes treated drinking water for Jackson, Sutter Creek, Ione, Amador City, Drytown, and neighboring areas. There are also water customers that receive raw water from the Canal. The Ione Canal continues for approximately three more miles. This system is very inefficient due to water seepage and leakage out of the Canal. About 50% of the water put in at Lake Tabeaud leaks or seeps out of the canal and is lost. There are also water quality and security concerns since it is an open canal that is accessible by animals and susceptible to other environmental contaminants such as sediment from erosion, surface runoff from roads and livestock areas, and failed leach fields.

The Amador Canal ditch system is being replaced in a two-phase process. In the first phase, a 30-inch pipe approximately 8.8 miles long will connect Lake Tabeaud to Tanner Reservoir. Completion of the Phase I pipeline will allow AWA to begin delivering water to the treatment plant and other customers. Phase I construction is currently underway. Phase II consists of laying a 6- to 12-inch pipeline within the Amador Canal. This smaller pipeline is required to continue to serve raw water customers along the canal. Also, fire suppression along the small pipeline will improve because fire hydrants will be installed at strategic road crossings. The Agency will need to acquire easements for this pipeline in some locations along its route. Phasing of the Ione Canal conversion is uncertain and may be included in Phase II of the project or may be done later.

The replacement of the canal systems with piping will reduce water loss and improve water conveyance efficiency. It will also improve water quality and supply reliability. There will also be reduced operation and maintenance costs. Added benefits will be mosquito abatement, reduced sediment in transported water, reduced livestock/wildlife drowning, and enhanced fire protection through the addition of hydrants. The EIR process is complete for Phase II. Environmental documentation has not been started for the Ione Canal conversion. The project design is complete and cost estimates have been produced. AWA received a \$500,000 water efficiency grant for Phase I which will be completed in mid-2007. Phase II will begin upon completion of Phase I and take approximately one year to complete. The Phase II cost is approximately \$2.5 million. The Ione Canal conversion is estimated to cost approximately \$500,000.

Table 5-3: Amador Canal and Ione Canal Pipe Conversion Project Summary

Project: Amador Canal and Ione Canal Pipe Conversion Project	
Project Type: Water Supply	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: Complete	
Environmental Documentation Status: CEQA complete; EIR/EIS complete	
Permitting Status: Complete	
Estimated Implementation Dates: Mid-2007	
Estimated Cost (year): Total - \$3.0 million (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability • Water conservation • Water quality protection and improvement 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 8, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2
<i>Environmental Protection and Enhancement</i>	4
<i>Regional Communication and Cooperation</i>	5, 8

5.4.3 Amador Dry Creek Watershed Assessment Implementation & Management Plan

The Amador Dry Creek Watershed Council is currently assessing the Amador Dry Creek Watershed in respect to land use, wildlife habitat, water quality, working landscapes, and threats to water quality. Efforts include the establishment of various collaborative partnerships including water agencies, landowners, watershed stakeholders, youth groups, community organizations and other non-governmental organizations. Results of the assessment efforts will initiate community outreach and public education.

A watershed management plan is needed that will integrate much of the assessment data into a comprehensive watershed management plan for the Amador Dry Creek. This document will help direct future watershed restoration and land use policies within the region by prioritizing restoration needs, conservation strategies and projects, water quality objectives, and adoption of land use policies designed to provide a management plan for important watershed resources. Once the water quality and supply issues are addressed, the distribution and treatment issues can be developed. This plan will allow watershed restoration activities in the highest priority areas to begin.

This project can be integrated with a number of identified AWA projects throughout the watershed within an overall framework and strategy regarding water management, water conservation, project restoration and mitigation, and overall prioritization of water projects within a watershed management plan. This plan should help to guide land and water use throughout the watershed.

Table 5-4: Amador Dry Creek Watershed Assessment Implementation & Management Plan Summary

Project: Amador Dry Creek Watershed Assessment Implementation & Management Plan	
Project Type: Environmental / Habitat	
Implementing Agency: Upper Mokelumne River Watershed Council (UMRWC)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not applicable	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$325,000 (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Ecosystem restoration • Groundwater management • Stormwater capture and management • Water quality protection & improvement • Wetlands enhancement and creation • Land use planning • Water and wastewater treatment 	<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Flood management • Recreation and public access • NPS pollution control • Watershed planning
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	8
<i>Flood Protection</i>	2, 3, 4
<i>Water Quality</i>	1, 2, 5, 6, 8, 10, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 6, 7

5.4.4 Arroyo Ditch Pipe Conversion

In 1987, the City of Plymouth acquired the Arroyo Ditch from Amador County. It is an 18 mile, open water conveyance system that starts at the Cosumnes River and ends in Plymouth. Similar to the Amador Canal open conveyance system, this system is very inefficient due to significant water loss and is susceptible to contamination and damage. In 1997 and 1998, the Ditch sustained damage to the Middle Fork flume from heavy rains and was partially washed out. The conversion of the Canal to a more efficient system would allow the City of Plymouth to fully utilize their entitled water rights.

During wildfires Amador County relies on this canal system as a source of water, which is known to be unreliable. In *A Study of Water Supply for the City of Plymouth* written in 1990, AWA proposed upgrading Arroyo Ditch with piping as an alternative to supplying Plymouth with additional water. This alternative assumes a twenty-four inch storm drain pipe will be installed the entire length of Arroyo Ditch, approximately 83,300 feet from the diversion structure on the Middle Fork of the Cosumnes River to Plymouth. The cost estimate for the 18-mile pipeline is \$28.7 million. Another alternative is to convert the canal to a gunite-lined canal, reducing seepage and increasing efficiency. The cost estimate for this alternative is \$7.2 million. Either alternative will improve water reliability, enhance fire suppression, reduce property loss, and improve the public water supply for the City of Plymouth. Possible funding may be available from the FEMA Grant program, AWA, and other sources yet to be determined.

Table 5-5: Arroyo Ditch Pipe Conversion Summary

Project: Arroyo Ditch Pipe Conversion	
Project Type: Water Supply	
Implementing Agency: City of Plymouth / Amador Water Agency	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$7.2 million (gunite-lined ditch) to \$28.7 million (piped ditch) (2006)	
Funding Sources Available: FEMA grant program, AWA, and others yet to be determined	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability • Water conservation • Water quality protection and improvement 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 8, 9
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2
<i>Environmental Protection and Enhancement</i>	4
<i>Regional Communication and Cooperation</i>	5, 8

5.4.5 Backwash Water Reuse Project

Backwash water from three water treatment plants (WTPs) – Buckhorn, Ione, and Tanner WTP, will be reused to reduce sewer system loading, meet regulatory requirements, prevent contamination, and reduce potable source water demands, which effectively increases the area’s water supplies.

The backwash water from each WTP will be used differently. The Buckhorn WTP will reuse backwash to irrigate Mace Meadows Golf Course with up to 60 AFY. Unimin Inc, a mineral and clay manufacturer will utilize up to 68 AFY of backwash water from the Ione WTP for industrial purposes. Approximately 90 AFY of recycled water from the Tanner WTP will be used by local agriculture customers or by the Gold Rush Golf Course. Currently, Buckhorn WTP uses its backwash water to irrigate the golf course. Ione’s backwash goes into the sewer and Tanner’s goes into the Ione Canal, serving limited agricultural needs. Rather than wasting this valuable resource, this project will make use of the recycled water for beneficial purposes. This project will improve local water supplies.

Modification to all three WTPs is slated to begin in 2007. At Buckhorn, the treatment system was recently upgraded with the addition of membrane filters. The Mace Meadows Golf Course will require additional settling ponds, storm water diversions, and irrigation facilities. There will not be any additional treatment at the Ione plant, but Unimin Inc. will do further treatment, if required. A pump station and pipeline will be necessary in order to convey the backwash water from the Ione WTP to Unimin Inc. The recycled pipeline to the Unimin pipeline is near construction. Tanner WTP will add a settling process. For Tanner, CEQA and design have not been started, but the process of acquiring the property is underway and the pre-design for storage is complete. CEQA is complete for the Buckhorn Plant and environmental and regulatory documentation is in progress for the Ione WTP.

Table 5-6: Backwash Water Reuse Project Summary

<p>Project: Backwash Water Reuse Project Project Type: Water recycling Implementing Agency: Amador Water Agency (AWA)</p>	
<p>Design Status: Buckhorn – Design complete, negotiating contract; Ione – Design complete; Tanner – Pre-design for storage complete, design not started Environmental Documentation Status: Buckhorn – CEQA complete; Ione – Documentation in progress; Tanner – CEQA not started. Permitting Status: Initiated Estimated Implementation Dates: Buckhorn, Ione, Tanner – Spring 2007 Estimated Cost (year): Buckhorn - \$400,000 to \$500,000 for storage design only; Ione - \$200,000 for transmission design facility; Tanner - \$500,000 total (2006) Funding Sources Available: Buckhorn – rate recovery; Ione – City of Ione, a local developer, and AWA; Tanner – rate recovery</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Water supply reliability • Water conservation • Water quality protection and improvement • Water recycling • Land use planning • Surface storage • Water and wastewater treatment 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 5, 6, 7, 8, 9, 10
<i>Flood Protection</i>	1, 3
<i>Water Quality</i>	1, 2, 3, 4, 6, 7, 8, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 4, 5
<i>Regional Communication and Cooperation</i>	3, 4, 5, 8

5.4.6 Bear River Reservoir Expansion Project

Amador and Calaveras Counties plan to supplement their water supply needs by at least 26,000 AFY to ensure adequate supplies to serve the development within the counties and provide drought protection in the future. There are three alternatives for this project that are being considered. They are:

- Raise the Lower Bear Dam by 32 feet, increasing storage capacity by 26,407 AF;
- Replace the Upper Bear Dam with a new dam; or
- Constructed a new dam on Cole Creek.

The *Bear River Water Supply Alternatives for Amador Water Agency and Calaveras County Water District* revised in 2005 states that the most favorable alternative for AWA, CCWD, and EBMUD is to negotiate an agreement with PG&E to raise Lower Bear Dam. The water will be diverted to their service areas by gravity flow to serve future customer demands. In the short term, the water could be directed for other temporary uses downstream until Amador and Calaveras need the water to supply development. An agreement will need to be negotiated among AWA, CCWD, EBMUD, and PG&E. In order to expand Upper Bear Dam, a new dam would be constructed downstream of the existing dam. All permits, licenses and environmental approvals would have to be obtained which could take three to five years. The third alternative, constructing a new dam on Cole Creek is considered the most difficult and time consuming of the three alternatives, especially to obtain the necessary permits and licenses. Table 5-7 summarizes the factors affecting the *Supply Alternatives* recommendation.

Table 5-7: Bear River Alternative Analysis Considerations

	Raising Existing Lower Bear Dam	Replacing new Upper Bear Dam	Constructing new Cole Creek Dam
<i>Total Bond Issue</i>	\$44,410,000	\$53,750,000	\$46,650,000
<i>Total Annual Cost</i>	\$3,298,000	\$3,950,000	\$3,460,000
<i>Cost / kWhr^a</i>	\$0.046	\$0.055	\$0.048
<i>Generation Benefit^b</i>	\$4,320,000	\$4,320,000	\$4,320,000
<i>Benefit/Cost Ratio (to PG&E)</i>	1.31 to 1.0	1.09 to 1.0	1.25 to 1.0
<i>Years to Start of Construction</i>	4	4	6 + (?)
<i>Value of New Water^c</i>	\$1,350,000	\$1,350,000	\$1,350,000
<i>Status of Permits and Environmental Review</i>	Some work	No work	No work
<i>Estimated Difficulty to Obtain All Permits and Licenses</i>	Less than Average	Average	Higher

Footnotes:

a. Assumes public district financing.

b. 72 MWhrs @ \$0.06/kWhr.

c. 18,000 AF of average yield @ \$75/AF.

Source: Bear River Water Supply Alternatives for Amador Water Agency and Calaveras County Water District 2005

While the primary benefit is additional water supply for Amador and Calaveras Counties through increased storage of winter flows, other benefits include flood control, power generation, improved water quality, and cold water releases to improve fisheries. The increased water supply storage also could be

used temporarily by EBMUD during dry years for increased water supply. This project will help Calaveras by providing water to the South Shore WTP. AWA, CCWD, EBMUD, and San Joaquin could have improved water supply reliability and could use the additional water for conjunctive use and groundwater replenishment in the areas of the M/A/C region that relies primarily on groundwater. CCWD will have further dry year protection by buying into the Bear River Reservoir Project and having storage on the Mokelumne River to meet water supply needs during dry years. PG&E and EBMUD may also benefit from additional power production. This project is potentially linked to the Enlarge Pardee Reservoir Project and the Inter-Regional Conjunctive Use Project. The Bear River Reservoir Expansion Project is in the feasibility phase and construction could potentially take place in five years (2011) and is estimated to cost a total of \$44 million.

Table 5-8: Bear River Reservoir Expansion Project Summary

Project: Bear River Reservoir Expansion Project Project Type: Water Supply Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: 2011 Estimated Cost (year): \$44 million (2006) Funding Sources Available: Not yet identified	
Water Management Strategies Employed: <ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Water supply reliability • Flood management • Groundwater management • Water quality protection and improvement • Conjunctive use • Surface storage 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 9, 10
<i>Flood Protection</i>	1, 4
<i>Water Quality</i>	5
<i>Environmental Protection and Enhancement</i>	2, 5
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 8

5.4.7 Broad Street Storm Drain Diversion

Miners built the existing storm drain system for Main Street in Sutter Creek in the 1800's. The area has grown and the drainage system is no longer adequate. Flooding in downtown/historic Sutter Creek now occurs every 8 to 10 years. In order to upgrade the existing storm drain system, historical structures would have to be removed which is not considered to be acceptable. To avoid these losses, the project includes a diversion structure to channel some of the runoff around the historic district and in turn, prevent flooding. A 36-inch diameter storm drain will also be constructed from Gopher Gulch Creek at Gopher Flat Road, along Broad Street, to Sutter Creek in the northeast and northwest quadrants of the city. This project is conceptual, so locations and pipe sizing have only been based on local knowledge of the existing storm drain system. If implemented, this project may also provide the ability to install a stormwater treatment unit in-line with the new diversion pipeline.

Table 5-9: Broad Street Storm Drain Diversion Summary

Project: Broad Street Storm Drain Diversion	
Project Type: Stormwater & Flood Management	
Implementing Agency: City of Sutter Creek	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$500,000 (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Flood management • Stormwater capture and management 	<ul style="list-style-type: none"> • Water quality protection and improvement • NPS pollution control
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	1, 3, 4
<i>Water Quality</i>	1, 6, 10
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	6

5.4.8 Calaveras River Watershed Implementation Plan

Several years ago, Stockton East Water District (SEWD) and Calaveras County Water District (CCWD) identified the need for watershed assessment and planning in the Calaveras River watershed. There has been public concern that water quality in the river may be impacted by storm water runoff, agriculture, recreation, mining, and other land uses that may adversely impact water quality and aquatic habitat and fisheries. Continual overdraft and contamination of this critically overdrafted groundwater basin has created a need to identify new surface water sources.

A watershed planning effort was funded through a grant from the State Water Resources Control Board (SWRCB) and Phase I was completed in 2001. Phase I involved conducting a watershed assessment, preparing a document that identified current and future water quality concerns, and identifying Phase II activities. Phase II activities were deemed “critical to the future success of the planning process” and included the following: (1) Perform baseline water quality monitoring and habitat studies, and (2) Prepare a Watershed Implementation Plan (WIP) to implement priority projects and programs.

Baseline water quality monitoring was completed in May 2005 through a CALFED grant. In order to effectively proceed with watershed planning efforts, Phase II will be conducted, completing this WIP and habitat studies, as well as building upon education and outreach efforts.

The WIP will include a list of management strategies that will address multiple issues in the watershed including, but not limited to, the need for water quality improvements for drinking water and other beneficial uses, water supply reliability, pollution prevention, and aquatic and terrestrial habitat restoration; and the steps necessary to implement each management strategy. The WIP will be integrated with the existing watershed planning document that will be updated to reflect new information that has become available through monitoring over the past four years regarding a variety of elements.

Once the water quality issues are more thoroughly evaluated, water supply and treatment issues will be addressed. The citizen water monitoring stations will target water facilities or water sources to help maintain water quality and reduce treatment costs. As part of the land use element, there will be a number of upland tertiary water disposal sites developed. There is also the possibility to integrate biofiltration into some wastewater systems within the watershed.

This project can be integrated with a number of identified Calaveras River projects throughout the watershed within an overall framework and strategy regarding water management, water conservation, project restoration and mitigation, and overall prioritization of water projects within a watershed management plan. This plan should help to guide land and water use throughout the watershed and encourage restoration following the assessment.

Table 5-10: Calaveras River Watershed Implementation Plan Summary

<p>Project: Calaveras River Watershed Implementation Plan Project Type: Environmental / Habitat Implementing Agency: Upper Mokelumne River Watershed Council (UMRWC)</p> <p>Design Status: Pre-design Environmental Documentation Status: Project description complete Permitting Status: Not applicable Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$325,000 (2006) Funding Sources Available: Not yet identified</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Ecosystem restoration • Groundwater management • Stormwater capture and management • Water quality protection & improvement • Wetlands enhancement and creation • Land use planning • Water and wastewater treatment • Environmental and habitat protection and improvement • Flood management • Recreation and public access • NPS pollution control • Watershed planning 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	3, 4, 8
<i>Flood Protection</i>	2, 3, 4
<i>Water Quality</i>	1, 2, 5, 6, 8, 9, 10, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 3, 4, 5, 6, 7

5.4.9 Camanche – New Hogan Phase II Water Distribution Loop Project

This project is intended to follow and build upon the South Shore Camanche Regional WTP Project. The South Shore Camanche Regional WTP Project acts as Phase I and this project is Phase II. For Phase II, approximately four to six miles of water distribution pipeline will be constructed connecting the Wallace Lake/Lancha Plana/Burson area served by treated Mokelumne River water to the Rancho Calaveras area to the south served by treated Calaveras River water originating from New Hogan Reservoir. The water distribution inter-tie loop will provide greater flexibility in delivering treated surface water to the Rancho Calaveras and the Camanche/Valley Springs/Wallace Lake/Burson area and enhance surface water supply reliability during droughts. This project will aid in conserving water and land use planning. There will be water restrictions/fees since surface water will be used, rather than groundwater. With more water supplied to the area, further development can take place. Tours of the facilities will be available to encourage public awareness.

Linkage exists between this project and the South Shore Camanche Regional WTP-Phase I and to the new or expanded Jenny Lind WTP near New Hogan Reservoir in the Rancho Calaveras area. The overall objective is to improve water supply reliability in both areas, Camanche and Rancho Calaveras, of the urbanizing portion of northwestern Calaveras County. Phase II has similar goals and objectives to Phase I and applies the same Water Management Strategies to complete the objectives.

Phase II design is conceptual and the preliminary costs are approximately \$3 million. Funding sources include water district expansion funds, private developers, and grants. Construction will begin after Phase I is complete.

Table 5-11: Camanche – New Hogan Phase II Water Distribution Loop Project Summary

<p>Project: Camanche – New Hogan Phase II Water Distribution Loop Project Project Type: Water Supply Implementing Agency: Calaveras County Water District (CCWD)</p> <p>Design Status: Conceptual Environmental Documentation Status: CEQA complete Permitting Status: Not started Estimated Implementation Dates: Mid- to late-2007 Estimated Cost (year): \$3 million (2006) Funding Sources Available: Water district expansion funds, private developers, and grants</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Water supply reliability • Groundwater management • Water conservation • Water quality protection and improvement • Conjunctive use • Imported water • Land use planning • Surface storage • Watershed planning • Water transfers 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 8, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 3, 7, 9
<i>Environmental Protection and Enhancement</i>	4, 5
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 6, 8

5.4.10 Camanche North Shore Wastewater Improvement, Camanche South Shore Wastewater Improvement, and Pardee Recreation Area Wastewater Improvement Projects

The existing sewage collection and transmission systems on the North and South Shores of Lake Camanche and the Pardee Recreation Area are old, were constructed without the application of current engineering standards, are generally inaccessible, and have high infiltration and inflow (I&I) rates. Furthermore, some of the pipes and manholes are located under buildings and much of the system is made up of substandard plastic conduit. Problem portions of the systems are constantly being identified and the top priorities are designed and reconstructed with funds provided by EBMUD via capital improvement funding. Previous work completed includes improvements at Cottage Creek and Miners Ranch. These three projects will replace major portions of the existing sewage collection and transmission systems to reduce I&I, prevent overflows, and reduce the total loads on each of the existing oxidation pond wastewater treatment systems. Best Management Practices (BMPs) will be applied to reduce storm water inflows and to avoid spills. These wastewater improvements will also improve reliability and reduce wastewater disposal impacts. This is a multi-phase project. Phase I and II are already complete. Further details are described below for each specific project.

Camanche North Shore Wastewater Improvement Project

The project site includes Camanche North Shore mobile Home Park #1 and #2, Camanche Hills Hunt Reserve, Camanche cottages, Blue Oaks RV Area, Stables and Lift Station #2.

This project is in the pre-design phase, CEQA is complete, and a project cost of \$8 million has been estimated.

Table 5-12: Camanche North Shore Wastewater Improvement Project Summary

Project: Camanche North Shore Wastewater Improvement Project	
Project Type: Water Quality	
Implementing Agency: East Bay Municipal Utility District (EBMUD)	
Design Status: Pre-design	
Environmental Documentation Status: CEQA complete	
Permitting Status: Not started	
Estimated Implementation Dates: Ongoing	
Estimated Cost (year): \$8 million (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Recreation and Public Access 	<ul style="list-style-type: none"> • Water quality protection and improvement • NPS pollution control • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 5, 6, 7, 10
<i>Environmental Protection and Enhancement</i>	2, 5
<i>Regional Communication and Cooperation</i>	8

Camanche South Shore Wastewater Improvement Project

This project will replace the existing wastewater collection and transmission systems of Camanche South Shore Recreation Area Cottages and Mobile Home Park and ultimately upgrade the wastewater treatment plant to meet Title 22 recycled water requirements.

The project is in the pre-design phase and CEQA is complete. This project is estimated to cost \$3 million.

Table 5-13: Camanche South Shore Wastewater Improvement Project

Project: Camanche South Shore Wastewater Improvement Project	
Project Type: Water Quality	
Implementing Agency: East Bay Municipal Utility District (EBMUD)	
Design Status: Pre-design	
Environmental Documentation Status: CEQA complete	
Permitting Status: Not started	
Estimated Implementation Dates: Ongoing	
Estimated Cost (year): \$3 million (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Recreation and public access 	<ul style="list-style-type: none"> • Water quality protection and improvement • NPS pollution control • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 5, 6, 7, 10
<i>Environmental Protection and Enhancement</i>	2, 5
<i>Regional Communication and Cooperation</i>	8

Pardee Recreation Area Wastewater Improvement Project

The Pardee Recreation Area Wastewater Improvements Project will replace the sewage collection system and laterals of the Mobile Home Park and RV area.

CEQA is complete and this project is also in the pre-design phase. Parts of this project have already been completed. The project cost estimation is \$1 million.

Table 5-14: Pardee Recreation Area Wastewater Improvements Project Summary

Project: Pardee Recreation Area Wastewater Improvement Project	
Project Type: Water Quality	
Implementing Agency: East Bay Municipal Utility District (EBMUD)	
Design Status: Pre-design	
Environmental Documentation Status: CEQA complete	
Permitting Status: Not started	
Estimated Implementation Dates: Ongoing	
Estimated Cost (year): \$1 million (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Recreation and public access 	<ul style="list-style-type: none"> • Water quality protection and improvement • NPS pollution control • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 5, 6, 7, 10
<i>Environmental Protection and Enhancement</i>	2, 5
<i>Regional Communication and Cooperation</i>	8

5.4.11 Central Amador Water Project System / Amador Water System Inter-tie

The primary source of water for the Amador Water System (AWS) and the Central Amador Water Project (CAWP) is the Mokelumne River, diverted at two different locations – Lake Tabeaud and the Tiger Creek Afterbay, respectively. If a significant failure occurred in one of these systems, it could result in a major water supply shortage for those served by the system since they each supply such large areas of Amador County.

A two mile pipeline and appurtenances that inter-tie the AWS and CAWP systems will be constructed in order to provide redundancy and emergency backup supplies. During peak periods or if one of the two systems is near capacity, the inter-tie will allow additional capacity from the back-up plant. The CAWP system can gravity flow water to AWS and AWS will pump water to CAWP in times of need. This will improve water reliability, water security, and fully utilize existing water rights in the County. It will also expand fire protection along the central Amador County area.

Table 5-15: Central Amador Water Project System/Amador Water System Inter-tie Project Summary

Project: Central Amador Water Project System / Amador Water System Inter-tie	
Project Type: Water supply	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): Unknown	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 4
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	3

5.4.12 Central Amador Water Project System Fire Storage

AWA operates the Central Amador Water Project (CAWP) to serve 10 water districts along State Highway 88 within the County. In 1995, the CAWP Master Plan identified areas which did not have adequate fire protection, including areas that have 6-inch diameter piping or less. There are further recommendations for storage, fireflows, and flow duration. The Master Plan identified inadequate storage volumes for fire protection purposes at a majority of the communities served by CAWP. Fireflow storage is the storage available to meet the largest single fire flow in the given service area. Residential fire flow requirements are 1,000 gpm for 2 hours and can be provided by CAWP or individual districts. Commercial fireflow requirement is 2,500 gpm for 2 hours and each district should provide the storage for the commercial areas within that district. The CAWP distribution system is undersized to provide current fireflows or fire flow design standards. The Master Plan identified two options for increased storage for fire protection, including storage tanks at individual systems or at a storage tank at a common location with piping and appurtenances. This project would implement one of these options. First, the distribution system should be analyzed to determine at a minimum, which water mains need to be upgraded in order to meet the fire protection criteria.

This project would benefit the communities of Pioneer, Pine Grove, Ranch House, Sunset Heights, Rabb Park, Pine Acres, Ridgeway Pines, Mace Meadows, and County Service Areas (CSA) #1 and #2. It would protect lives and property in wildfire or house fire incidences.

Table 5-16: CAWP Fire Storage Summary

Project: CAWP Fire Storage Project Type: Water Supply Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: After 12/2008 – to be determined Estimated Cost (year): \$10 million (2006) Funding Sources Available: Not yet identified	
Water Management Strategies Employed: <ul style="list-style-type: none"> <li style="display: inline-block; width: 45%;">• Environmental habitat protection and improvement <li style="display: inline-block; width: 45%;">• Water supply reliability 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	1, 2
<i>Regional Communication and Cooperation</i>	1, 3

5.4.13 Cosgrove Creek Project

Cosgrove Creek is located within Calaveras County, in the Central Sierra Nevada foothills east of the City of Stockton. It is approximately 9.8 miles long and has a drainage area of 21 square-miles. According to the *Continuing Authorities Program Section 205 Flood Damage Reduction Project: Cosgrove Creek, California, Sacramento District Fact Sheet* the upper two-thirds of the Cosgrove Creek watershed is used for pasture land and the lower third is experiencing urban encroachment and has experienced flooding during recent years. Valley Springs, Rancho Calaveras, and La Contenta are undergoing urbanization and the trend is expected to continue into the future, as is the flooding from heavy rainfall or rapid snowmelt. The flooding that takes place causes stream bank erosion leading to excessive sedimentation, threatening the riparian corridor. In order to provide flood control protection along Cosgrove Creek in these areas as well as surface water storage, recreation, environmental restoration, and wastewater recycling, a series of facilities will be constructed. The Army Corps of Engineers (ACOE) determined the location of the construction of a weir to attenuate the flashy Cosgrove Creek flood flows. The weir will be built across the creek with off-stream storage on New Hogan Dam Road, just south of Valley Springs, putting diverted water to beneficial use. It will reduce peak flows from 3,800 cfs to 3,000 cfs that currently impact over 400 people and over 100 structures, in this 100-year floodplain.

A pedestrian/bike path along Cosgrove Creek will also be included with the project to connect the La Contenta area to the Valley Springs area. Recreational fields, including soccer and baseball fields, will also be constructed in the inundation area. The fields will be irrigated with recycled tertiary treated wastewater from CCWD's La Cantata WTP. Vernal pools will be implemented along the creek, contributing to riparian restoration in the area. The addition of vernal pools will diversify the surrounding habitat and species, moderate seasonal flooding during storm events, and like wetlands, remove contaminants from agricultural and urban runoff. Trails coupled with tours and pamphlets will also be implemented as an opportunity to contribute to public education.

Construction of Cosgrove Creek flood control will enhance New Hogan Reservoir operations by minimizing flood flows along Cosgrove Creek. The reduced flooding will allow reservoir releases to Cosgrove Creek to pass through the lower Calaveras River system without flooding. Construction of the weir or low relief dam will also create a seasonal lake. The residents of about 104 homes in the area will directly benefit from the reduction of floods and improved water efficiency. Their homes currently flood on a semi-regular basis, usually during any wet year which has occurred three times in the last ten years.

The pre-design is complete, although no CEQA progress or design work has been completed. The ACOE is interested in moving forward, but there is an expectation of a 50% local cost share. Although no local funding has been identified, the area was declared a federal disaster area after a flood in April 2006, so some flood mitigation funds should be available. The total project cost is estimated between \$5 and \$7 million. ACOE will start a feasibility study (FS) either in 2007 or 2008 with a construction schedule to follow.

Table 5-17: Cosgrove Creek Project Summary

<p>Project: Cosgrove Creek Project Project Type: Stormwater & Flood management Implementing Agency: Calaveras County Water District (CCWD)</p> <p>Design Status: Pre-design Environmental Documentation Status: Project description complete Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$5 to \$7 million (2006) Funding Sources Available: ACOE, Calaveras County, private developers</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Ecosystem restoration • Environmental and habitat protection and improvement • Flood management • Recreation and public access • Stormwater capture and management • Water quality protection and improvement • Wetlands enhancement and creation • Land use planning 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	1, 2, 3, 4
<i>Water Quality</i>	1, 2, 3, 4, 5, 6, 8, 10, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 6, 7, 8

5.4.14 Enlarge Pardee Reservoir

Enlarging the Pardee Reservoir, located 38-miles northeast of Stockton on the Mokelumne River, is one option to ensure adequate water supply for the development of Amador and Calaveras Counties. Pardee Reservoir is owned and operated by EBMUD and provides EBMUD almost all of its water supply. The reservoir is used primarily for municipal water supply and hydroelectric power generation, producing approximately 110 million-kilowatt-hours of electrical energy every year. Several studies identify capturing the Mokelumne River flows in an expanded Pardee Reservoir to later use the water elsewhere for beneficial use. The Pardee Reservoir would be raised 33 feet and maximum capacity will increase from 197,950 AF to a total of 371,000 AF. EBMUD, AWA, CCWD and San Joaquin County entities could benefit from this additional water capacity with the improvement of water supply reliability and increased water supply. This project is potentially linked to the Bear River Reservoir Expansion Project and the Inter-Regional Conjunctive Use Project as an integrated project with multiple benefits.

There will be improved flood control which will aid in water conservation and protect existing infrastructure from flood damage. Recharging the groundwater basin and preventing saline intrusion will also protect groundwater from contamination.

Pre-design, design, and construction activities are expected to take 7 years. A replacement dam will be constructed, followed by the breaching of the existing dam. By constructing a replacement dam downstream of the existing dam, the Reservoir will be able to continue normal operations during construction. A new intake tower, powerhouse, bridge, and saddle dams at Pardee and Jackson Creek will also be constructed. The height of the existing intake tower will be increased by 35 feet to accommodate water surface elevation increases. The existing powerhouse will be replaced with a 30-MW powerhouse facility, in which annual energy generation would increase from 83 GWh/year to approximately 102 GWh/year. Construction is expected to take approximately 3 to 4 years, year round.

Table 5-18: Enlarge Pardee Reservoir Summary

Project: Enlarge Pardee Reservoir	
Project Type: Water Supply	
Implementing Agency: Joint Authority - Amador Water Agency (AWA)/East Bay Municipal Water District (EBMUD)/ Calaveras County Water District (CCWD)/ San Joaquin (SJ) County	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: 2013 (7 years to complete)	
Estimated Cost (year): Not yet determined	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability • Flood management • Groundwater management • Stormwater capture and management 	<ul style="list-style-type: none"> • Water conservation • Conjunctive use • Surface storage
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 8, 9
<i>Flood Protection</i>	1, 4
<i>Water Quality</i>	7
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 8

5.4.15 Gayla Manor Wastewater Project

The existing wastewater system in Pine Grove includes individual septic tanks, small pipeline collection, recirculating gravel filters, disinfection, a storage reservoir, and spray irrigation for disposal. The Gayla Manor Wastewater Project will convert the disposal system to a community leach field that will eliminate the storage reservoir and spray fields. During the winter, the system experiences high volumes of subsurface flow into the storage reservoir. The system is currently under a cease and desist order from the Regional Water Quality Control Board (RWQCB). The cease and desist order was issued in 2004 because the storage level in the ponds encroached into the freeboard and there was potential for spills. The wastewater spray fields were almost unusable for disposal during spring storms of 2006. Storm water causes high levels in the storage reservoir which violates waste discharge requirements and eventually leads to spills of wastewater from the reservoir. The last spill was in April 2006, but the plant continues to operate, doing its best to prevent another spill. Since the storage reservoir will be eliminated with the implementation of this project, there will no longer be the possibility of spilling and the system will once again be functional. Therefore, after the completion of the WTP improvements, the cease and desist order will be revoked. Approximately 50 homes and four 4-plex units in the Gayla Manor System, three miles east of Pine Grove, are impacted and will benefit from the implementation of this project. Added benefits include environmental protection and a reduction in potential health risks.

Leach fields are soil treatment systems for septic tank effluent. The proposed size of the project leach field is 20 acres. Leach fields can, if operated incorrectly, contribute to groundwater contamination, but a properly designed and installed leach field can remove all disease causing pathogens through biological processes. RWQCB has approved the preliminary project plans. The land needed for this project has yet to be purchased, but the local homeowner association is willing to work with AWA for the proposed leach field area. Bidding and construction are anticipated to begin in late 2007.

Table 5-19: Gayla Manor Wastewater Project Summary

Project: Gayla Manor Wastewater Project	
Project Type: Water Quality	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: In design	
Environmental Documentation Status: Project description complete, CEQA is pending	
Permitting Status: Project plans/schedule have been submitted to RWQCB	
Estimated Implementation Dates: Late 2007	
Estimated Cost (year): \$1.1 million (2006)	
Funding Sources Available: SWQCB – Small Community Wastewater Program Grant	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement 	<ul style="list-style-type: none"> • Water quality protection and improvement • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	1
<i>Water Quality</i>	1, 6, 7
<i>Environmental Protection and Enhancement</i>	1, 2
<i>Regional Communication and Cooperation</i>	4, 8

5.4.16 Gravity Supply Line Project

Currently in the CAWP water system, a pump station is used to divert approximately 1,000 AFY by lifting it 1,300 feet from the PG&E Tiger Creek Afterbay. AWA spends over \$300,000 annually in electrical pumping costs alone. This existing pump station will be replaced with a gravity water line that will intersect the water supply at a point higher in elevation, namely the Tiger Creek Forebay, and direct it to the Buckhorn WTP.

The project consists of a 2 mile, 18-inch pipeline that eliminates the need for year-round pumping. It will provide water reliability in the winter during storms and in the summer during the fire season, when power lines may be down and energy is not available to pump water up to the WTP. This will provide a reliable water supply and in turn, water security to residents along the Highway 88 corridor, from Mace Meadows to Sunset Heights and Jackson Pine. The change in diversion locations from the Tiger Creek Afterbay to the Tiger Creek Forebay has been approved as part of the CEQA completed for the Buckhorn WTP project. The new diversion location will have less aquatic impact than the existing diversion location. Since storm water runoff captures sediment and deposits it in the After Bay, the implementation of this project will improve water quality by pulling from a source with a smaller sediment load in the winter time. Improved water quality is a goal of the California Department of Health Services, which regulates the water treatment plant and the potable water system. The existing pipeline and pump station will be maintained and operated as a back up system. The Gravity Supply Line (GSL) therefore adds redundancy to the CAWP water system, an important security measure. It will meet future water demands, as well as current needs.

The easements for the pipeline are being acquired and the design/engineering report is nearly complete. Construction could begin as early as 2008. The estimated project cost is \$8 million including design costs. A potential funding source includes the Rural Utility Services (RUS) program administered by the United States Department of Agriculture (USDA).

Table 5-20: Gravity Supply Line Project Summary

Project: Gravity Supply Line Project Project Type: Water Supply Implementing Agency: Amador Water Agency (AWA)	
Design Status: In design Environmental Documentation Status: Project description complete; CEQA and NEPA review may involve a negative declaration and a Finding of No Significant Impact (FONSI), respectively. Permitting Status: Not started Estimated Implementation Dates: Late 2008 Estimated Cost (year): \$8 million (2006) Funding Sources Available: Rural Utility Services (RUS) program administered by USDA	
Water Management Strategies Employed: <ul style="list-style-type: none"> • Water supply reliability • Water quality protection and improvement 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	1, 3, 4, 5, 8

5.4.17 Henderson Reservoir Dam Reinforcing Buttress

Henderson Reservoir was constructed near Ione Road, west of Sutter Creek in 1888 and then raised 12 feet in 1929. Since then, there have been no improvements and so, due to groundwater seepage, the age of the structure, and natural causes such as weather damage, the State Division of Safety of Dams (DSOD) has requested that ARSA re-evaluate the dam for seismic safety and add a buttress for structural stability.

This reservoir is vital to the Amador Regional Sanitation Authority (ARSA) outfall system and recycled water storage. Currently, recycled water is used on the Hoskins Ranch, downstream from the reservoir. The reservoir has a surface area of 27 acres at its permitted capacity of 380 AF. It allows storage of treated effluent until it can be properly treated for release into the environment, used for agricultural watering, and/or used on the Castle Oaks Golf Course. Currently, the reservoir is used to store secondary treated wastewater from the Sutter Creek WWTP, Sutter Creek, Amador City, and Martell service areas. In the future, it will continue to be used as storage for treated wastewater even if the City of Sutter Creek WWTP switches to tertiary treatment. The availability of this water will help meet higher water quality targets. If it is used to store tertiary treated water from the City of Sutter Creek WWTP expansion then only tertiary treated water from the regional WWTP at Martell can be stored. Ensuring the reservoir remains in use will also benefit the City of Jackson, as it will be added to the water treatment shed if a regional plant is constructed in the Martell area. Design has not started but there has been limited soils work completed on the existing structure. This work has been submitted to the DSOD.

Table 5-21: Henderson Reservoir Dam Reinforcing Buttress

Project: Henderson Reservoir Dam Reinforcing Buttress	
Project Type: Water Recycling	
Implementing Agency: Amador Regional Sanitation Authority (ARSA)	
Design Status: Pre-design complete	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): Not yet determined	
Funding Sources Available: PFS-ARSA Capital Improvement Fund	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water recycling 	<ul style="list-style-type: none"> • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	5, 6, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	3, 4, 6, 7, 11
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	8

5.4.18 Highway 4 Corridor Regional Water/Wastewater Project

The Highway 4 corridor from Ebbetts Pass to the incorporated community of Angels Camp possesses multiple water and wastewater treatment plants, distribution, and collection systems that need expansion and upgrades to meet increasing customer demand and regulatory requirements. This project is in the initial planning stages. A feasibility study (FS) will be conducted to determine if a regional water treatment plant (WTP) and/or a regional wastewater treatment plant (WWTP) are technically and financially feasible options for replacing the individual systems. The FS will cost approximately \$100,000. A WTP or WWTP could cost between \$50 million and \$100 million each.

If the construction of a regional WTP and/or a regional WWTP are deemed feasible and implemented, the communities along the Highway 4 corridor would benefit from improved water quality and increased water supply reliability. The existing systems are undersized and unable to meet current water demands, but the implementation of regional plants would effectively and economically provide for current and future urban and agricultural demands. Water recycling may also be incorporated if a regional WWTP is constructed. This would aid in water conservation and increase the area’s water supplies.

Table 5-22: Highway 4 Corridor Regional Water/Wastewater Project Summary

<p>Project: Highway 4 Corridor Regional Water/Wastewater Project Project Type: Water Supply Implementing Agency: Calaveras County Water District (CCWD)</p> <p>Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$100,000 (2006) for FS Funding Sources Available: Not yet identified</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Water supply reliability • Water quality protection & improvement • Water recycling • Water and wastewater treatment • Water conservation 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 5, 6, 8, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 3, 4, 6, 9, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 4
<i>Regional Communication and Cooperation</i>	1, 3, 5, 8

5.4.19 Highway 12/26 Regional Water/Wastewater Project

The Highway 12/26 corridor from the Toyon area to the unincorporated community of Wallace Lake Estates possesses multiple water and wastewater treatment plants that need expansion and upgrades to meet increasing customer demand and regulatory requirements. Similar to the Highway 4 Corridor Regional Water/Wastewater Project, this concept plan is in the initial planning stages. A feasibility study (FS) will be conducted to determine if a regional water treatment plant (WTP) and/or a regional wastewater treatment plant (WWTP) are technically and financially feasible options for replacing the individual systems. This study will also include an analysis for possible collaboration with nearby treatment plants within the region. The implementation could possibly be linked to the South Shore Camanche Wastewater Improvement Project. The FS will cost approximately \$100,000 to complete. If implemented, each system would potentially cost between \$50 million and \$100 million.

If the construction of a regional WTP and/or a regional WWTP are deemed feasible and then implemented, the communities along the Highway 12/26 corridor will benefit from improved water quality and increased water supply reliability. The scattered, existing systems are undersized and unable to meet current water demand, whereas a regional WTP or WWTP could effectively and economically provide for current and future urban and agricultural demands. Water recycling could be incorporated into a new WWTP which would aid in water conservation and increase the area's water supplies.

Table 5-23: Highway 12/26 Regional Water/Wastewater Project Summary

Project: Highway 12/26 Regional Water/Wastewater Project Project Type: Water Supply Implementing Agency: Calaveras County Water District (CCWD)	
Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$100,000 (2006) for FS Funding Sources Available: Not yet identified	
Water Management Strategies Employed: <ul style="list-style-type: none"> • Water supply reliability • Water quality protection and improvement • Water and wastewater treatment • Water conservation • Water recycling 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 5, 6, 8, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 3, 4, 6, 9, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 4
<i>Regional Communication and Cooperation</i>	1, 3, 5, 8

5.4.20 Highway 88 Corridor Wastewater Treatment/Transportation/Disposal

There are seven small developments located along Highway 88 and two more have been proposed. These communities are spread along the highway from Fairway Pines to Jackson Pines, approximately 4 miles east of Pine Grove. AWA proposes to place a sewer trunk line along Highway 88 from Martell to Buckhorn to collect wastewater from these developments. This wastewater would be treated at either the expanded Sutter Creek WWTP or the new Regional WWTP. The treated water would then be used at golf courses or in other agricultural areas. Currently, the developments utilize community leach fields and recirculating gravel filters with spray fields, but these systems are being strained due to increased loading.

This project design is in the conceptual level. Details such as specific location, length, and diameter of piping will be determined during design. Construction may not begin for 3 to 5 years since there are a number of environmental concerns along the Highway 88 corridor that must be addressed. These include riparian habitat and sensitive species. This project cost was estimated at \$2 million in 1998. Based on price escalations on similar projects for the same period of time, the project cost is now estimated to be approximately \$8 million.

Table 5-24: Highway 88 Corridor Wastewater Treatment/Transportation/Disposal Project Summary

Project: Highway 88 Corridor Wastewater Treatment/Transportation/Disposal	
Project Type: Water Quality	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: After 12/2008	
Estimated Cost (year): \$8 million (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Flood management • Groundwater management 	<ul style="list-style-type: none"> • Water quality protection and improvement • Water recycling • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	5, 6, 9, 10
<i>Flood Protection</i>	1, 3
<i>Water Quality</i>	1, 3, 4, 6, 7, 11
<i>Environmental Protection and Enhancement</i>	1
<i>Regional Communication and Cooperation</i>	8

5.4.21 Inter-Regional Conjunctive Use Project

San Joaquin County currently relies on groundwater for 60% of its supplies and surface water for the other 40%. The Eastern San Joaquin sub-basin groundwater is overdrafted at a rate of 150,000 to 200,000 AFY. Numerous conjunctive use projects have been proposed to restore the groundwater aquifer in the San Joaquin Basin. This project proposes to form a partnership between two IRWMP regions, the M/A/C region and the Northeastern San Joaquin County Groundwater Banking Authority (GBA), to bank surplus surface water from the Mokelumne River in the San Joaquin ground water basin and recharge the aquifer. The purpose of the Inter-Regional Conjunctive Use Project (IRCUP) is to provide inter-regional water supply reliability benefits in Amador, Calaveras, and San Joaquin Counties, and within the East Bay Municipal Utility District service area. The project will also demonstrate the feasibility of incremental conjunctive management of the Eastern San Joaquin Groundwater Basin and could serve as the basis for future projects. The project description included in this section reflects a version of the IRCUP. A final project description will be developed through coordination with the GBA and other organizations as appropriate.

The concept is that Amador and Calaveras Counties secure new Mokelumne water rights with a portion of the water for use within those counties with the balance stored in the San Joaquin groundwater basin. In wet years some water will be diverted for use by Amador and Calaveras with the remaining water to be conveyed through EBMUD facilities for storage in the Eastern San Joaquin and Cosumnes sub-basins. In dry years water stored in San Joaquin will be available to San Joaquin and via exchange to Amador, Calaveras and EBMUD. Further detail is provided below.

Through multi-lateral agreements among the parties, EBMUD's water supply facilities could be used to regulate the flow of water into the regional groundwater bank in San Joaquin County and exchange the banked water to Amador and Calaveras Counties. San Joaquin County would develop agreements with individual farmers that would be a participant in this inter-regional project. These farms would use surface supplies during the wet years and groundwater during dry years.

This IRCUP would be consistent with the San Joaquin County's groundwater basin management objectives and contribute towards the goal of solving the groundwater overdraft in the critical areas within San Joaquin County. If the project proves to be feasible in helping to reverse the overdraft condition in the groundwater basin, some or all of the parties could pursue additional stages to expand the groundwater banking project. It could contribute to a salinity barrier or it could recharge the regions where the groundwater is most depleted. The groundwater extraction facilities would be located in an area where they would have the least impact on the groundwater overdraft.

To accomplish this, a number of facilities would need to be constructed. First, diversion facilities would be necessary on the Mokelumne River or the EBMUD aqueduct in order to divert surface water from the river or aqueduct to San Joaquin County. Also, transportation structures will be constructed between the diversion location and the storage location to transfer the water. Aquifer storage and recovery facilities will be constructed to aid in groundwater recharge and extraction. These facilities could be either spreading ponds and wells or injection/extraction wells, depending on the depth at which the water will be stored. There are many alternatives to be considered and they are classified into five categories. These include:

- On-stream storage;
- Off-stream storage;
- Direct diversions;
- Additional diversions; and
- Non-structural groundwater management.

The *EBMUD Updated Water Supply Management Program – Final Environmental Impact Report* describes a range of recharge mechanisms and a range of withdrawal mechanisms used in coordination

with surface supplies. There are indirect and direct methods to extract groundwater. Indirect yield will be obtained by supplying downstream agriculture and instream fisheries whose priorities are senior to the agencies with groundwater in dry years, reducing required releases from upstream reservoirs. By supplying the senior surface water rights holders or instream needs with groundwater in the dry years, it would allow the same amount of water to be withheld in upstream reservoirs for diversion to agency service areas. The Agricultural Exchange Method is an indirect yield method in which the agricultural surface water users with water rights senior to the agencies switch to banked groundwater in dry years. The direct method will deliver yield to the agencies by pumping banked groundwater directly into conveyance systems, such as the Mokelumne Aqueduct. The two primary methods identified to recharge groundwater are in-lieu recharge and spreading/infiltration. A yield of at least 15,000 to 150,000 AF may be supplied to agencies during dry years.

A collaborative planning process will take place in which the Mokelumne River Forum could serve as the collaborative process that coordinates the water resources planning efforts across regional boundaries with respect to river hydrology, facilities, infrastructure and institutional arrangements required for the Inter-Regional Conjunctive Use Project.

This conjunctive use project will allow greater water supply reliability planning, drought management protection, operational flexibility, and help to meet water supply needs of a growing demand for both agriculture and increasing urbanization. The Inter-Regional Conjunctive Use Project may someday include other proposed projects to aid in diverting and storing water, such as the Bear River Reservoir Expansion and Enlargement of Pardee Reservoir.

The diversion facilities, transportation structures, and groundwater recharge facilities will need to be constructed for a successful project. The project is still in the conceptual phase though and construction dates have not been determined. The project is estimated to cost between \$2 million and \$5 million. Possible funding sources have not yet been identified.

Table 5-25: Inter-Regional Conjunctive Use Project Summary

<p>Project: Inter-Regional Conjunctive Use Project Project Type: Water Supply Implementing Agency: Amador Water Agency (AWA)/Calaveras County Water District (CCWD)/East Bay Municipal Utility District (EBMUD)/San Joaquin GBA</p> <p>Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$2 million to \$5 million (2006) Funding Sources Available: Not yet identified</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Water supply reliability • Groundwater management • Stormwater capture and management • Water quality protection and improvement • Conjunctive use • Imported water • Land use planning • Surface storage • Watershed planning • Water transfers 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 8, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	1, 4
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 6, 8

5.4.22 Ione Amador Plymouth Treated Water Loop

Ione and Tanner water treatment plants are each operated individually and not connected. This project will link these two systems and create a reliable backup supply for both areas. This will reduce disruptions in drinking water deliveries while expanding public water supply to areas west of the Ione System and east of the Tanner System. This project will provide a secure public water supply to a larger area and more communities now and in the future. This includes the Willow Springs area where no public supply is currently available.

This Water Loop Project may be linked to the Off-Stream Storage Project on Cosumnes River and the Plymouth Pipeline Improvement Project. It helps to secure the water supply for Ione, Plymouth, Amador City, and Drytown. Also, the northwest area of Amador County would receive additional fire protection capabilities with fire hydrants located along the pipeline route. The project is conceptual but the Treated Water Loop is expected to run from Plymouth, along Highway E16, to Ione via Highway 124.

Table 5-26: Ione Amador Plymouth Treated Water Loop

<p>Project: Ione Amador Plymouth Treated Water Loop Project Type: Water supply Implementing Agency: Amador Water Agency (AWA)</p> <p>Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): Not yet determined Funding Sources Available: Not yet identified</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Water supply reliability 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	3, 5, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	8

5.4.23 Jackson Creek Enhancement Project

Just below the confluence of the three forks of Jackson Creek, within a short walking distance of downtown Jackson, is a creek bed area adjacent to Jackson Creek. The creeks are in their natural state, containing native and non-native vegetation. This location requires annual weed abatement to reduce the possibility of upstream flooding. Flooding occurs about once every five years and affects approximately 15 homes and 10 businesses along the creek at the north end of town. The Jackson Creek Enhancement Project will mitigate this problem and include other added benefits. The creek bed will be enhanced for the purposes of education, recreation, and flood control. There will be landscaping and trails placed throughout the site that will be designed and implemented to decrease the need for weed abatement, and in turn reduce flooding. Invasive species will be pulled and native species planted in their place. Interpretive signage will also be added for educational purposes.

The local residents and visitors to the City of Jackson will have a valuable open space at a convenient location added to the community. Full design and implementation will cost approximately \$100,000 and project implementation is anticipated to begin in late spring of 2007.

Table 5-27: Jackson Creek Enhancement Project Summary

Project: Jackson Creek Enhancement Project	
Project Type: Environmental / Habitat	
Implementing Agency: City of Jackson	
Design Status: Pre-design	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: late Spring 2007	
Estimated Cost (year): \$100,000	
Funding Sources Available: California Department of Parks and Recreation and other park/trails grant sources	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> <li style="display: inline-block; width: 45%;">• Ecosystem restoration <li style="display: inline-block; width: 45%;">• Flood management <li style="display: inline-block; width: 45%;">• Environmental and habitat protection and improvement <li style="display: inline-block; width: 45%;">• Recreation and public access <li style="display: inline-block; width: 45%;">• Wetlands enhancement and creation 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	1, 2
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	5, 6, 7

5.4.24 Jackson Creek Watershed Project

The Jackson Creek watershed encompasses approximately 38,433 acres (~60 square miles) including the sub-basins of the North Fork Jackson Creek, Middle Fork Jackson Creek, and South Fork Jackson Creek upstream of their confluences near the center of the City of Jackson.

In cooperation with AWA, Protect the Historic Amador Waterways (PHAW) is designing a watershed management and conservation program for certain agreed-upon reaches of the South Fork of Jackson Creek and New York Ranch Gulch in the Jackson Creek Watershed of Amador County. Such a program may be extended to other areas of concern within the watershed if funding, landowner cooperation and additional water resources can be secured. The Jackson Creek Watershed collaborative process has the following goals:

- Attract public and private financial, technical and legal support for the watershed management and conservation program.
- Develop watershed management and conservation strategies that share the costs of implementation and management across a broad array of active partners.
- Develop a watershed management and conservation plan that addresses riparian and wetland resources, water quality, non-point source pollution, grazing practices and range land conditions, groundwater resources and other resources in agreed-upon reaches of the South Fork of Jackson Creek and New York Ranch Gulch, as well as other areas within the Jackson Creek Watershed as agreed-upon by the collaborative participants.
- Develop watershed management and conservation strategies that provide for the self-sustainability of the riparian and wetland resources in the agreed-upon creek reaches, and that have the support of affected private landowners, local government, and both state and federal resource management agencies.
- Develop a cooperative management agreement to implement the watershed program, which in part integrates the management of the white alder forest along New York Ranch Gulch and the Evitt pond into the conservation and management plan for New York Ranch Reservoir.

PHAW will explore a broader effort through the M/A/C IRWMP that will identify additional water resources above and beyond those controlled by AWA that could be conveyed through the Amador Canal to the various forks of Jackson Creek. This effort also will involve new surface water storage capability such as farm ponds, stormwater capture and conjunctive use projects to enhance and expand the available supply of water for ecosystem purposes, agricultural uses and water supply reliability for AWA customers.

The Jackson Creek Watershed Collaborative process is linked to the New York Ranch Reservoir project of AWA and the Jackson Creek Enhancement Project, all of which aim to conserve and enhance habitat and manage resources within the Jackson Creek Watershed.

Table 5-28: Jackson Creek Watershed Project Summary

<p>Project: Jackson Creek Watershed Project Project Type: Environmental / Habitat Implementing Agency: Protect the Historic Amador Waterways (PHAW) / Upper Mokelumne River Watershed Council (UMRWC)</p> <p>Design Status: Pre-design Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): Not yet determined Funding Sources Available: Not yet identified</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Ecosystem restoration • Environmental and habitat protection and improvement • Water supply reliability • Flood management • Recreation and public access • Stormwater capture and management • Water conservation • Water quality protection and improvement • Wetlands enhancement and creation • Conjunctive use • Surface storage • Watershed planning 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	4, 5, 8
<i>Flood Protection</i>	3, 4
<i>Water Quality</i>	8, 9, 10
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	2, 3, 4, 5

5.4.25 Lake Camanche Wastewater Improvement Program

The Lake Camanche Village Wastewater Treatment Plant (WWTP) serves approximately 400 homes in the Lake Camanche Hills Estate development. The existing storage and spray irrigation system was unable to handle the effluent loading during the spring storms of 2005 and 2006. AWA is currently complying with the Regional Water Quality Control Board (RWQCB) Cease and Desist order #R5-2003 0126 by choosing and implementing long-term improvements to the WWTP. EBMUD and AWA are considering a joint project to build a regional wastewater system for EBMUD's North Shore facilities and the AWA Lake Camanche System. The technology to be utilized for treatment is anticipated to be a Membrane Bio Reactor (MBR) system. Land disposal will take place during dryer months and surface water discharges during wetter months.

This project will be completed in two phases. The first phase will expand the storage and spray field disposal system to avoid future spills and enable AWA to serve the approved development in the area. The second phase will upgrade the treatment facility to MBR and provide a new lift station and collection line to for EBMUD's North Shore Recreation Area. Phase II will also develop surface discharge and reclamation opportunities, particularly in the JVID service area. JVID's seasonal irrigation demand is sufficient to utilize all reclamation water. Some additional conveyance facilities will be required to move the reclaimed water to the JVID system, approximately 3 miles north of the Lake Camanche village.

Stormwater impacts will be minimized through undetermined BMPs. This project will enhance and protect wetlands. Finally, the agencies will achieve regulatory compliance and prevent water quality degradation. During the last two winters, the system spilled over 1 million gallons. By preventing spills during storms, water quality will be protected and improved. Potential health risks will also be avoided.

The first phase will cost approximately \$5 million and the start of construction is planned for the fiscal year of 2006-2007. Phase II will cost approximately \$9 million, for a total project cost of \$14 million.

Table 5-29: Lake Camanche Wastewater Improvement Program

Project: Lake Camanche Wastewater Improvement Program	
Project Type: Water Quality	
Implementing Agency: Amador Water Agency (AWA) / East Bay Municipal Utility District (EBMUD)	
Design Status: Conceptual	
Environmental Documentation Status: Draft EIR/EIS	
Permitting Status: Not started	
Estimated Implementation Dates: Fiscal year 2006-2007	
Estimated Cost (year): \$14 million – Phase I - \$5 million; Phase II - \$9 million (2006)	
Funding Sources Available: SWRCB – Small Community Wastewater Grant Program, State Revolving Fund, and Rates / Fees.	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Water supply reliability • Groundwater management • Water conservation 	<ul style="list-style-type: none"> • Water quality protection and improvement • Water recycling • Wetlands enhancement and creation • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	5, 6, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 4, 5, 6, 7, 8, 10
<i>Environmental Protection and Enhancement</i>	1, 2, 4, 5
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 6, 8

5.4.26 Leak Testing and Repair Program

Various water and wastewater conveyance and collection systems within Amador County are old and antiquated. These water conveyance pipeline and storage tanks are inefficient and wasteful in conveying available water resources within the county. These systems are inefficient due to leakage and in turn, water loss. Wastewater collection and disposal systems also pose a public health and safety issue because of the leaks which directly contaminate surface and ground waters and have potential for human contact. Through leaks in the pipes, during the wet season these same collection pipes collect stormwater, doubling and tripling dry weather flows to the treatment and disposal system.

A program will be implemented to establish which pipelines and storage tanks have the greatest need for repair or replacement. After prioritization responsible agencies will replace or repair the highest priority facilities. This program will help maximize existing water resources for domestic, agriculture and hydroelectric uses, improve water quality by reducing existing and future contaminations to the surface and groundwater supplies, and maximize wastewater treatment and disposal through reduction of I&I.

The program will include all water and wastewater facilities within Amador County, including the City of Sutter Creek, Ione, Plymouth and Drytown. Various individual community service districts, private water companies, JVID, AWA, San Joaquin County, EBMUD and PG&E will all receive short- and long-term benefits. These benefits include water conservation via a reduction in water loss, improved water quality, environmental protection, and water supply reliability.

Table 5-30: Leak Testing and Repair Program Summary

Project: Leak Testing and Repair Program Project Type: Water Supply Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual Environmental Documentation Status: Documentation not started Permitting Status: Not Started Estimated Implementation Dates: As required Estimated Cost (year): Not yet determined Funding Sources Available: Not yet determined	
Water Management Strategies Employed: <ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Water supply reliability • Groundwater management • Water conservation • Water quality protection and improvement • NPS Pollution Control 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	3, 9
<i>Flood Protection</i>	
<i>Water Quality</i>	5, 6, 7
<i>Environmental Protection and Enhancement</i>	1, 4, 5
<i>Regional Communication and Cooperation</i>	3, 5, 8

5.4.27 Low Pressure Flow Improvements

The distribution system in the upcountry of Amador County is old, antiquated, undersized, and suffers from low pressures in the summer, leaving the community with minimal water supply and inadequate fire protection or suppression supply. Much of the distribution system is less than 4 inches in diameter. The project will identify, prioritize and provide for the design, replacement, and modifications to the water supply system within the community to improve water supply and meet fire flow requirements. Central Amador Water Purveyors and AWA will be active project participants.

Table 5-31: Low Pressure Flow Improvements Project Summary

Project: Low Pressure Flow Improvements	
Project Type: Water supply	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): Not yet determined	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	10
<i>Flood Protection</i>	
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	

5.4.28 Marcucci Lane Culvert Project

The South Fork of Jackson Creek flows in a northwesterly direction along the east side of Highway 49 and the west side of South Avenue. There is an arch culvert in place where Marcucci Lane crosses over Jackson Creek. This steel culvert is not in-line with the direction of the creek flow so the creek is forced to flow into the east side abutment. This causes a backwater effect during high flows. As a result, in January 1997, water overflowed the south bank of the Creek, flooded Marcucci Lane and damaged the downstream side of the south approach. An adjacent restaurant parking lot also flooded and several nearby residences were affected. These property owners had been complaining of flooding since the mid-1980's. After witnessing the flooding that occurred in January 1997, the City of Jackson determined that the existing culvert is not properly aligned with the creek flow and the arch opening is too narrow to allow major flows to pass through. The Marcucci Lane Culvert Project will replace the existing culvert, aligning it with the creek flow and applying a wider arch opening in order to eliminate the backwater effect. The new culvert would pass the 100-year storm flows without over-topping the stream bank. The existing culvert will be replaced with an 8-foot tall by 24-foot wide concrete triple box culvert. The damage to homes, businesses, utility infrastructure, and roadway integrity will be greatly diminished by reducing flood potential.

There may be small environmental impacts such as the reduction of habitat of fish or wildlife species and changes in wetland habitat, but measures will be taken to mitigate these impacts in accordance with CEQA and regulatory agency requirements.

The total project cost was estimated to be \$336,000 in 2000. The updated cost in 2006 dollars is approximately \$403,000. This includes preliminary engineering, environmental, right-of-way acquisition, construction engineering, and construction costs. Possible funding may come from the FEMA Hazard Mitigation Grant Program.

Table 5-32: Marcucci Lane Culvert Project Summary

<p>Project: Marcucci Lane Culvert Project Project Type: Stormwater & Flood Management Implementing Agency: City of Jackson</p>	
<p>Design Status: Pre-design Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined. Construction estimated at 60 days. Estimated Cost (year): \$403,200 (2006) Funding Sources Available: FEMA Hazard Mitigation Grant Program</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Flood management • Stormwater capture and management 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	1
<i>Water Quality</i>	6, 10
<i>Environmental Protection and Enhancement</i>	1, 2, 4, 5
<i>Regional Communication and Cooperation</i>	5, 6

5.4.29 New Hogan Reservoir Pumping Project

A pumping plant and water conveyance facilities are proposed to deliver New Hogan Reservoir water to the Camanche/Valley Springs/Rancho Calaveras area. Currently, Camanche and Valley Springs rely solely on groundwater and Ranchos Calaveras relies on treated Calaveras River water from the Jenny Lind WTP. The pumping facility would be constructed on the north abutment of the old concrete dam, located approximately ¼ mile east of the existing earthen dam. Water will be pumped over the northwest ridge of New Hogan Reservoir to a 30 acre-foot reservoir to regulate flows to three natural streams (Bear, No Name, and Indian Creeks). These streams would be used for gravity flow water conveyance. Portions of the streams may require lining to prevent scouring. The water delivered to the service area will be used for agriculture and conjunctive use since water from the Jenny Lind WTP and groundwater supply is insufficient for the area's growing needs, especially during dry years.

Construction of the New Hogan Reservoir Pumping Plant is linked to the South Shore Camanche Regional WTP Project and the Camanche-New Hogan Phase II Water Distribution Loop Project via a pipeline to the expanded Jenny Lind WTP. The project will allow greater water supply reliability planning, drought management protection, operational flexibility, conjunctive use, and greater capacity to meet growing water supply needs for agriculture and increasing urbanization. Via stream conveyance, it will help protect the surrounding habitat and manage flows and quality within the watershed. Utilizing surface water instead of groundwater allows water restrictions and fees which may reduce the amount of water used.

The project is in the pre-design phase and the project description is complete. Project construction cost is estimated to be \$22 million based on a preliminary engineering design estimate in 1974 dollars of \$2,250,000. Funding sources include the Water Resources Development Act, local agencies, other state and federal grant/loan funding sources, and private developers.

Table 5-33: New Hogan Reservoir Pumping Project Summary

Project: New Hogan Reservoir Pumping Project Project Type: Water Supply Implementing Agency: Calaveras County Water District (CCWD)	
Design Status: Pre-design Environmental Documentation Status: Project description complete Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$2,250,000 (1974); Estimated present value - \$22 million (2006) Funding Sources Available: Water Resources Development Act (WRDA) – U.S. Army Corps of Engineers, Calaveras County, private developers	
Water Management Strategies Employed: <ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Water supply reliability • Groundwater management • Water conservation • Wetlands enhancement and creation • Conjunctive use • Imported water • Surface storage • Watershed planning • Water and wastewater treatment • Water transfers 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 8, 9, 10
<i>Flood Protection</i>	3, 4
<i>Water Quality</i>	1, 2, 3, 4, 5, 7, 8, 9
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 6, 8

5.4.30 New York Ranch Reservoir Conservation and Management

New York Ranch Reservoir is a balancing reservoir in the AWA canal system, about five miles east of Sutter Creek, just southwest of the Ridge and Climax Roads intersection. It currently serves as a holding basin for water flowing from Lake Tabeau to the Tanner Reservoir. After the Amador Canal and Ione Canal Pipe Conversion Project is implemented, changing water transfer from open conveyance systems to 30-inch piping, the New York Ranch Reservoir will no longer be needed.

There are a number of groups that support the conservation and management of the New York Ranch Reservoir to ensure that the reservoir site is not developed in the future and instead, preserved for its cultural, historic, and educational value. In this way, the site will continue to be a resource for people to learn about wetlands, wildlife, plants, surrounding culture, and local history.

This project is in the pre-design phase and environmental documentation has not yet started. The estimated cost is \$500,000 for the management plan and implementation. \$50,000 would be used to develop the management plan. AWA may retain ownership of the reservoir, but grant a permanent conservation easement to the Amador Land Trust, the Foothill Conservancy, or some other yet to be identified party to ensure conservation of the site. Other participants include the Central Sierra Resource Conservation and Development (CSRC&D) and the California Department of Fish and Game (DFG).

Table 5-34: New York Ranch Reservoir Conservation and Management Summary

Project: New York Ranch Reservoir Conservation and Management	
Project Type: Environmental / Habitat	
Implementing Agency: Joint Authority – AWA, California Department of Fish and Game, Foothill Conservancy, and CSRC & D	
Design Status: Pre-design	
Environmental Documentation Status: Not started	
Permitting Status: None identified at this time	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$500,000 (2006)	
Funding Sources Available: None identified at this time	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Ecosystem restoration • Environmental and habitat protection and improvement 	<ul style="list-style-type: none"> • Recreation and public access • Wetlands enhancement and creation
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	
<i>Water Quality</i>	8
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 3, 4, 7

5.4.31 Off-Stream Storage on Cosumnes, Mokelumne, and Calaveras River

In order to store surplus water to use during dry years or in times of need, off-stream storage facilities are proposed for the Calaveras, Cosumnes, and Mokelumne Rivers. The Off-Stream Storage on Mokelumne and Calaveras Rivers is treated as one project and is separate from the Off-Stream Storage on Cosumnes River. Storing water off-site will have fewer adverse environmental effects than in-stream dams and still supply the local communities with water in times of need.

Off-Stream Storage on Cosumnes River

The Cosumnes River has been the subject of many surface water storage project studies. There is a need for supplemental water supply in the Plymouth, Willow Springs, and Ione Valley areas of Amador County. Also, the Cosumnes River is well known for flooding in the lower sections of the river. A combination flood control and surface water supply project will provide both a reliable water supply and some flood control for these areas. Rather than on-stream storage and a dam, this project will focus on off-stream storage. High river flows will be reduced as surplus water is diverted and stored for use during dry periods. The proposed locations would include Cape Cod Reservoir, Bakers Ford, Mount Aukum, and Papi Reservoir.

Implementation of this project would:

- Provide information useful for local and regional water and land use planning;
- Provide additional water supplies;
- Improve water conservation and ecological protection;
- Assist with watershed management in meeting water quality, cold water, and protected species needs;
- Enhance aquatic recreational opportunities within the area; and
- Improve flood control.

Table 5-35: Off-Stream Storage on Cosumnes River Project Summary

Project: Off-Stream Storage on Cosumnes River	
Project Type: Water Supply	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual	
Environmental Documentation Status: Documentation not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$30 to \$40 million (2006)	
Funding Sources Available:	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental habitat protection and improvement • Water supply reliability • Flood management • Recreation and public access 	<ul style="list-style-type: none"> • Stormwater capture and management • Wetlands enhancement and creation • Surface storage • Watershed planning
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 9, 10
<i>Flood Protection</i>	1
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 3, 8

Off-Stream Storage on Mokelumne and Calaveras Rivers

The Off-Stream Storage on Mokelumne River is Phase I and Off-Stream Storage on Calaveras River is Phase II of the project. Phase II may begin upon completion of Phase I or occur simultaneously.

This project proposes to store surplus winter flows in the Mokelumne River. High flow discharges will be captured for distribution during the peak water use season. A study will be performed to identify and evaluate site specific characteristics for potential off-stream storage reservoir locations.

By diverting less water from the streams and rivers during critical low flow conditions, elevated stream temperatures will be reduced. This study will also take into account reservoir locations that will provide public recreation and access areas to be used on a seasonal or annual basis. Therefore, locations and volumes of water diverted will be chosen carefully after this study is performed.

Up to four sites will be evaluated for potential sites, all will target public lands to avoid conflict with private property ownership and future water storage needs. Additional sites will be evaluated if there are an insufficient number of basin sites on public lands.

The Calaveras River flow is derived from rainfall with almost no contribution from snowmelt. A study will be performed to identify and evaluate locations for off-stream storage reservoirs to take advantage of surplus flows.

At least three sites will be evaluated for suitability. A favorable site will reduce elevated stream temperatures by diverting less water during critical low flow conditions, be easily accessible for public recreation, and be on public lands rather than private property.

This study will immediately provide information useful for local and regional water and land use planning. In the long term, an off-stream reservoir would:

- Provide additional water supplies;
- Improve water conservation and ecological protection;
- Assist with watershed management in meeting water quality, cold water, and protected species needs; and
- Enhance aquatic recreational opportunities within the area.

As soon as funding is received, this study can begin. It is planned to start in March and end in October, taking approximately 7 months. The total cost for both the study on the Mokelumne River and the Calaveras River is \$155,276.

Table 5-36: Off-Stream Storage on Mokelumne and Calaveras Rivers Project Summary

Project: Off-Stream Storage on Mokelumne and Calaveras Rivers	
Project Type: Water Supply	
Implementing Agency: Amador Water Agency (AWA)/ Calaveras County Water District (CCWD)/ Upper Mokelumne River Watershed Council (UMRWC)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: March to October 2007	
Estimated Cost (year): \$155,276	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental habitat protection and improvement • Water supply reliability • Flood management • Recreation and public access 	<ul style="list-style-type: none"> • Stormwater capture and management • Wetlands enhancement and creation • Surface storage • Watershed planning
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 7, 9, 10
<i>Flood Protection</i>	1
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 3, 8

5.4.32 Plymouth Pipeline Improvement Project

The City of Plymouth's current source of water is from a diversion off the Cosumnes River and a well which is considered an unreliable surface water supply by the California DOHS. It is believed that adding an additional well or wells will not increase reliability. In late spring – early summer, inadequate flows in the Cosumnes River and high losses in the earthen canal prevent the supply of river water to Plymouth's treatment plant. Groundwater is then used for the balance of the water year. By providing a surface water supply to the City, this project will reduce demand on the groundwater and allow the area to better manage groundwater. The proposed solution involves three improvements to divert, transport, and store additional water that would replace the old water treatment plant and inadequate well supply.

A treated water storage tank will be constructed to store 1.5 million gallons. It will be located at an elevation of 1,640 feet and provide emergency and operational storage for Plymouth. There will also be improvements to the transmission main in Sutter Creek in order to fill the tank and carry the added demands, now and in the future. The main will be 8,000 feet long and 18 inches in diameter. Lastly, a pipeline from Sutter Creek to Plymouth, approximately 28,000 feet long and 10 inches in diameter will be constructed in order to convey treated water from AWS to the City of Plymouth and provide a reliable water supply.

Table 5-37: Plymouth Pipeline Improvement Project Summary

Project: Plymouth Pipeline Improvement Project	
Project Type: Water Supply	
Implementing Agency: Plymouth/Amador Water Agency (AWA)	
Design Status: In design	
Environmental Documentation Status: Complete	
Permitting Status: Nearly complete	
Estimated Implementation Dates: Spring 2007	
Estimated Cost (year): \$8,024,207 to \$9,135,694 (2004)	
Funding Sources Available: RUS, Community Development Block Grant (CDBG) funds	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability • Groundwater management 	<ul style="list-style-type: none"> • Water quality protection and improvement
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 5, 7, 9
<i>Flood Protection</i>	
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	8

5.4.33 Plymouth Wastewater Improvements

California Regional Water Quality Control Board (RWQCB) issued a Cease and Desist Order to the City of Plymouth regarding its Waste Discharge Requirements (WDRs). Plymouth's WWTP is located on Old Sacramento Road with the effluent storage reservoir and disposal fields approximately one mile west of the treatment system. The wastewater collection system consists of approximately 6 miles of gravity sewer pipelines which were installed in 1963. Most of them are clay pipes with diameters that range from 6 to 10 inches. The WWTP consists of an aerated facultative pond, two polishing ponds, chlorination facilities, and a 185 AF unlined effluent storage reservoir, where wastewater disposal occurs through spray irrigation on 85 of the 125 acres of available land. The WWTP receives domestic wastewater from approximately 350 residential connections, 29 commercial connections, 20 community connections, the Far Horizons 49er Village, and the Amador County Fairgrounds. The growth of the community is limited due to the inadequate wastewater storage reservoir, which does not have enough capacity to comply with the WDRs currently. A number of major deficiencies in the wastewater system, including sources of high I&I and structural defects were identified during field studies conducted in 1985 and again in 1997. These deficiencies were summarized and prioritized. Although, the studies were conducted years ago, few if any repairs have been completed and more than likely, more defects exist and the severity of the identified defects has increased. Updates and repairs must be performed in order to improve the system. First the known, existing defects, previously identified will be improved upon, followed by monitoring the corrections as they occur. Components of monitoring may include flow monitoring, closed circuit television inspections (CCTV), visual inspections, and other techniques, which will lead to further defect identifications. As time goes on, the more effective monitoring methods will be determined and used more often. Improvements related to maintenance, operational flexibility, monitoring, and capacity of the WWTP will also be incorporated. In order to improve conditions of the storage reservoir, a stormwater diversion will be constructed and seepage which occurs from the toe drain of the dam into No Name Creek will be contained. A cost estimate of approximately \$3 million was determined in 2002 which includes improvements to the wastewater collection system, the treatment plant, storage reservoir, and capacity improvements.

Table 5-38: Plymouth Wastewater Improvements Project Summary

Project: Plymouth Wastewater Improvements	
Project Type: Water Quality	
Implementing Agency: City of Plymouth/ Amador Water Agency (AWA)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$2,991,000 (2002)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> <li style="display: inline-block; width: 45%;">• Water quality protection and improvement <li style="display: inline-block; width: 45%;">• NPS pollution control <li style="display: inline-block; width: 45%;">• Water and wastewater treatment 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	3
<i>Water Quality</i>	6, 7
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	8

5.4.34 Preston Forebay Reservoir Dam Reinforcement Buttress

The State Division of Safety of Dams (DSOD) has requested that the Preston Forebay Reservoir Dam be reevaluated and reinforced. This reservoir was constructed in 1923 in Ione near the Preston School of Industry. It is vital to the Amador Regional Sanitation Authority (ARSA) outfall system and recycled water system. It is part of the system which delivers recycled water to the Castle Oaks Golf Course. This reservoir is currently used to store secondary treated wastewater used by the Preston School of Industry and may be used as storage for tertiary treated recycled water for the Preston School of Industry in the future.

The Dam is 12 AF in size with 1 acre surface area and will be reinforced by the addition of a buttress. When the reservoir is operated with 2 feet of freeboard, the dam leaks, whereas if it is operated with 12 feet of freeboard, it does not. ARSA has been operating it with 12 feet of freeboard, but once the buttress is implemented, they will be able to operate at 2 feet again. Completing this project will allow the complete storage capacity of the Forebay Reservoir to be used again and by regulating the levels of the reservoir, it will relieve some of the capacity requirements on the Preston Reservoir. Design has not started but soils testing logs and reports have been submitted to the DSOD. In 2003, a preliminary cost was estimated at approximately \$202,000.

Table 5-39: Preston Forebay Reservoir Dam Reinforcement Buttress Project Summary

Project: Preston Forebay Reservoir Dam Reinforcement Buttress	
Project Type: Water Recycling	
Implementing Agency: Amador Regional Sanitation Authority (ARSA)	
Design Status: Pre-design	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$202,000 (2003)	
Funding Sources Available: PFS-ARSA Capital Improvement Fund	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water quality protection and improvement • Water recycling 	<ul style="list-style-type: none"> • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	5, 6, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	3, 4, 6, 7, 11
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	8

5.4.35 Reclaimed Wastewater Line Upgrade

Secondary treated wastewater from Sutter Creek is transported to the tertiary treatment facility at Ione via a series of pipelines and reservoirs. Once at Ione, the Sutter Creek effluent is treated for application on the Castle Oaks Golf Course. ARSA members are also considering using one of the pipelines to deliver recycled water to the Preston School of Industry.

The pipelines from the Sutter Creek WWTP to Henderson Reservoir, constructed in the late-1970's, are ductile iron pipe and vary in size from 10 to 18 inches. The total length is approximately 22,800 feet and is in excellent condition. The primarily concrete pipelines from Henderson Reservoir to Preston Forebay were constructed in the late-1920's. Pipe size varies from 18 to 24 inches, with a combined length of approximately 19,300 feet. Due to the acidity of the wastewater, the concrete pipeline is vulnerable and in need of inspection. From the Forebay to Preston Reservoir, steel piping is used, varying from 18 to 24 inches in diameter with a total length of 5,200 feet. This section of piping is also suspect and in need of inspection to determine the level of repair or replacement necessary. Repairing the line would prevent unauthorized spills of treated effluent into Mule Creek, as well as the surrounding area. This project is in the pre-design phase and the specific locations for repair have not been determined and will not be determined until inspection is complete.

This project is linked to the Henderson Reservoir Dam Reinforcing Buttress and the Preston Forebay Dam Reinforcing Buttress Projects, with the overall objectives of reducing groundwater contamination and enhancing water recycling.

Table 5-40: Reclaimed Wastewater Line Upgrade

Project: Reclaimed Wastewater Line Upgrade	
Project Type: Water Recycling	
Implementing Agency: Amador Regional Sanitation Authority (ARSA)	
Design Status: Pre-design	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): Not yet determined	
Funding Sources Available: PFS-ARSA Capital Improvement Fund	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability • Water quality protection and improvement 	<ul style="list-style-type: none"> • Water and wastewater treatment • Water recycling
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	5, 6, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	3, 4, 6, 7
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	8

5.4.36 Regional Wastewater Project Phase I

The communities of Jackson, Sutter Creek, Amador City, and Martell are growing and developing rapidly. Due to this and the increasing regulatory requirements, it is becoming more difficult to efficiently and effectively treat wastewater to an adequate level. For this reason, communities within Amador have started to implement a regional plan to improve wastewater treatment. This regional plan will involve facility upgrades as well as new disposal methods. These methods will rely heavily on reclamation and reuse for effluent disposal.

The regional plan has been divided into two phases. Phase I will be used to transition from current operations to the ultimate arrangement, established during Phase II. Phase II is not included in this project. Phase I consists of:

- Increasing the amount of land disposal, especially to existing and future golf courses;
- Shift stream disposal to only those periods where adequate dilution is possible;
- Construct a combined storage/land disposal facility in Martell or other centralized site;
- Construct aerated pond treatment facilities or Membrane Bio Reactor (MBR) facilities in Martell to handle existing and future flows from Amador City, Martell, Sutter Creek, and Jackson;
- Construct a larger tertiary treatment plant in Martell capable of delivering unrestricted Title 22 water; and
- Construct a Jackson WWTP force main.

Phase II components include:

- Transitioning ARSA flows out of the Ione Valley for disposal;
- Expansion of the Martell regional facilities to provide additional treatment;
- Development of a surface discharge to Sutter Creek;
- Construction of an effluent pipeline to Jackson Valley for long-term disposal solutions; and
- Development of other water reuse sites such as parks, ball fields, and other various recreation facilities.

The regional project will reduce potable water demand by providing recycled water, improve wastewater treatment efficiency, meet regulatory requirements, and protect surface and groundwater resources. Additional information can be found in the *Amador County Regional Wastewater Management Plan*.

Table 5-41: Regional Wastewater Project Phase I Summary

<p>Project: Regional Wastewater Project Phase I Project Type: Water Quality / Water Recycling Implementing Agency: Amador Water Agency (AWA)/Sutter Creek/Jackson/Ione/Amador Regional Sanitation Authority (ARSA)</p> <p>Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$42.1 million Funding Sources Available: Unspecified grants</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Water supply reliability • Water quality protection and improvement • Water recycling • Conjunctive use • Water and wastewater treatment 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	5, 6, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 3, 4, 6, 7, 8, 11
<i>Environmental Protection and Enhancement</i>	2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 3, 4, 5, 8

5.4.37 River Pines Water and Wastewater Improvements

There are significant deficiencies in the water and the wastewater treatment system serving the River Pines community in Amador County. Improvements to each system have been identified. The wastewater treatment system is of particular concern because of its proximity to the Cosumnes River and the potential for adversely affecting the River's water quality. The project will prioritize, review previously identified deficiencies, update and establish additional deficiencies, and address the completion of improvements to both systems.

Table 5-42: River Pines Water and Wastewater Improvements Project Summary

Project: River Pines Water and Wastewater Improvements Project Type: Water Quality / Water Supply Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual Environmental Documentation Status: Not started Permitting Status: Not started Estimated Implementation Dates: After 12/2008 Estimated Cost (year): Not yet determined Funding Sources Available: Not yet identified	
Water Management Strategies Employed: <ul style="list-style-type: none"> • Water supply reliability • Groundwater management • Water conservation • Water quality protection and improvement • NPS pollution control • Water and wastewater treatment 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	3, 4, 5, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 6, 7
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	

5.4.38 South Shore Camanche Regional WTP Project (Joint WTP)

There have been multiple feasibility studies and reports conducted over the last 15 to 20 years to improve potable water service in the Camanche area of Calaveras and Amador Counties. This project is the first phase of an effort to update and upgrade the potable treatment facilities for this area, including AWA County Service Area (CSA) #3.

The Wallace Lake/Lancha Plana/Burson area is currently served exclusively by private wells experiencing unreliable groundwater supplies due to an overdrafted basin, failing wells, and groundwater quality problems, such as naturally occurring arsenic, iron, manganese, and hydrogen sulfide.

The Camanche North Shore WTP (CANS) and Camanche South Shore WTP (CASS) serve the Camanche Recreation area. CANS is located on the north shore of Camanche Reservoir and the northern side of the mobile home park #1 community and treats approximately 187,000 gallons per day. It was acquired by EBMUD in 1991 and has been operated by them since then. The CASS WTP has been in operation since 1973 and was also acquired by EBMUD in 1991. This plant has a design capacity of 0.691 MGD. CASS meets current California Department of Health Services (DOHS) drinking water quality standards, but will likely be unable to meet future regulations. The South Shore and North Shore treatment plants have reached the end of their useful life after 30 years of service, especially because of the poor condition of the concrete pipes that house the filters and coagulant mixing chambers.

This project includes a new water treatment plant and distribution pipelines. A new 2.0 MGD WTP will be constructed on the South Shore of Camanche reservoir on EBMUD property. A new pipeline will be built from the Mokelumne Aqueduct to the WTP and a second pipeline will be constructed across Lake Camanche to connect the plant to the Camanche North Shore and AWA systems. The new CASS WTP will use ultra-filtration, a water treatment technology capable of meeting current and future drinking water quality standards. The backwash from the WTP will be recycled for local use.

Benefits to the Camanche area, a disadvantaged community of Amador County, will include water quality improvements, water conservation, improved water supply reliability, and multi-million dollar savings in wastewater treatment avoided costs. By reducing the naturally occurring contaminants in the source water, there will be a reduction in contaminants in the wastewater discharges. Pursuant to requirements of CEQA, a study was performed which determined that the project may have potential biotic impacts related to wetlands, habitat, and certain species. Mitigation measures will reduce these impacts to an insignificant level. Construction of the treated water pipeline through Camanche Reservoir also has potential to disturb bottom sediments, but the effects will be localized and short-term. Continuous monitoring and focused construction techniques will be implemented to minimize sediment disturbance and to eliminate effects on reservoir water quality.

This project could be linked to the Camanche – New Hogan Phase II Water Distribution Loop Project and the expanded Jenny Lind WTP near New Hogan Reservoir in the Rancho Calaveras area. All of these have the overall objective of improving water supply reliability in northwestern Calaveras County.

The project design is 90% complete and the CEQA review has been completed. Engineering design is anticipated to be finished by the fall of 2006. Construction is likely to begin in mid- to late-2007 with project startup to follow by late-2008. The project will cost approximately \$8 million with funding available from rates, private developers, and grants.

Table 5-43: South Shore Camanche Regional Water Treatment Plant Project Summary

<p>Project: South Shore Camanche Regional WTP Project (Joint WTP) Project Type: Water Supply Implementing Agency: Calaveras County Water District (CCWD)/East Bay Municipal Utility District (EBMUD)/Amador Water Agency (AWA) Design Status: Design is 90% complete Environmental Documentation Status: EIR/EIS complete Permitting Status: Complete Estimated Implementation Dates: 2007 to 2008 Estimated Cost (year): \$8 million (2006) Funding Sources Available: Rates, private developers, and grants</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Water supply reliability • Groundwater management • Water conservation • Water quality protection and improvement • Conjunctive use • Land use planning • Water and wastewater treatment • Water transfers 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 3, 4, 5, 6, 8, 9, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 3, 4, 6, 7, 8, 9, 10, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 4, 5
<i>Regional Communication and Cooperation</i>	1, 2, 3, 4, 5, 6, 8

5.4.39 Temperature Study – Mokelumne and Calaveras Rivers

One of the most important and influential water quality characteristics of aquatic ecosystems is water temperature. It affects several other water quality parameters associated with areas of domestic, environmental, industrial and agricultural applications. For example, as water temperature increases, solubility of gas decreases and solubility of minerals increases. It also has a significant impact on chemical and biological reaction rates, toxicity of contaminants, efficacy of water treatment technologies, and taste and odor. Water temperature directly impacts the evolution, distribution, and ecology of aquatic organisms since most organisms have a distinct temperature range within which they reproduce and compete. There have been past water temperature studies focused on water quality as it relates to hydroelectric power generation. Detailed studies are lacking and the assessment of such locations will increase knowledge regarding water development.

This study will be completed in two phases. Phase I will study the Mokelumne River and Phase II will study the Calaveras River. Approximately 108 potential water quality sample sites have been identified within the Upper Mokelumne River Hydrologic Unit. This study is a three year project, characterizing flow and temperature conditions by monitoring stream flow, air and water temperatures, riparian habitat quality, and basic water quality parameters – dissolved oxygen, conductivity, pH, turbidity, etc. Air and water temperature data will be collected hourly, utilizing Optic Stowaway Temperature Data Loggers.

This study will collect data in order to characterize the system, develop initial assessment, allow the results to be applied on a large scale, and develop a detailed approach for management. From the results of the study, a regional framework for the assessment of small low elevation watersheds and future development, including land use planning, water use planning, and increased efficiency of current water projects will be developed.

The total project cost is estimated at \$608,990 including equipment, staff, and administrative costs.

Table 5-44: Temperature Study – Mokelumne and Calaveras Rivers Project Summary

Project: Temperature Study – Mokelumne and Calaveras Rivers	
Project Type: Environmental / Habitat	
Implementing Agency: Upper Mokelumne River Watershed Council (UMRWC)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$608,990 (2006)	
Funding Sources Available: Not yet determined	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Water quality protection and improvement 	<ul style="list-style-type: none"> • Land use planning • Watershed planning
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	3
<i>Water Quality</i>	
<i>Environmental Protection and Enhancement</i>	2, 4, 5
<i>Regional Communication and Cooperation</i>	

5.4.40 Treated Water to Residents Using Untreated Water

Historically, some residents of Amador County along the Amador Canal and JVID irrigation system have utilized untreated water in their homes for domestic use. Water is transferred from Lake Tabeau via the Amador Canal conveyance system and from Lake Amador via the Jackson Valley irrigation pipeline system. This project will provide treated domestic water supply to these residents by placing new pipelines to convey treated water to their homes. It will also extend treated water service to the Bosse/Previtali area, the Buena Vista area, the Oaks Residential area, and residents along the Amador Canal. It would replace an antiquated raw water delivery system to homes with a potable water supply.

Supplying treated water will reduce potential health hazards from the domestic use of the existing untreated water service. An additional benefit will be improved conveyance efficiency by eliminating loss and maximizing resources.

Since this design is currently conceptual, the location, cost, and construction dates have not yet been determined.

Table 5-45: Treated Water to Residents Using Untreated Water Project Summary

Project: Treated Water to Residents Using Untreated Water	
Project Type: Water Supply	
Implementing Agency: Amador Water Agency (AWA)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): Not yet determined	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Ecosystem restoration • Water conservation 	<ul style="list-style-type: none"> • Water quality protection and improvement • Water and wastewater treatment
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	3, 4, 5, 8, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 6, 7
<i>Environmental Protection and Enhancement</i>	
<i>Regional Communication and Cooperation</i>	

5.4.41 Upper Mokelumne River Watershed Bacteria Monitoring Plan

Bacterial monitoring within the Upper Mokelumne River watershed has revealed potential impairment of beneficial uses in some areas linked to contamination of the water with fecal matter. An additional potential contaminant has been identified beyond the earlier water quality studies. The Upper Mokelumne River Watershed Council (UMRWC) seeks to characterize the water quality conditions and identify the sources of total coliform, *E. coli*, and *Enterococcus* within the Upper Mokelumne River network for the purpose of targeting resources to implement management measures that will alleviate some of these problems. The Upper Mokelumne River Watershed Council will collaborate with other agencies and organizations that have an interest in this watershed, to pool monitoring resources for the benefit of all stakeholders including community members, landowners, industry, and regulatory agencies.

The Upper Mokelumne River Watershed Authority (UMRWA) has recently completed a water quality assessment for the Upper Mokelumne River through a CALFED funded watershed grant. As Phase II of the CALFED grant the UMRWA is currently completing a Watershed Management Plan focused on water quality for the Upper Mokelumne River Watershed.

A complete fecal coliform and *E. coli* investigation is needed to better understand watershed processes and bacteria levels from natural versus anthropogenic sources within the Upper Mokelumne River watershed. Since the first bacteria study documented the levels of bacteria, this study is needed to identify the potential sources and reasons for high bacteria levels in some areas of the watershed and the solutions for reducing or eliminating such pollutants. This information will help to strengthen the recently developed water quality assessment for the Upper Mokelumne watershed as well as the existing watershed management plan efforts for the Upper Mokelumne. Additional benefits include the potential to evaluate riparian land use practices within the watershed as well as target priority restoration areas.

The UMRWC has an active and involved public outreach component. Increased public education and related activities will continue to be an important element of this project. Septics and livestock are likely sources of bacteria. Efforts to effectively capture and manage stormwater will likely be part of the solution. Private wastewater systems in need of repair or replacement will also be identified. By identifying contaminants and improving water quality, the public's health will be protected, both the members drinking the water and using the watershed recreationally.

This project can be integrated with the recently completed Phase I CALFED funded Upper Mokelumne River Watershed Assessment, Phase II CALFED funded Watershed Management Plan, Amador and Calaveras County General Plan updates, and strategies regarding watershed planning and land use. This project should help to protect water quality and riparian habitats throughout the watershed.

Table 5-46: Upper Mokelumne River Watershed Bacteria Monitoring Plan Summary

<p>Project: Upper Mokelumne River Watershed Bacteria Monitoring Plan Project Type: Water Quality Implementing Agency: Upper Mokelumne River Watershed Council (UMRWC)</p> <p>Design Status: In design Environmental Documentation Status: Project description complete Permitting Status: Not started Estimated Implementation Dates: Not yet determined Estimated Cost (year): \$135,000 (2006) Funding Sources Available: Not yet identified</p>	
<p>Water Management Strategies Employed:</p> <ul style="list-style-type: none"> • Ecosystem restoration • Stormwater capture and management • Water quality protection & improvement • Land use planning • Water and wastewater treatment • Environmental and habitat protection and improvement • Recreation and public access • NPS pollution control • Watershed planning 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	
<i>Flood Protection</i>	
<i>Water Quality</i>	1, 2, 5, 6, 7, 8, 9
<i>Environmental Protection and Enhancement</i>	1, 4, 5
<i>Regional Communication and Cooperation</i>	3, 4, 7

5.4.42 Upper Mokelumne River Watershed Management Plan

The Upper Mokelumne River Watershed Authority (UMRWA) has recently completed a water quality assessment for the Upper Mokelumne River through a CALFED funded watershed grant. A number of additional watershed assessments or similar documents have been completed by other watershed stakeholders including Sierra Pacific Industries, Pacific Gas and Electric (PG&E), and Bureau of Land Management. As Phase II of the CALFED grant, the UMRWA is currently completing a Watershed Management Plan focused on water quality for the Upper Mokelumne River Watershed. To date, watershed management plans are incomplete as they have not addressed other important watershed features and processes including land use and recreation, water conservation, riparian habitat conditions, wildlife habitat, community planning, water supply management, commercial forest operations, working landscapes, and similar potential threats to water quality. This plan will build upon the previous assessments and address the other watershed attributes.

A complete watershed management plan is needed that will integrate much of the water quality management plan information into a comprehensive watershed management plan for the Upper Mokelumne River watershed. This document will help direct future watershed restoration and land use policies within the region by prioritizing restoration needs, resource conservation strategies and projects, and adoption of local and regional land use policies designed to provide a comprehensive management plan for the Upper Mokelumne River watershed resources.

Table 5-47: Upper Mokelumne River Watershed Management Plan Summary

Project: Upper Mokelumne River Watershed Management Plan	
Project Type: Water Quality	
Implementing Agency: Upper Mokelumne River Watershed Council (UMRWC)	
Design Status: Conceptual	
Environmental Documentation Status: Not started	
Permitting Status: Not applicable	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$1.25 million (2006)	
Funding Sources Available: Not yet identified	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Ecosystem restoration • Water supply reliability • Groundwater management • Stormwater capture and management • Water quality protection & improvement • Wetlands enhancement and creation • Land use planning • Surface storage 	<ul style="list-style-type: none"> • Water and wastewater treatment • Environmental and habitat protection and improvement • Flood management • Recreation and public access • Water conservation • NPS pollution control • Watershed planning
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	3, 7, 8
<i>Flood Protection</i>	2, 3, 4
<i>Water Quality</i>	1, 2, 5, 6, 7, 8, 9, 10, 11
<i>Environmental Protection and Enhancement</i>	1, 2, 3, 4, 5
<i>Regional Communication and Cooperation</i>	1, 4, 5, 6, 7

5.4.43 West Point Water Distribution Replacement Project

The low Median Household Income (MHI) community of West Point, located in Calaveras County is experiencing serious deficiencies in its World War II era water distribution system. An engineering analysis (HDR Inc., 2004) estimates approximately 30% - 40% of the treated water supply is lost through the water distribution system, and therefore does not meet California Fire Code standards for fire flow. These losses due to deteriorating pipes, combined with inadequate pipe sizes throughout the system create an intolerable Health & Safety issue for the community. The recently updated CCWD Multi-Hazard Mitigation Plan reports the area is at extreme risk of catastrophic fire because of topography, fuel loading from decreased logging, and severe weather patterns.

Water supply currently on wells, coupled with failing septic tanks potentially contaminates drinking water, creating another Health & Safety issue. The water distribution system improvements will improve the Health & Safety of the entire community of West Point, as well as assist the community's ability to fight fire.

The preliminary engineering report project construction cost estimate is \$3.8 Million (2004 Dollars). Funding sources include an USDA – RUS loan grant submitted in June 2005 and a CDBG Public Infrastructure grant in October 2006. An unsuccessful DWR Water Use Efficiency grant application was submitted in January 2005; the next cycle application is due in mid-December 2006.

Table 5-48: West Point Water Distribution Replacement Summary

Project: West Point Water Distribution Replacement Project	
Project Type: Water Supply	
Implementing Agency: Calaveras County Water District (CCWD)	
Design Status: Pre-design	
Environmental Documentation Status: Project description complete	
Permitting Status: Not started	
Estimated Implementation Dates: Not yet determined	
Estimated Cost (year): \$3.8 million (2004)	
Funding Sources Available: USDA – RUS loan grant and a DWR Water Use Efficiency grant	
Water Management Strategies Employed:	
<ul style="list-style-type: none"> • Water supply reliability • Water quality protection and improvement • Water conservation 	
M/A/C IRWMP Goals:	Objectives:
<i>Water Supply</i>	1, 2, 8, 10
<i>Flood Protection</i>	
<i>Water Quality</i>	2, 7
<i>Environmental Protection and Enhancement</i>	1
<i>Regional Communication and Cooperation</i>	6, 7, 8

5.5 Regional Overlaps

Proposition 50 Chapter 8 has asked governmental and non-governmental entities to define planning regions based on any number of criteria ranging from physical to political. Authors of the *Guidelines* acknowledged that “individual agencies or organizations may participate in different regional efforts depending on geography, Plan objectives, or other relevant factors.” Participants in the M/A/C and GBA IRWMP efforts view that there is a logical separation in place between their regions. However, they also recognize that they share a common boundary, and in particular a hydrologic and hydrogeologic connection along that boundary. Hence there are certain lands and projects that by definition should be included in a joint context in their IRWMPs. This created a need for further project definition, specifically that there are intra-regional projects and inter-regional projects.

Intra-regional projects will have all of their facilities within a single region. Their impacts will be generally limited to within a single IRWMP region. Inter-regional projects are those that involve facilities or implementation steps in one or more IRWMP regions and/or have clear and direct impacts and benefits in more than one region. They require coordination with entities in other regions that could be impacted to maximize project and regional benefits. Due to the benefits provided by an inter-regional project, either of the two interested regions could initiate the project process by suggesting it to the other involved regions.

With proper planning and coordination, it is the mutual intention of the parties that this overlap of projects with components that cross regional boundaries will not be contentious. Instead it will provide valuable IRWMP linkages and synergistic effects. This section, a version of which is included in both the M/A/C IRWMP and the GBA IRWMP, discusses the importance of maintaining separate regions that are mutually connected, and how the two regions will approach regional planning efforts in regards to projects that require this broader participation. This chapter could also serve as a planning tool for the Mokelumne River Forum to address the differing interests within the Mokelumne River basin.

5.5.1 Separate but Connected Regions

The shared boundary overlap between M/A/C IRWMP and the GBA IRWMP inherently encouraged the current coordination efforts which have lead participants to voice their commitment to allow for future coordinated projects. Figure 5-1 shows the regional boundaries and what may be considered an overlapping area.

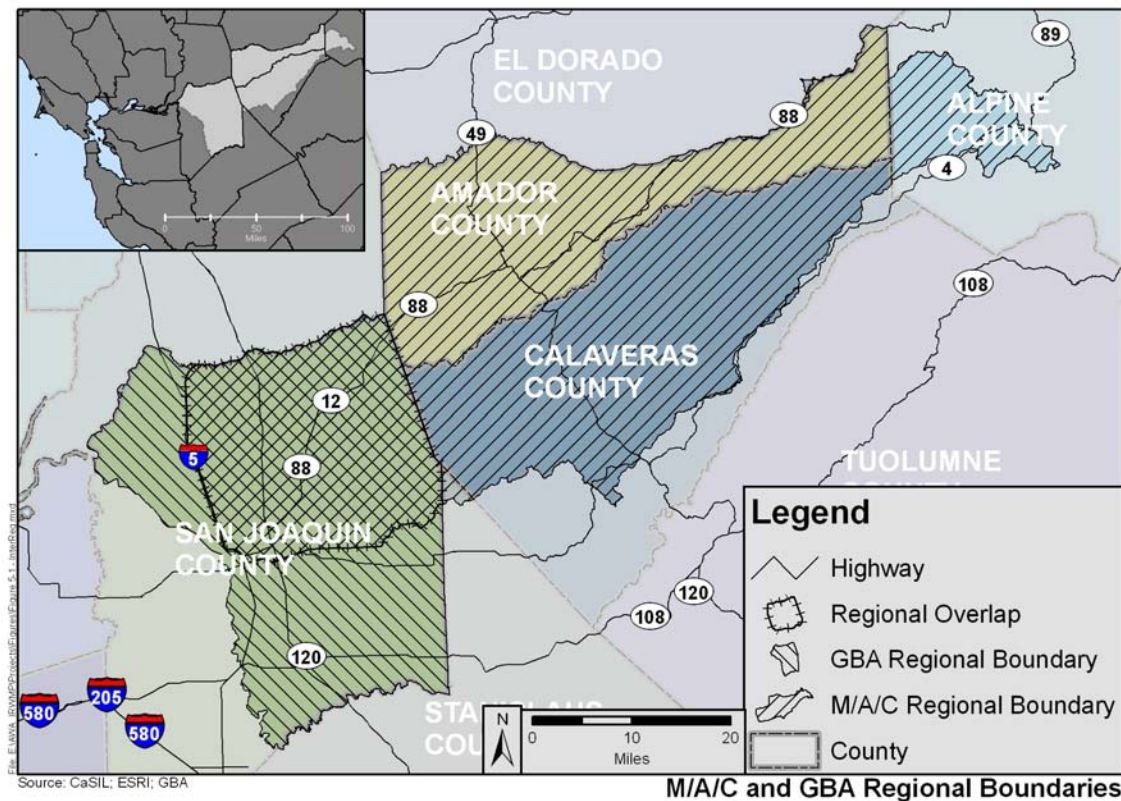


Figure 5-2: M/A/C and GBA Regional Boundaries

An IRWM regional boundary is not defined solely by the fact that it abuts that of another region. Maintaining separate GBA and M/A/C regions has been done for a number of reasons, some of which are listed below.

Water Supply – The two regions utilize different water supplies. The M/A/C region currently relies on surface water for approximately 98% of its supply. The GBA region also uses surface water but relies heavily on the groundwater supplies and storage. Hence resource managers within the respective regions use different techniques and infrastructure to meet their current customer needs. Further, their planning exercises, such as the identification of measures to maximize efficiency and use of existing supplies, as well as their development of new and/or expanded sources of water supplies are often particularly tied to whether they rely primarily on a surface water source, as per most M/A/C agencies and stakeholders, or a groundwater source, as per most GBA agencies and stakeholders.

Established organizations/history – The two regions can be generally described by their geographic/topographic location. The GBA region is characterized as central valley, while the M/A/C region is a foothill/Sierra region. Each region has already established working groups and committees and understand the needs of the other agencies within its region and the issues that each face. In most part the needs are defined by the activities that can be performed within the respective topographic setting (e.g., farming in the Central Valley). The individual regions are familiar with their constituents and interest groups, and can therefore be more responsive to their interests and needs. Often, interests and needs share a commonality, such as the concern regarding saline intrusion into the groundwater supply.

The Mokelumne River Forum (MRF) is a collaborative process that has formed with the goal of operating across regional boundaries to address the differing and common interests within the Mokelumne River basin and provide opportunities for inter-regional cooperation. Although the MRF is operating across boundaries most projects are planned and completed through intra-regional avenues.

Socioeconomic differences – The GBA region has a much higher population density (San Joaquin County has a population density of about 403 people/sq. mile) and the existence of major urban centers such as the Cities of Lodi and Stockton. Outside of those urban centers, the region is primarily agricultural. The M/A/C region does not have urban centers but instead has a number of smaller towns with a much lower population density than is present within the GBA region (the counties of Amador and Calaveras have population densities of about 59 and 40 people/sq. mile, respectively). The M/A/C region is primarily open space and forest. These differences in population density and industry impact the manner in which various agencies approach the planning, implementation, and financing of individual projects.

Although the justification for separate regions is undeniable, there is also an undeniable opportunity to take advantage of instances where resources from the respective regions can combine to meet a broader range of needs and provide greater (inter-regional) benefits. Examples of this include the potential to develop a conjunctive use project that would serve both GBA and M/A/C participants as well as the potential for the expanding existing reservoirs such that the added supply could serve both regions. Both of those examples are described in the section that follows. It should be noted that the project examples at best could be considered in a preliminary stage, as a host of planning activities would need to be performed to move them past a conceptual level.

Showing a connection between the two regions is recognition of the importance of inter-regional projects. However, participants in both the GBA and the M/A/C IRWMP regions realize that these inter-regional projects are long-term efforts that must be carefully planned and require a more complex if not exhaustive outreach, evaluation and development process. Connecting, but not combining the two regions allows the participants in each region to independently pursue projects that benefit their own region, but also to coordinate with their neighbor when feasible.

5.5.2 Mokelumne River Forum

The Mokelumne River Forum (MRF) is an open stakeholder process intended to resolve conflicts and improve water supply availability and reliability in the Mokelumne River basin. In April 2005, members of the MRF signed a Memorandum of Understanding (MOU) and agreed to work cooperatively to develop mutually beneficial solutions to meet water supply and related needs of the region that can be widely accepted. MOU signatories include the State of California Department of Water Resources, Alpine County, Amador County, Amador Water Agency, Calaveras County Water District, Calaveras Public Utilities District, the City of Lodi, the City of Stockton, East Bay Municipal Utility District, Jackson Valley Irrigation District, North San Joaquin Water Conservation District, San Joaquin County Flood Control and Water Conservation District and Mokelumne River Water and Power Authority, Stockton East Water District and/or Central San Joaquin Water Conservation District, Woodbridge Irrigation District and the San Joaquin Farm Bureau Federation. The MRF is also open to other organizations and groups that are not MOU signatories but have a direct interest in the Forum's goals.

A collaborative planning process is underway in which the MRF participants are coordinating various water resources planning efforts across regional boundaries with respect to river hydrology, facilities, infrastructure and institutional arrangements required for the inter-regional projects.

The MRF includes the agency leadership that is preparing both the GBA and M/A/C IRWMPs for their respective regions in the central San Joaquin County valley and the foothill/Sierra region, and it has the potential to include a range of stakeholders from the environmental, regulatory and business community. While each of the respective IRWMPs focuses on meeting the needs in a specific region, there is a unique opportunity to meet a broader range of needs and provide greater inter-regional benefits. The MRF provides a vehicle for developing these proposed inter-regional projects.

5.5.3 Inter-regional Project Summaries

This section describes the inter-regional aspects of some projects that have been identified as having significant benefits to both the GBA and M/A/C regions. Project details and prioritization are described elsewhere in this IRWMP.

Inter-Regional Conjunctive Use Project (IRCUP)

The purpose of the Inter-Regional Conjunctive Use Project (IRCUP) is to provide inter-regional water supply reliability benefits in Amador, Calaveras, and San Joaquin Counties, and within the East Bay Municipal Utility District (EBMUD) service area. The project will also demonstrate the feasibility of incremental conjunctive management of the Eastern San Joaquin and Cosumnes Sub-Basins and could serve as the basis for future projects.

The concept is that the area-of-origin counties – Amador and Calaveras Counties, secure new Mokelumne water rights with a portion of the water for use within those counties with the balance stored in the San Joaquin Valley Groundwater Basin. In wet years some water will be diverted for use by Amador and Calaveras with the remaining water to be conveyed through EBMUD facilities for storage in Eastern San Joaquin and Cosumnes Sub-Basins. In dry years water stored in San Joaquin will be available to San Joaquin and via exchange to Amador, Calaveras and EBMUD. Further detail is provided below. Figure 5-3 is a schematic of the different operations in wet and dry years.

- **New Surface Water Supply:** Amador County and Calaveras County water purveyors would have lead responsibility in securing additional surface water right through a “partial assignment” under the 1927 State Filings, which pre-committed a major portion of the Mokelumne River’s flow for their future use. The new assignment would allow diversions from the river to be used within Amador and Calaveras Counties, and other water diversions could be banked in groundwater for later use in Amador, Calaveras, and San Joaquin Counties and in EBMUD’s service area.
- **Wheeling Facilities:** Through multi-lateral agreements among the parties, EBMUD’s water supply facilities could be used to regulate the flow of water into the regional groundwater bank in San Joaquin County. The parties would rely on EBMUD’s existing facilities to exchange the banked water to Amador and Calaveras Counties. San Joaquin County’s groundwater basin would be used for banking the water in wet years for use in dry years. San Joaquin County would develop agreements with individual farmers that would be a participant in this inter-regional project. These farms would use surface supplies during the wet years and groundwater during dry years.
- **Storage in the Eastern San Joaquin and Cosumnes Sub-Basins:** This IRCUP would be consistent with the Eastern San Joaquin and Cosumnes Sub-Basins management objectives and contribute towards the goal of solving the groundwater overdraft in the critical areas within San Joaquin. If the project proves to be feasible in helping to reverse the overdraft condition in the groundwater basin, some or all of the parties could pursue additional stages to expand the groundwater banking project. During wet years, the water could be banked within the San Joaquin basin aquifer in a region where it would be most effective in meeting groundwater management goals. For example, it could contribute to a salinity barrier, or it could recharge those regions where the groundwater is most depleted. The groundwater extraction facilities could be located in an area where they could have the least impact on the groundwater overdraft.
- **Institutional Arrangements and Financing:** Each participating agency would negotiate institutional arrangements that would enable the IRCUP to proceed:

Sources of Water Entitlement – Amador County and Calaveras County water purveyors would secure surface water rights through their 1927 State Filings in accordance with Water Code

Section 10500, et seq. and the participating agencies shall respect such county of origin water rights.

Water Transfer & Exchange Projects – An IRCUP variation may be proposed where the source of water is developed from proposed and existing water rights or contracts. This type of IRCUP will likely contain most, if not all, of the common project components discussed previously (local diversions, groundwater storage, transfers, and exchanges).

Groundwater Export Ordinance – San Joaquin County will grant permits enabling Amador, Calaveras and EBMUD to store water in the groundwater basin during wet years for use in dry years.

Infrastructure Facilities Usage and Ownership – The parties shall develop agreements for water transfer and/or exchanges that respect the use and ownership of EBMUD’s storage and conveyance facilities and the Eastern San Joaquin and Cosumnes Sub-Basins.

Securing Funding – The parties shall jointly participate in a cost-sharing agreement, and seek state and federal grant funding to offset the cost of the IRCUP.

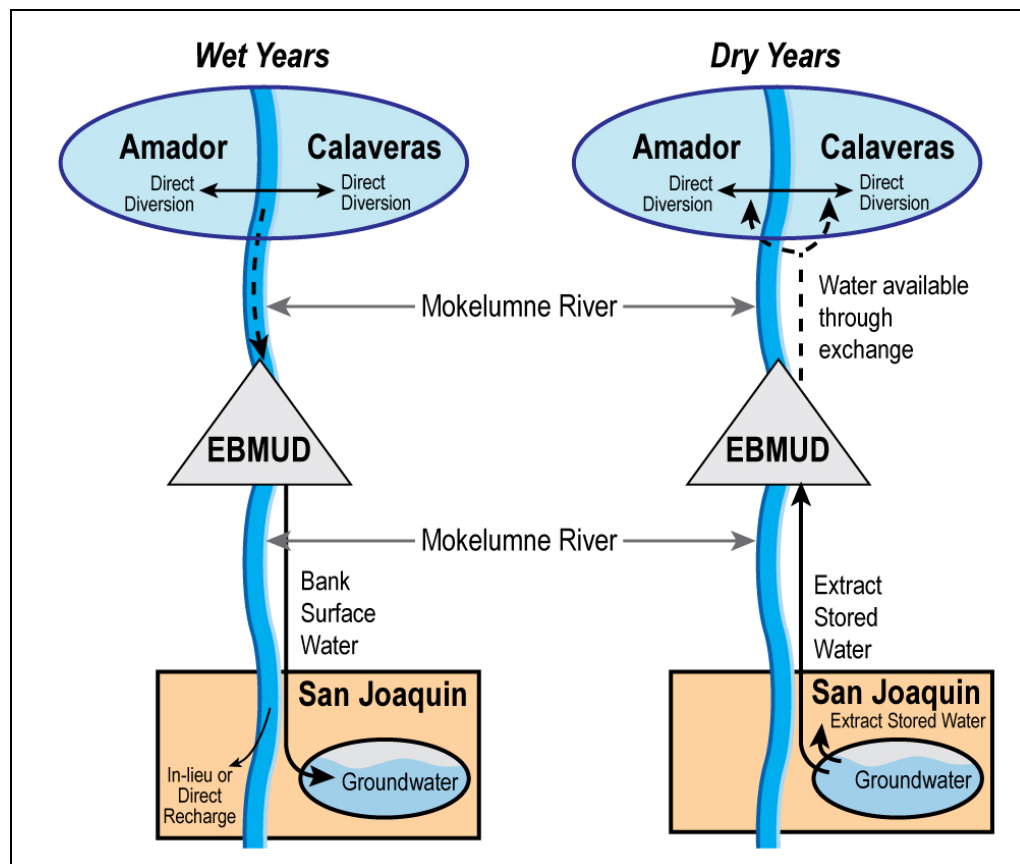


Figure 5-3: Inter-Regional Conjunctive Use Project Schematic

The IRCUP does not have to be limited to existing facilities. The IRCUP is flexible and expandable and could take many forms or be split into several different projects. As an example of this flexibility and

expandability, the IRCUP could be integrated with a new off-stream surface storage facility such as the proposed MORE WATER Project – Duck Creek Reservoir in San Joaquin County¹. The IRCUP could also be integrated with new inter-ties to adjacent basins such as the Calaveras River system, or by using unassigned capacity from the Freeport Regional Water Project in Sacramento County. These facilities could link the Mokelumne River watershed to these adjacent basins. New facilities could be constructed to selectively divert high flows on the Mokelumne or nearby river systems where they could be regulated for an integrated system of conjunctive use projects. Integrating the IRCUP with these other facilities could increase the inter-regional benefits from this project.

Bear River Reservoir Expansion Project

Raising the existing Lower Bear dam by 32 feet is a likely alternative identified as a means to increase surface water storage capacity in the upper Mokelumne watershed. While any of the three alternative projects listed would be constructed entirely within the M/A/C region, coordination is desirable with entities within the GBA region. The additional 26,407 AF of storage could impact the releases from the Bear River which in turn could impact downstream entities and the environment but if done properly, it could be beneficial. Coordination is desired to minimize and/or mitigate negative impacts on the River system as well as maximize potential benefits to stakeholders, upstream and downstream within both regions.

Based on a preliminary review of the concept as developed to date, the Bear River Reservoir Expansion Project would benefit both regions by providing additional control over stream flow, reservoir release timing, and release magnitude. There are obvious benefits to a conjunctive use project. Releases can be timed to not overwhelm diversion and recharge facilities while still allowing for habitat and pathways for natural species.

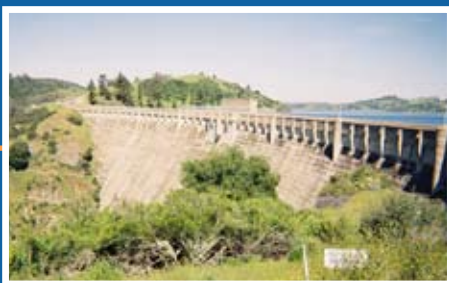
Enlarge Pardee Reservoir

Enlarging the Pardee Reservoir achieves similar but greater benefits for both regions as the Bear River Reservoir Expansion Project. The Pardee Reservoir is completely within the M/A/C region but modifications to the reservoir or operations would impact or benefit the downstream GBA region. Benefits include additional storage, greater flood protection, and better control over reservoir release timing and magnitude. This last benefit of enlarging the Pardee Reservoir has trickle down benefits for environmental resources and additional conjunctive use projects.

¹ The MORE WATER Project – Duck Creek Reservoir in San Joaquin County is discussed in the San Joaquin GBA IRWMP.

Chapter 6

Project Prioritization



Chapter 6 Project Prioritization

6.1 Purpose

In its simplest form, the purpose of project prioritization is to identify those projects with highest value, as defined in the IRWMP, to the region. The means by which this prioritization is achieved can vary significantly, but for a process that aims to achieve integrated and regional results, the selection of projects to be implemented must ultimately be achieved through consensus. For the purposes of this IRWMP, consensus is defined as the process by which agreement is reached by a group as a whole.

The prioritization process developed for the M/A/C IRWMP projects screened and ordered the projects using a two-tiered process. The result of this process was a list of projects that best meet both IRWMP regional and state goals and objectives for water resource management while highlighting those projects ready for implementation and those that would provide the highest ratio of benefits for the investment. The prioritized list of projects does not reflect a recommended implementation order, a funding priority, nor the priority of the projects to individual agencies and organizations.

6.2 Metrics

The two-tiered prioritization process used in the M/A/C IRWMP consisted of a preliminary screening (Tier 1) followed by detailed project screening (Tier 2).

6.2.1 Tier 1 Prioritization

The first tier of screening consisted of two steps and yielded projects that were in-line with state and regional goals, and therefore would be included in the IRWMP. Tier 1 prioritization could also be considered project screening or an application of inclusion criteria.

Step 1 of Tier 1 compared projects with both State Water Resources Control Board and regional goals, objectives, preferences, and priorities (see Chapter 4 of this document for more details). In this level of screening, one point is awarded for each goal, objective, or priority achieved by the project.

In Step 2 of the Tier 1 prioritization process, each project was compared with the list of water management strategies contained in the Prop 50 IRWMP Guidelines. These strategies were created to identify the “themes” contained in the project and include the following:

- Water supply reliability
- Groundwater management
- Water quality protection and improvement
- Ecosystem restoration
- Conjunctive use
- Environmental and habitat protection and improvement
- Stormwater management
- Flood management
- Water recycling
- Water conservation
- Water and wastewater treatment
- Wetlands enhancement and creation
- Recreation and public access
- Non-Point Source (NPS) pollution control
- Watershed planning
- Land use planning

As with Step 1 of the Tier 1 screening, one point was assigned for each water management strategy addressed by a project.

Together, these two preliminary screenings identified the projects that best met both regional goals and objectives and the State's priority for the IRWM process. Those projects that would help to meet at least one regional goal and one State goal and utilized at least one of the water management strategies was included in the IRWMP and passed to Tier 2 of the prioritization process.

6.2.2 Tier 2 Prioritization

The Tier 2 prioritization process yields the prioritized list of IRWMP projects and includes three steps.

The Tier 2 Step 1 process relies on the overall, highest priority regional criteria as determined by the Plan Advisory Committee (PAC). Those criteria are:

1. Update antiquated water and wastewater infrastructure
2. Additional regional water supply through:
 - a. Addition of reclaimed water as a supply alternative
 - b. Improving the ability to wheel water around, within, and between watersheds
 - c. Developing means to save perfect rights/store surplus water for use during dry years
3. Increase fire suppression capabilities

Within these criteria, the first and second are considered co-equal, with criterion number 3 subordinate to these other two criteria. The output of this process is three groups of projects. The top group of projects meets either the first or second criteria. If a project meets the third criteria but neither of the primary criteria, the project will be grouped into the second group. Projects meeting none of the priority criteria are placed into the third group. Refinement of the prioritization occurs within the groupings. This method ensures that those projects helping to fulfill the regions greatest needs are ranked higher than those that don't.

Step 2 of the Tier 2 process evaluates each project on the basis of benefits achieved by the project. This evaluation focuses on four criteria:

1. Economic benefits – In its simplest form, this evaluation estimates the equivalent monetary value of the benefits and costs to the agency to establish whether they are economically feasible. In order to reach a conclusion as to the desirability of a project, all aspects of the project, positive and negative, must be expressed in terms of a common unit (typically the dollar value of obtaining, treating and delivering one acre-foot of water). The essence of a cost-benefit analysis is to bring together the whole range of relevant costs and benefits which are incurred and realized in a set time period and to determine whether an overall gain or loss is sustained.
2. Regional need – Addresses how well the project meets regional needs. A particular project may meet regional needs better than other projects. Those with greater benefits, or more “regional value”, were given a higher score.
3. Multi-agency/entity benefits – Identifies those projects that benefit multiple agencies or organizations. A project that benefits more than one agency will benefit a larger population, utilizes economies of scale, reduces regional conflicts, and is more likely to incorporate multiple benefits in multiple resource areas.
4. Disadvantaged community benefits – Evaluates how well each project does in serving local disadvantaged communities (or DACs).

Due to the conceptual nature of many of the projects and incomplete data, these projects were evaluated qualitatively. For each of the above criterion, a project was assigned a ranking of low (0 points), medium

(1 point), high (2 points) or very high (3 points). Projects with higher point totals were ranked higher within their regional criteria group (Step 1 of Tier 2).

In Step 3 of the Tier 2 process, the projects are evaluated based on their readiness to implement. The projects' design/planning status, environmental documentation status, and permitting status are the measures by which projects were assessed. Recognizing that some projects would be faster to move through the design process than others, the submitting agency's estimate of a start date is also taken into account. Projects are grouped during this step into three categories as follows:

- Immediate Implementation – 1 to 2 Year Horizon;
- Near-Term Implementation – 3 to 5 Year Horizon; and
- Long-Term Priorities – 6 to 20 Year Horizon.

Projects closer to implementation scored better in this category than those farther away. The results of this analysis were used to further refine the prioritization results of Tier 2 Step 2.

6.3 Results

The regional project list for the M/A/C IRWMP consists of forty-six projects covering a broad array of projects types. A summary of the results of the project prioritization process described above are described below. Appendix C contains details on how each project compared to the others for each step of the prioritization process.

6.3.1 Tier 1, Step 1: Comparison of Projects with Statewide Priorities and M/A/C IRWMP Goals and Objectives

The SWRCB preferences, statewide priorities and M/A/C IRWMP goals and objectives were discussed in detail in Chapter 4 of this document. Assuming a maximum score of one point for each goal, objective, or priority achieved, a maximum possible score of 46 points could be achieved by any one project (38 points for regional goals and objectives, and eight points for statewide priorities).

Project scores ranged from 2 to 32 points, with the top projects scoring as follows:

- New Hogan Reservoir Pumping Project (32 points)
- South Shore Camanche Regional WTP Project (32 points)
- Backwash Water Reuse Project (31 points)
- Calaveras River Watershed Implementation Plan (29 points)
- Upper Mokelumne River Watershed Management Plan (29 points)
- Cosgrove Creek Project (28 points)
- Lake Camanche WW Improvement Project (28 points)
- Camanche – New Hogan Phase II Water Distribution Loop Project (25 points)
- Highway 4 Corridor Regional Water/Wastewater Project (25 points)
- Highway 12/26 Regional Water/Wastewater Project (24 points)
- Regional Wastewater Project (24 points)
- Jackson Creek Watershed Project (22 points)
- Amador Dry Creek Watershed Assessment Implementation & Management Plan (20 points)
- Bear River Reservoir Expansion Project (20 points)
- Enlarge Pardee Reservoir (20 points)
- Inter-Regional Conjunctive Use Project (18 points)
- Off-stream Storage on Cosumnes River (18 points)
- Off-Stream Storage on Mokelumne and Calaveras Rivers (18 points)
- Highway 88 Corridor Wastewater Treatment/Transportation/Disposal (17 points)

6.3.2 Tier 1, Step 2: Comparison of Projects with Water Management Strategies

As previously described, the State identified 20 water management strategies in its Proposition 50 IRWM Program Guidelines. Using a scoring system similar to that for regional goals and objectives (as described in the prior section), projects were awarded one point for every water management strategy incorporated. The maximum possible score a project could receive was 20 points; project scores range from 1 to 15. The top scoring projects were as follows:

- Upper Mokelumne River Watershed Management Plan (15 points)
- Amador Dry Creek Watershed Assessment Implementation & Management Plan (12 points)
- Calaveras River Watershed Implementation Plan (12 points)
- Jackson Creek Watershed Project (12 points)
- New Hogan Reservoir Pumping Plant (11 points)
- Camanche-New Hogan Phase II Water Distribution Loop Project (10 points)
- Inter-Regional Conjunctive Use Project (10 points)
- Upper Mokelumne River Watershed Bacteria Monitoring Plan (9 points)
- Backwash Water Reuse Project (8 points)
- Cosgrove Creek Project (8 points)
- Lake Camanche WW Improvement Project (8 points)
- Off-stream Storage on Cosumnes River (8 points)
- Off-stream Storage on the Mokelumne and Calaveras Rivers (8 points)
- South Shore Camanche Regional WTP Project (8 points)
- Bear River Reservoir Expansion Project (7 points)
- Enlarge Pardee Reservoir (7 points)
- Highway 88 Corridor Wastewater Treatment/Transportation/Disposal (6 points)
- Leak Testing and Repair Project (6 points)
- River Pines Water and Wastewater Improvements (6 points)

The combination of projects included in this IRWMP considers all of the required water management strategies identified in the *Guidelines*.

6.3.3 Tier 2, Step 1: Regional Analysis

The first step in the second tier of project prioritization is analysis to determine whether or not the project helps to fulfill some of the regions highest priorities. For the M/A/C IRWM region, the analysis focused on whether the projects would:

- 1) Update antiquated water and wastewater conveyance and treatment systems;
- 2) Additional regional water supplies; or
- 3) Improve fire suppression capabilities in the region.

The projects were grouped into three groups as explained in Section 6.2.2. The number of projects in each group was:

- Group 1: 31 projects;
- Group 2: 2 projects; and
- Group 3: 13 projects.

6.3.4 Tier 2, Step 2: Benefit Analyses

The Tier 2, Step 2 prioritization process looked specifically at how the projects benefit the region. This evaluation focuses on the following four criteria:

- Economic benefits;
- Regional needs;
- Multi-agency/entity benefits; and
- Disadvantaged community benefits.

Per the scoring system described in Section 6.2.2, the projects with the highest score within the top group of projects were:

- Highway 4 Corridor Regional Water/Wastewater Project (9 points)
- Regional Wastewater Project (9 points)
- Inter-Regional Conjunctive Use Project (9 points)
- Bear River Reservoir Expansion Project (8 points)
- Enlarge Pardee Reservoir (8 points)

6.3.5 Tier 2, Step 3: Implementation Schedule

Of the 46 projects included in this version of the M/A/C IRWMP:

- 13 projects fall within the immediate implementation category;
- 4 projects fall within the near-term implementation category;
- 1 projects fall within the long-term implementation category; and
- 28 projects have no timeframe defined at this time.

The five projects listed in Section 6.3.4 scored as follows:

- Highway 4 Corridor Regional Water/Wastewater Project (Undefined);
- Regional Wastewater Project (Undefined);
- Inter-Regional Conjunctive Use Project (Undefined);
- Bear River Reservoir Expansion Project (Near-term); and
- Enlarge Pardee Reservoir (Far-term).

These results, and those for the rest of the projects, were used to finalize the prioritized project list as described below.

6.3.6 Final Project Rankings

Table 6-1 shows the results of the synthesis of the M/A/C IRWMP prioritization process.

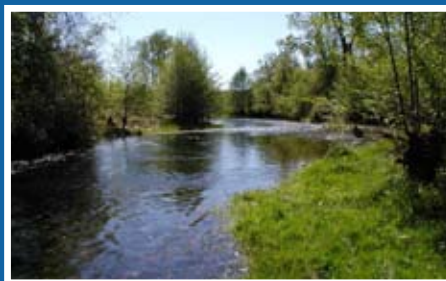
Table 6-1: Final Prioritization List for the M/A/C IRWMP

Project Priority	Project	Proponent
1	Highway 4 Corridor Regional Water/Wastewater Project	CCWD
1	Inter-Regional Groundwater Banking Project	AWA/CCWD/EBMUD/SJ GBA
1	Regional Wastewater Project	Amador City/ARSA/AWA/ Ione/Jackson/Sutter Creek
4	Bear River Reservoir Expansion Project	AWA/CCWD/EBMUD/PG&E
5	Enlarge Pardee Reservoir	AWA/CCWD /EMBUD
6	South Shore Camanche Regional WTP Project (Joint WTP)	AWA/CCWD/EBMUD
7	Highway 12/26 Regional Water/Wastewater Project	CCWD
8	Plymouth Pipeline Improvement Project	AWA/Plymouth
9	Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMWRC
10	West Point Water Distribution System Replacement Project	CCWD
11	Off-Stream Storage on Cosumnes River	AWA
11	Plymouth Wastewater Improvements	AWA/Plymouth
13	Arroyo Ditch Pipe Conversion Project	AWA/Plymouth
13	Ione Amador Plymouth Treated Water Loop	AWA
15	Amador Canal and Ione Canal Pipe Conversion Project	AWA
16	Backwash Water Reuse Project	AWA
17	Lake Camanche WW Improvement Project	AWA/EBMUD
18	Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD
19	CAWP/AWS Inter-tie	AWA
19	Treated Water to Residents Using Untreated Water	AWA
21	Reclaimed Wastewater Line Upgrade	ARSA
22	Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA
23	Leak Testing and Repair Program	AWA
24	Camanche North Shore Wastewater Improvements	EBMUD
24	Camanche South Shore Wastewater Improvements	EBMUD
26	Gayla Manor Wastewater Project	AWA
27	Gravity Supply Line (GSL) Project	AWA
28	Pardee Recreation Area Wastewater Improvements	EBMUD
29	River Pines Water and Wastewater Improvements	AWA
30	Henderson Reservoir Dam Reinforcing Buttress	ARSA
30	Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA
32	CAWP Fire Storage	AWA
33	Low Pressure Flow Improvements	AWA

34	Calaveras River Watershed Implementation Plan	UMRWC
34	New Hogan Reservoir Pumping Project	CCWD
36	Upper Mokelumne River Watershed Management Plan	UMRWC
37	Jackson Creek Enhancement Project	Jackson
38	Cosgrove Creek Project	CCWD
39	Marcucci Lane Culvert Project	Jackson
39	New York Ranch Reservoir Conservation & Management	AWA/Joint
41	Amador Dry Creek Watershed Assessment Implementation and Management Plan	UMRWC
42	Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC
43	Temperature Study - Mokelumne and Calaveras Rivers	UMWRC
44	Amador Breached Dam Removal Project	Foothill Conservancy
45	Jackson Creek Watershed Project	PHAW
46	Broad St. Storm Drain Diversion	Sutter Creek

There are some duplicates in the priority numbers due to the prioritization process sensitivity. Those projects with the same priority number as another project scored the same in all categories in the Tier 2 prioritization process.

Chapter 7
Implementation



Chapter 7 Implementation

As required by the Integrated Regional Water Management Grant Program Guidelines, this section describes the process by which the IRWMP will be implemented, the proposed schedule for each project, a qualitative analysis of the impacts and benefits that each project will provide to the region, the criteria to be used in evaluating each project's technical and economic feasibility, the measures for plan performance, the region's plan for data management and options for project financing. As the projects described in this Plan progress through the design and permitting stages, additional information will be developed in support of one or more of these sections, and the IRWM Plan will be updated accordingly. It is not anticipated that all of the projects included in the IRWMP will be implemented. The IRWMP is a planning document and a collection of potential solutions to water resource challenges. If required, these projects will be modified and designed to meet specific local and regional needs.

7.1 Process for Implementation

As part of the preparation of the M/A/C IRWMP, each participating agency signed a Memorandum of Understanding (MOU) that outlined the roles and responsibilities of the agencies and laid the groundwork through which the IRWMP will be implemented. Central to this MOU and the process it defines are regular monthly meetings of the IRWMP program advisory committee (or PAC) subgroup, composed of MOU signatories and regional stakeholders. These meetings are intended to not only develop the IRWMP but continue coordinating the regular updates to and implementation of the IRWM Plan.

The major obstacles that could arise and potentially hinder the implementation of the IRWMP are opposition from the various stakeholders throughout the region and from permitting agencies that have authority in the region. To minimize these obstacles, the PAC has adopted a consensus approach to IRWMP development and implementation. All stakeholders – from local interest groups to regulatory agencies – are welcome to participate in, and many have participated in, the IRWMP planning process. Providing a forum to address stakeholder concerns in the planning stages of projects and the IRWMP reduces the potential for conflicts during the implementation stage. Where project impacts are identified, mitigation measures will be necessary. The measures which could be required in order to obtain regulatory approval for projects may also serve as obstacles to plan implementation. To minimize regulatory obstacles, the PAC will coordinate with local, state and federal regulatory agencies, as well as the project's proponents, early in the process to determine necessary corrective actions.

As the projects outlined in this Plan are implemented, the issues and needs of the region are expected to change. The on-going efforts of the M/A/C IRWMP PAC will include review of the plan performance measures, reprioritization or development of new strategies, and, as appropriate, updates to the IRWMP.

7.2 Implementation Schedule

The M/A/C IRWMP will be implemented through near- and long-term projects and programs designed to achieve the regional goals and objectives described in Chapter 4. The prioritization strategy discussed in Chapter 6 is used to stage the progression of the projects and programs identified in the M/A/C IRWMP. Through short- and long-term regional project implementation, the planning agencies will begin to achieve the region's goals. The implementation schedule and entity responsible for each prioritized project and program in the M/A/C IRWMP is included in Table 7-1.

Table 7-1: Project/Program Implementation Schedule

Projects and Programs	Responsible Agency(ies)	Primary IRWMP Objective	Anticipated Implementation Date
Camanche North Shore Wastewater Improvements	EBMUD	Water Quality	Ongoing
Camanche South Shore Wastewater Improvements	EBMUD	Water Quality	Ongoing
Pardee Recreation Area Wastewater Improvements	EBMUD	Water Quality	Ongoing
Amador Canal and Lone Canal Pipe Conversion Project	AWA	Water Supply	2007
Backwash Water Reuse Project	AWA	Water Recycling	2007
Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD	Water Supply	2007
Gayla Manor Wastewater Project	AWA	Water Quality	2007
Jackson Creek Enhancement Project	Jackson	Environmental/Habitat	2007
Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMWRC	Water Supply	2007
Plymouth Pipeline Improvement Project	AWA/Plymouth	Water Supply	2007
South Shore Camanche Regional WTP Project (Joint WTP)	AWA /CCWD/EBMUD	Water Supply	2007
Gravity Supply Line (GSL) Project	AWA	Water Supply	2008
Lake Camanche WW Improvement Project	AWA/EBMUD	Water Quality	2008
CAWP Fire Storage	AWA	Water Supply	2009
Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA	Water Quality	2010
River Pines Water and Wastewater Improvements	AWA	Water Quality	2010
Bear River Reservoir Expansion Project	AWA/EBMUD/PG&E	Water Supply	2011
Enlarge Pardee Reservoir	AWA/CCWD/EMBUD	Water Supply	2013
Amador Breached Dam Removal Project	Foothill Conservancy	Environmental/Habitat	TBD
Arroyo Ditch Pipe Conversion Project	AWA/Plymouth	Water Supply	TBD
Amador Dry Creek Watershed Assessment Implementation & Management Plan	UMRWC	Environmental/Habitat	TBD
Broad St. Storm Drain Diversion	Sutter Creek	Stormwater & Flood Mgmt	TBD
CAWP/AWS Inter-tie	AWA	Water Supply	TBD

Projects and Programs	Responsible Agency(ies)	Primary IRWMP Objective	Anticipated Implementation Date
Calaveras River Watershed Implementation Plan	UMRWC	Environmental/ Habitat	TBD
Cosgrove Creek Project	CCWD	Stormwater & Flood Mgmt	TBD
Henderson Reservoir Dam Reinforcing Buttress	ARSA	Water Recycling	TBD
Highway 4 Corridor Regional Water/Wastewater Project	CCWD	Water Supply/ Water Quality	TBD
Highway 12/26 Regional Water/Wastewater Project	CCWD	Water Supply/ Water Quality	TBD
Inter-Regional Conjunctive Use Project	AWA/CCWD/EBMUD/SJ GBA	Water Supply	TBD
Ione Amador Plymouth Treated Water Loop	AWA	Water Supply	TBD
Jackson Creek Watershed Project	PHAW	Environmental/ Habitat	TBD
Leak Testing and Repair Program	AWA	Water Supply	TBD
Low Pressure Flow Improvements	AWA	Water Supply	TBD
Marcucci Lane Culvert Project	Jackson	Stormwater & Flood Mgmt	TBD
New Hogan Reservoir Pumping Project	CCWD	Water Supply	TBD
New York Ranch Reservoir Conservation & Management	AWA/Joint	Environmental/ Habitat	TBD
Off-Stream Storage on Cosumnes River	AWA	Water Supply	TBD
Plymouth Wastewater Improvements	AWA/Plymouth	Water Quality	TBD
Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA	Water Recycling	TBD
Reclaimed Wastewater Line Upgrade	ARSA	Water Recycling	TBD
Regional Wastewater Project	Amador City/ARSA/AWA/ Ione/Jackson/Sutter Creek	Water Quality	TBD
Temperature Study - Mokelumne and Calaveras Rivers	UMWRC	Water Quality	TBD
Treated Water to Residents Using Untreated Water	AWA	Water Supply	TBD
Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMWRC	Water Quality	TBD
Upper Mokelumne River Watershed Management Plan	UMWRC	Water Quality	TBD
West Point Water Distribution Replacement Project	CCWD	Water Supply	TBD

TBD – To Be Determined

This implementation schedule will change as projects move through the design and environmental documentation phases and as funding sources become available.

7.3 Impacts and Benefits

The M/A/C IRWMP partners and stakeholders recognize the importance of pursuing and integrating multiple water management strategies to achieve the greatest amount of, and most equitable benefit for, the region. Implementation of the projects and programs described in this Plan will lead to numerous benefits including, at a minimum:

- **Reliable and high quality water supply.** Additional water supplies and water banking agreements lead to enhanced water supply reliability and assist with the improvement of water quality. Water quality projects ensure that existing water quality is sustained and protected. Reliable and high quality water is directly linked to economic and environmental wealth and well-being.
- **Protection of people and economy of disadvantaged communities.** Working on a regional basis will aid in protecting the economy of the M/A/C IRWMP region and minimize direct monetary impacts felt by disadvantaged communities in the region through the stabilization of water and wastewater utility rates. Implementation of the region's flood control projects will protect the local cities from disastrous flood damage, as was most recently experienced in the winter and spring of 2006.
- **Multi-beneficial projects.** Opportunities for multi-beneficial projects, which can achieve a multitude of goals and objectives for several stakeholders rather than a single entity, have increased value for stakeholders and the communities served by the projects.
- **Cost effectiveness.** Integrated planning and collaboration can lead to multi-benefit projects that achieve cost-savings through cost sharing opportunities, economies of scale, resource sharing, etc.
- **Sharing experience and resources.** Integrated planning and collaboration facilitates sharing of experience and better equips agencies to overcome future challenges and to coordinate the use of resources to more effectively meet the needs of the region as a whole.

In addition to direct quantitative benefits, such as new or more reliable water supplies, there are benefits from avoiding the negative impacts of not implementing the projects. These include improved water quality, water supply reliability, recreational opportunities, habitat protection, drainage, groundwater quality, ecosystem restoration, increased operational flexibility, reduced flood risk, and/or public education.

Implementation of the projects described in this plan may also have quantitative and/or qualitative impacts if the M/A/C IRWMP and/or its component projects are not managed or implemented well. These impacts may include increased project costs to agencies and rate payers, delayed construction and/or operation of planned facilities leading to delayed water supply and other benefits, increased negative impacts on surface water and/or groundwater quality, and more limited operational flexibility, especially in times of drought, leading to increased water rationing and associated pressure on water users and the environment.

Table 7-2 summarizes the qualitative benefits and impacts for each project. PAC members believe that, with proper mitigation, the benefits outweigh the impacts of these projects. Attention must be given to each project though to minimize impacts.

Table 7-2: Qualitative Benefits and Impacts from IRWMP Implementation

Projects and Programs	Responsible Agency(ies)	Qualitative Benefits	Qualitative Impacts
Amador Breached Dam Removal Project	Foothill Conservancy	Ecosystem restoration, habitat protection	Construction-related; additional inundation
Amador Canal and Lone Canal Pipe Conversion Project	AWA	Water supply reliability, fire protection	Construction-related
Amador Dry Creek Watershed Assessment Implementation & Management Plan	UMRWC	Ecosystem restoration, recreation, habitat protection, water quality	None
Arroyo Ditch Pipe Conversion Project	AWA/Plymouth	Water supply reliability	Construction-related
Backwash Water Reuse Project	AWA	Water supply reliability, water quality, public education	None
Bear River Reservoir Expansion Project	AWA/EBMUD/PG&E	Additional water supply, reduce flood risk, water quality, ecosystem restoration, habitat protection	Construction-related; additional inundation
Broad St. Storm Drain Diversion	Sutter Creek	Reduce flood risk	Construction-related
Calaveras River Watershed Implementation Plan	UMRWC	Ecosystem restoration, recreation, habitat protection, water quality	None
Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD	Water supply reliability, water quality, operational flexibility	Construction-related
Camanche North Shore Wastewater Improvements	EBMUD	Water quality	Construction-related
Camanche South Shore Wastewater Improvements	EBMUD	Water quality	Construction-related
CAWP Fire Storage	AWA	Fire protection	Construction-related
CAWP/AWS Inter-tie	AWA	Water supply reliability, operational flexibility	Construction-related
Cosgrove Creek Project	CCWD	Reduce flood risk, recreation, ecosystem restoration, public education, water quality	Construction-related
Enlarge Pardee Reservoir	AWA/CCWD/EMBUD	Additional water supply, water quality, reduce flood risk, ecosystem restoration	Construction-related; additional inundation
Gayla Manor Wastewater Project	AWA	Water quality	Construction-related
Gravity Supply Line (GSL) Project	AWA	Water supply reliability, fire protection, water quality	Construction-related
Henderson Reservoir Dam Reinforcing Buttress	ARSA	Water recycling, water/wastewater treatment	Construction-related
Hwy 4 Corridor Regional Water / Wastewater Project	CCWD	Water supply reliability, water quality	Construction-related
Hwy 12/26 Regional Water / Wastewater Project	CCWD	Water supply reliability, water quality	Construction-related
Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA	Water quality, operational flexibility	Construction-related

Projects and Programs	Responsible Agency(ies)	Qualitative Benefits	Qualitative Impacts
Ione Amador Plymouth Treated Water Loop	AWA	Water supply reliability, operational flexibility	Construction-related
Jackson Creek Enhancement Project	Jackson	Reduce flood risk, habitat protection, ecosystem restoration, recreation, public education	None
Jackson Creek Watershed Project	PHAW	Ecosystem restoration, habitat protection, recreation, public education, water quality	None
Lake Camanche WW Improvement Project	AWA/EBMUD	Water quality, habitat protection	Construction-related
Leak Testing and Repair Program	AWA	Water supply reliability, water quality	None
Low Pressure Flow Improvements	AWA	Water supply reliability, fire protection	Construction-related
Marcucci Lane Culvert Project	Jackson	Reduce flood risk	Construction-related
New Hogan Reservoir Pumping Project	CCWD	Water supply reliability, operational flexibility water quality	Construction-related; additional inundation
New York Ranch Reservoir Conservation & Management	AWA/Joint	Ecosystem restoration, habitat protection, recreation, public education	None
Off-Stream Storage on Cosumnes River	AWA	Additional water supply, reduce flood risk, habitat protection	Construction-related; additional inundation
Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMRWC	Additional water supply, recreation, water quality, habitat protection	Construction-related; additional inundation
Pardee Recreation Area Wastewater Improvements	EBMUD	Water quality	Construction-related
Plymouth Pipeline Improvement Project	AWA/Plymouth	Water supply reliability, reduce/prevent groundwater overdraft	Construction-related
Plymouth Wastewater Improvements	AWA/Plymouth	Water quality	Construction-related
Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA	Water quality, reduce flood risk	Construction-related
Reclaimed Wastewater Line Upgrade	ARSA	Water quality	Construction-related
Regional Wastewater Project	ARSA/AWA/Sutter Creek	Water quality, water supply reliability	Construction-related
River Pines Water and Wastewater Improvements	AWA	Water quality	Construction-related
Inter-Regional Conjunctive Use Project	AWA/CCWD/EBMUD/SJ County	Additional water supply, reduce/prevent groundwater overdraft, water quality	Construction-related
South Shore Camanche Regional WTP Project (Joint WTP)	AWA/CCWD/EBMUD	Water supply reliability, water quality	Construction-related
Temperature Study - Mokelumne and Calaveras Rivers	UMRWC	Habitat protection, ecosystem restoration, public education	None
Treated Water to Residents Using Untreated Water	AWA	Public health, water supply	Construction-related

Projects and Programs	Responsible Agency(ies)	Qualitative Benefits	Qualitative Impacts
Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC	Water quality, habitat protection, recreation	None
Upper Mokelumne River Watershed Management Plan	UMRWC	Ecosystem restoration, water supply, water quality, habitat protection	None
West Point Water Distribution Replacement Project	CCWD	Water supply reliability, fire protection	Construction-related

Additional benefits may be received by the entire M/A/C IRWMP region resulting from a regional approach to planning and project design/implementation. These benefits may include:

- Increased regional understanding resulting from agencies working together as a cohesive group to solve water resource problems. By working in a consensus-based format, agencies and stakeholders gain a deeper understanding of the effects of their projects on other agencies (and visa versa), in addition to the unique problems faced by each entity. This deeper understanding, in turn, reduces interagency conflicts that may prevent projects from gaining the necessary support for successful implementation.
- Economies of scale resulting from developing pooled resources. In an integrated approach, existing resources can be optimized, duplication of efforts avoided, and larger-scale efforts developed to provide cost savings to all involved.
- Fostering support through the greater involvement of the region as a whole, and the broader diversity of opinions and ideas that often lead to better, more informed projects. This kind of pooled approach typically leads to greater benefits for all combined with fewer overall impacts.
- Improved local understanding of water resources issues resulting from consistent and coordinated public outreach and education programs. The singularity of the messages received by the public reduces overall conflict on the regional scale and improves acceptance and understanding of the integrated projects.

Similarly, through inter-regional projects such as the Inter-Regional Conjunctive Use Project, the benefits achieved by the projects can be extended beyond regional boundaries. The projects contained in this IRWMP benefit not only the local agencies, but multiple river watersheds (Mokelumne, Cosumnes, and Calaveras), the Delta, East Bay Municipal Utility District (EBMUD) service area, and Pacific Gas and Electric Company (PG&E). Specific ways in which the projects contained herein benefit beyond the M/A/C IRWMP region include the following:

- Reduced effluent discharges (and attendant mass loadings) into the Mokelumne and Calaveras Rivers due to increased recycled water use upstream, promoting better water quality both in the Mokelumne and Calaveras Rivers and downstream in the Delta.
- Improved regional water supply and reliability for the East Bay, Amador County, Calaveras County and San Joaquin County, as accomplished through several water storage projects, will place a reduced pressure on the Delta to serve the region in times of significant drought. Additional wastewater reuse projects will also reduce the demand for upstream potable water, thereby potentially increasing the downstream supply.
- Conjunctive use projects will increase water supply reliability within the region and in San Joaquin County, resulting in increased surface water supply availability in dry years to meet multiple needs and areas, as well as reduced pressure on the San Joaquin River as a water supply.

Finally, the M/A/C IRWMP and its component projects will work to provide benefits for disadvantaged communities and to ensure that environmental justice concerns are being addressed. This will be achieved through the noticing of public meetings, to be held as needed to address public and rate payers' concerns, conducting routine reviews to ensure that disadvantaged communities are not being adversely affected by a project, and by using grant monies receive to help offset costs to rate payers. The M/A/C IRWMP projects will be reviewed for compliance with CEQA, NEPA and any other local, state and/or federal requirements. Finally, public outreach and education efforts that are a component of project planning have been, and will continue to be, implemented as part of the overall IRWMP implementation.

The M/A/C IRWMP also has the potential to benefit resources beyond regional water resources. Environmental benefits of improving the quality of surface water resources and related ecosystems could contribute to the improvement/enhancement of shaded riverine habitat. Enhanced tree cover, while viewed as a habitat enhancement, may also directly benefit regional air quality through the creation of microclimates and the filtering capacity provided by trees. By optimizing water supply operations and implementing conjunctive use, additional surface water supplies may be available for hydropower generation to benefit statewide energy resources.

7.4 Relation to Local Planning

The foundation of the M/A/C IRWMP was developed out of collaborative discussions regarding regional needs, proposed projects and teaming for regional effectiveness. As the various stakeholders shared needs and similar objectives, the PAC began developing a regional plan that could bring about integrated projects for the benefit of the region. During its preparation and development, the M/A/C IRMW Plan pulled from a number of data and water management strategies developed by existing local and/or sub-regional planning documents. These efforts integrated into the regional strategies presented in this document. Examples of local planning documents reviewed during the IRWMP development include City/County General and Specific Plans, UWMPs, WSMPs, CIPs, Recycled Water Master Plans, project Environmental Impact Reports/Environmental Impact Statements, and grant applications for other state and federal programs. Table 7-3 summarizes key planning reports used in the IRWMP process.

Table 7-3: Major Planning Reports Used to Create the M/A/C IRWMP

Document Title/Description	Publication Date	Agency/Entity	Relation to IRWMP
Bear River Water Supply Alternatives	March 2005	AWA, CCWD	Directly related to the Bear River Reservoir Expansion Program.
Camanche South and North Shore Water Treatment Plants Evaluation	May 2003	EBMUD	Directly related to the Camanche North Shore and Camanche South Shore Wastewater Improvements projects.
Camanche Water Treatment Plant Replacement Project Mitigated Negative Declaration	July 2001	EBMUD	Directly related to the South Shore Camanche Regional WTP Project.
Camanche Regional Water System Feasibility Study	October 1999	EBMUD	Directly related to the South Shore Camanche Regional WTP Project.
City of Plymouth, Estimate of Cost to Bring Water from AWA to Plymouth	June 2004	City of Plymouth	Directly related to the Plymouth Pipeline Improvement Project.
Condition Assessment, EBMUD Upcountry Wastewater Collection System Condition Assessment and Capital Improvement Program	January 2005	EBMUD	Directly related to the Camanche North Shore, Camanche South Shore and Pardee Recreation Area Wastewater Improvements projects.

Document Title/Description	Publication Date	Agency/Entity	Relation to IRWMP
Continuing Authorities Program Section 205 Flood Damage Reduction Project – Cosgrove Creek	May 2005	CCWD	Directly related to the Cosgrove Creek Project.
Cosumnes & Mokelumne Rivers Floodplain Integrated Resources Management Plan	January 2006	Southeast Sacramento County Agricultural Water Authority	For understanding of regional integrated planning for floodplain, riparian and riverine environments along the Cosumnes and Mokelumne Rivers.
County Water Master Plan	April 1995	CCWD	For general understanding of local water resources issues in Calaveras County.
Final EIR, Volume One: Updated Water Supply Master Program	September 1993	EBMUD	Relates to Inter-Regional Conjunctive Use Project as it discusses groundwater storage/conjunctive use as an alternative with groundwater storage to occur in the Lodi area.
Freeport Regional Water Project Draft EIR/EIS	July 2003	Freeport Regional Water Authority (joint powers authority between EBMUD and Sacramento County Water Agency)	This EIR/EIS contains the Enlarge Pardee Reservoir project as an alternative to the Freeport Regional Water Project.
Identification and Evaluation of Potential Off-Stream Water Storage Sites in the Upper Mokelumne River Hydrologic Unit	No Date	No Name	Directly related to the Off-Stream Storage on the Mokelumne River and Off-Stream Storage on the Calaveras River projects.
Lower Mokelumne Watershed Stewardship Plan	May 2002	San Joaquin County Resource Conservation District	For general understanding of existing watershed studies and planning along the Mokelumne River.
MORE WATER Project Phase 1 Report	June 2004	Mokelumne River Water & Power Authority, San Joaquin County Public Works	This report contains the Inter-Regional Conjunctive Use Project as an alternative.
Multi-Hazard Mitigation Plan	June 2006	Amador County	For general information regarding mitigation strategies for reducing potential losses resulting from fire, flood and other possible hazards. Directly relates to several projects.
Plymouth Water Service Study	December 2003	City of Plymouth	Directly related to the Plymouth Pipeline Improvement Project.
Preferred Alternative Report, Wastewater Improvement District #11 – Lake Camanche Village	July 2004	AWA, EBMUD	Directly related to the Lake Camanche Wastewater Improvement Project.

Document Title/Description	Publication Date	Agency/Entity	Relation to IRWMP
Reconnaissance Study of Two Potential New Water Supply Sources	November 1995	Amador County	Directly related to the Bear River Reservoir Expansion Program.
A Study of Water Supply for the City of Plymouth	June 1990	City of Plymouth	Directly related to the Arroyo Ditch Pipe Conversion Project.
Upper Mokelumne River Watershed Assessment and Planning Project	November 2005	Upper Mokelumne River Watershed Authority	For general understanding of existing watershed studies and planning along the Mokelumne River.
Urban Water Management Plan	October 2005	AWA	For understanding of Amador-area urban water needs, management and planning objectives.
Draft Urban Water Management Plan	November 2005	CCWD	For understanding of Calaveras-area urban water needs, management and planning objectives.
Urban Water Management Plan	December 2005	City of Stockton	For understanding of Stockton urban water needs, management and planning objectives.
Urban Water Management Plan	2005	EBMUD	For understanding of EBMUD service-area urban water needs, management and planning objectives.
Various County General Plans	Various	Amador, Calaveras, San Joaquin and Alpine Counties, City of Lone, Jackson, Lodi, Plymouth, Sutter Creek and Amador City	For general understanding of local land use, environmental/water resources, economic, and administrative management issues.
Wastewater Facilities Planning Report	May 2004	City of Jackson	Directly related to the City of Plymouth Wastewater Improvements Project.
Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR	January 1974	CCWD	Directly related to the New Hogan Reservoir Pumping Project.

The IRWMP will also be used as a source of information for other documents as well. It is intended to be an umbrella document, referencing many documents and at the same time acting as a source of information for many documents as well. Figure 7-1 shows this relationship. The M/A/C IRWMP is not intended to drive or direct other planning processes.

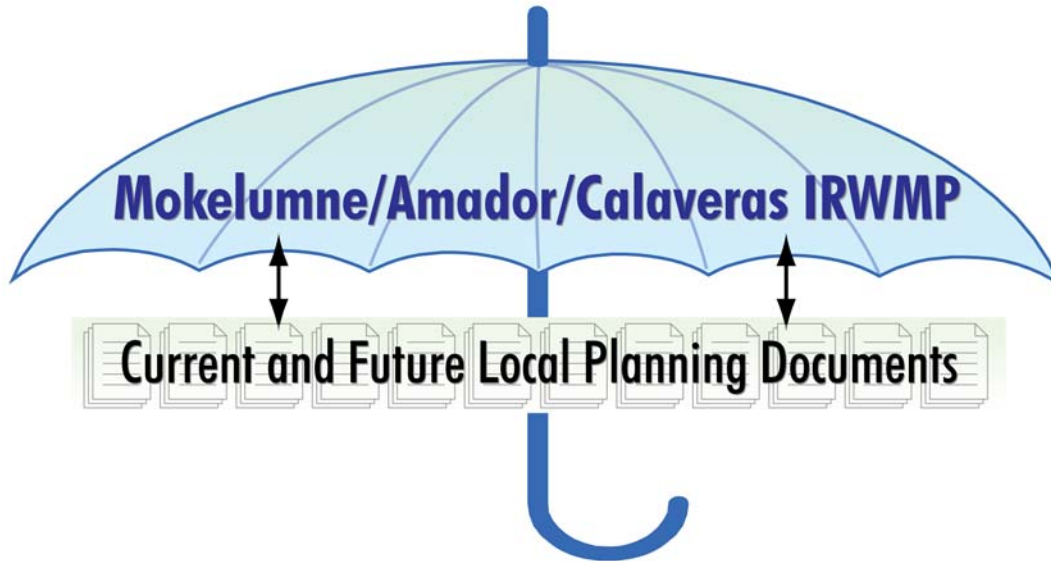


Figure 7-1: Relationship between IRWMP and Local Planning Documents

7.5 Technical Analysis and Plan Performance

7.5.1 Technical Analysis

The M/A/C IRWMP consists of projects, programs, studies, and planning activities that local and regional planners have found to be economical and technically feasible based on similar projects, pilot studies, technical analyses, benefit analyses, cost estimating, modeling and simulation efforts and data assessments. Table 7-4 presents the economic and technical feasibility of the projects on a programmatic level for each planning objective. Specific project and programs associated with each planning objective are noted in Chapter 5.

Table 7-4: Economic and Technical Feasibility Determination

Primary Objective	Economic and Technical Feasibility Determination Criteria
Water Supply	Feasibility is defined in master planning documents using conventional technologies meeting defined levels of service (reliability) at costs commensurate with regional economic benefits.
Water Quality	Feasibility is defined using conventional technologies or via the demonstration of new technologies at unit production costs meeting unit cost or wastewater thresholds.
Water Recycling	Feasibility is defined similar to water supply reliability and includes meeting new water supply unit price targets.
Ecosystem Restoration	Feasibility is defined primarily through habitat management documents based in stakeholder processes, using conventional technologies, at prices per acre that are funded with public, private, and grant funding sources.
Conservation	Feasibility is defined similar to water supply reliability and includes unit price savings resulting from program implementation and cost-benefit ratios.

Primary Objective	Economic and Technical Feasibility Determination Criteria
Stormwater & Flood Management	Stormwater management feasibility is defined through implementation of Best Management Practices implemented in compliance with NPDES permits. Flood management feasibility is defined through providing sufficient flood protection to justify local and federal benefit and costs ratios.
Other	Feasibility is defined by the M/A/C IRWMP PAC for projects not fitting the afore-mentioned criteria.

As each project moves closer to design completion and implementation, technical and economic analyses will be conducted to confirm project feasibility and to provide any necessary feedback to modify the project's plan to improve its likelihood of success.

7.5.2 Plan Performance

The M/A/C IRWM planning region is committed to an open public process to ensure a high level of plan performance. Project implementation and performance will be monitored and measured using program-level and project-specific performance measures. Examples of these performance measures include the following:

- **For water supply projects** – Water supply projects include both surface and groundwater projects. For pipeline projects and surface water treatment projects, stream water quality may be monitored to ensure that the streams or water bodies that projects draw from are not adversely affected, and flows through the pipeline may be monitored to determine the water demand that the pipe is serving. For groundwater projects, groundwater level and extraction/injection rates may be monitored. For both surface and groundwater projects, water quality may be monitored to evaluate both basin/watershed impacts and local water use benefits.
- **For water recycling projects** – Projects involving the development, distribution, and use of recycled water may be monitored for demand, percent of influent that is being treated and reused, and the benefits that recycled water brings to the environment. Water quality might also be monitored depending on project needs.
- **For water quality projects** – Projects focusing on water quality may monitor the quality of water and wastewater being treated, influent and/or effluent flows, and receiving water body quality. The impacts and benefits of varying levels of quality could also be tracked.
- **For ecosystem restoration projects** – The effectiveness of ecosystem restoration projects may be monitored by evaluating the habitat and riparian zones affected by the project for native species, in addition to the biological populations that are influenced by the project.

By monitoring for the parameters discussed above, local agencies can identify when their projects may not be fulfilling their objectives. This information will be fed back into the project's decision-making structure to adapt the project to better meet its overall objectives. Only by consistent monitoring and analysis can projects successfully achieve the objectives set for the project. Monitoring will also provide a clear reporting mechanism for the public, decision makers, and regional planners to determine the planned versus actual value of the project.

7.6 Data Management

Data collection and dissemination are integral to the IRWMP process. Without access to the data, the collaboration and savings realized through the integrated process will not be realized as fully and may result in duplication of work and excessive expenditures.

7.6.1 Data Collection

As part of the design and implementation of projects discussed herein, various forms of data will be collected. These data may include stream flows, surface water deliveries, groundwater elevations, groundwater pumping, precipitation, water demand, locations and sizes of water-related facilities, political and agency boundaries, land use, contaminant plume locations and extents, water quality data, locations of sensitive habitats and species, and hydrogeologic and hydrologic data. These data will be collected from various federal, State, and local agencies, some of whom are shown in Table 7-5. Data may also be collected from existing numerical models such as HEC models, H2ONet, and hydraulic and hydrologic models. Working with the agencies shown in Table 7-5 and regional members and stakeholders, the M/A/C IRWMP effort has, and will continue, to search for all data relevant to the M/A/C IRWM regional strategies on an on-going basis. Any data gaps that are identified will need to be filled through new monitoring activities, new studies, and/or the installation and use of new measurement systems. For example, the proposed Temperature Study seeks to monitor temperature fluctuations in the Mokelumne and Calaveras Rivers to determine what actions, if any, should be taken to improve conditions for fisheries in the rivers. Results of this study might also impact existing and future management strategies to further the benefits.

Table 7-5: Sources of IRWMP Data

Federal	State	Local
National Climate Data Center	California Irrigation Management Information System (CIMIS)	Amador County
National Resource Conservation District		Alpine County
Army Corps of Engineers	DFG	Calaveras County
Bureau of Reclamation	DHS	City Planning Departments
USFWS	DWR	Upper Mokelumne River Watershed Council
USGS	RWQCB	Northeastern San Joaquin Groundwater Banking Authority
NMFS	SWRCB	
AFRPA	California Natural Diversity Database (CNDDDB)	Mokelumne, Calaveras, and Cosumnes River Water Purveyors
EPA	CDPR	Stakeholders
SRCC		
TNC		

Data collection and review will be an on-going activity throughout implementation of the IRWMP as new information and planning information are completed or become available. Data review will also include an assessment of data collection efforts in the watershed to identify opportunities for partnerships and reduced costs. Table 7-6 outlines the data requirements for priority projects described in this Plan. The data will include, at a minimum, any data relevant to surface water, groundwater, water quality, storm water, and ecosystem restoration.

Table 7-6: Required Data for Priority Projects

Data Type	Water Supply	Recycled Water	Water Quality	Stormwater and Flood Management	Ecosystem Restoration	Groundwater Management
Stream & River Flows	X		X		X	
Stream & River Water Quality		X	X	X	X	
Locations of Sensitive Habitats & Species			X		X	
Surface Water Deliveries	X		X			X
Groundwater Pumping	X		X			X
Hydrogeologic Data						X
Precipitation	X		X	X		X
Water Demand	X	X				X
Water Related Facilities	X	X	X	X		X
Political and Agency Boundaries	X	X	X	X	X	X
Land Use	X	X	X	X	X	X
Contaminant Plume Locations and Extents	X		X			X

7.6.2 Existing Monitoring Efforts

There are several ongoing monitoring efforts being conducted in the region, including those by EBMUD, AWA, PG&E and others. For example, several programs on the Mokelumne River are providing baseline mapping of vegetation and wildlife on the Mokelumne River, as well as historical and on-going surveys of birds, amphibians, reptiles and small mammals. Additionally, Mokelumne River streamflows and water level monitoring is on-going as is water quality monitoring. These efforts are being conducted both as regulatory requirements and as part of larger watershed studies.

All agencies in the region providing water supply and treatment and wastewater treatment services are also conducting regulatory monitoring operations. As part of their regular operating procedures, both influent and outflow water quality analyses are being conducted as is additional sampling along critical portions of the treatment train.

7.6.3 Data Dissemination

Data dissemination will be conducted primarily via the ongoing PAC meetings. These meetings are open to all stakeholders, agencies, and the public, and will serve as the primary focal point for distributing information. Coordination among the PAC members and other relevant agencies in the development of data for specific projects will ensure data sharing with the agencies. Additionally, the CEQA and NEPA processes will allow for documentation of data developed for review by the public.

Electronic versions of documents will be available on the Amador Water Agency web site (www.amadorwa.com) with links provided by other PAC agencies. Hard copies and CDs will be provided at cost to interested parties without Internet access. Any periodic updates of the M/A/C IRWMP will be distributed in a similar manner. Dissemination of data to statewide programs administered by

both the SWRCB and DWR will support statewide data needs. M/A/C IRWM planning participants have supported statewide data needs in the past through voluntary participation, and will continue to do so in the future by making collected data available to meet other statewide needs through coordination and sharing with the California Environmental Resource Evaluation System (CERES), Surface Water Ambient Monitoring Program (SWAMP) and Groundwater Ambient Monitoring Assessment (GAMA) programs when appropriate and feasible. Data will also be disseminated to DWR for inclusion in its databases, such as the Water Data Library, which contains groundwater level and water quality data. Finally, stakeholders, agencies, and the public may request all publicly available IRWMP data (i.e., non-proprietary and non-confidential) from any of the MOU signatories for this IRWMP.

7.7 Project Financing

Given the low density development in the M/A/C IRWMP region, the financing of projects has always proven to be a major obstacle for the region, sometimes preventing projects from proceeding to implementation. Demands on agencies' and cities' limited funds continue to increase; construction costs continue to rise; existing aging infrastructure requires upgrades to meet growing demands; and potential future state legislation could shift substantial property tax revenues away from special districts to the state general fund. All of these conditions force the region's agencies to balance costs associated with supply water for new growth while ensuring the highest standards of water quality and supply reliability for existing customers, protecting and enhancing the sensitive regional ecosystems, and minimizing costs incurred by end-users. In the case of projects that benefit the environment but do not provide new water or a measurable improvement to water supply reliability and/or water quality, a project depends wholly upon public assistance for implementation.

7.7.1 Project-Specific Funding

The agencies within the M/A/C IRWMP region recognize the importance of maintaining the highest standards of cost-effectiveness for projects considered for implementation. One of the most significant concerns of the regional stakeholder is a means for protecting rate payers from increasing water and wastewater rates. Agencies have explored a variety of potential funding vehicles including the State Revolving Fund, Proposition 50, Hazard Mitigation Grant Program, and other State and Federal grant and loan programs, in addition to the sale of municipal bonds, land assessment, water rates, and other municipal revenue sources.

Estimated project costs are shown in Table 7-7 for each project, along with "likely" funding sources (exclusive of additional local, state or federal grant monies). It is recognized that each implementing organization has a unique set of revenue and financing methods and sources, and that this IRWMP does not serve as an exhaustive presentation of all funding sources available.

Table 7-7: Estimated Project Costs and Primary Funding Sources

Project	Responsible Agency	Primary IRWMP Objective	Estimated Cost	Funding Source
Amador Breached Dam Removal Project	Foothill Conservancy	Environmental/Habitat	\$500,000	PG&E, TBD
Amador Canal and Lone Canal Pipe Conversion Project	AWA	Water Supply	\$2,500,000	Rates
Amador Dry Creek Watershed Assessment Implementation & Management Plan	UMRWC	Environmental/Habitat	\$325,000	TBD

Project	Responsible Agency	Primary IRWMP Objective	Estimated Cost	Funding Source
Arroyo Ditch Pipe Conversion Project	AWA, Plymouth	Water Supply	\$4,931,000	TBD
Backwash Water Reuse Project	AWA	Water Recycling	\$1,200,000	Rate recovery for Buckhorn; Developer fees & City of Lone and AWA rates for Lone; Rates for Tanner.
Bear River Reservoir Expansion Project	AWA, EBMUD, PG&E	Water Supply	\$35,000,000	TBD
Broad St. Storm Drain Diversion	Sutter Creek	Stormwater & Flood Mgmt	\$500,000	FEMA Hazard Mitigation Grant program
Calaveras River Watershed Implementation Plan	UMRWC	Environmental/Habitat	\$325,000	TBD
Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD	Water Supply	\$3,000,000	Water district expansion funds, private developer fees, grants
Camanche North Shore Wastewater Improvements	EBMUD	Water Quality	\$8,000,000	Water district upgrade funds
Camanche South Shore Wastewater Improvements	EBMUD	Water Quality	\$3,000,000	Water district upgrade funds
CAWP/AWS Inter-tie	AWA	Water Supply	TBD	Water rates
CAWP Fire Storage	AWA	Water Supply	TBD	TBD
Cosgrove Creek Project	CCWD	Stormwater & Flood Mgmt	\$7,000,000	Army Corps of Engineers Water Resources Development Act (WRDA), Calaveras County general funds, private developer fees.
Enlarge Pardee Reservoir	AWA, EMBUD, CCWD	Water Supply	TBD	TBD
Gayla Manor Wastewater Project	AWA	Water Quality	\$1,100,000	SWRCB Small Communities Grant
Gravity Supply Line (GSL) Project	AWA	Water Supply	\$7,000,000	US Department of Agriculture Rural Utility Services (RUS) program, rates
Henderson Reservoir Dam Reinforcing Buttress	ARSA	Wastewater Storage	TBD	PFS-ARSA Capital Improvement Fund
Highway 4 Corridor Regional Water/Wastewater Project	CCWD	Water Supply/ Water Quality	\$100,000	TBD
Highway 12/26 Regional Water/Wastewater Project	CCWD	Water Supply/ Water Quality	\$100,000	TBD
Highway 88 Corridor Wastewater Treatment/ Transportation/ Disposal	AWA	Water Quality	\$8,000,000	TBD
Inter-Regional Conjunctive Use Project	AWA, CWD, EBMUD, SJ County	Water Supply	\$5,000,000	TBD
Lone Amador Plymouth Treated Water Loop	AWA	Water Supply	TBD	TBD

Project	Responsible Agency	Primary IRWMP Objective	Estimated Cost	Funding Source
Jackson Creek Enhancement Project	Jackson	Ecosystem Restoration	\$100,000	CA Department of Parks and Recreation grants; other grants
Jackson Creek Watershed Project	PHAW	Ecosystem Management	TBD	TBD
Lake Camanche WW Improvement Project	AWA, EBMUD	Water Quality	\$4,600,000	Water rates
Leak Testing and Repair Program	AWA	Water Supply	TBD	TBD
Low Pressure Flow Improvements	AWA	Water Supply	TBD	TBD
Marcucci Lane Culvert Project	Jackson	Stormwater & Flood Mgmt	\$336,000	FEMA Hazard Mitigation Grant program
New Hogan Reservoir Pumping Project	CCWD	Water Supply	\$22,000,000	Army Corps of Engineers Water Resources Development Act (WRDA), Calaveras County general funds, private developer fees.
New York Ranch Reservoir Conservation & Management	AWA, Joint	Conservation	\$100,000	\$50,000 (AWA)
Off-Stream Storage on Cosumnes River	AWA	Water Supply	\$40,000,000	TBD
Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA, CCWD, UMWRC	Water Supply	\$155,276	TBD
Pardee Recreation Area Wastewater Improvements	EBMUD	Water Quality	\$1,000,000	Water district upgrade funds
Plymouth Pipeline Improvement Project	AWA, Plymouth	Water Supply	\$9,135,694	City water rates, RUS, CDBG Grant
Plymouth Wastewater Improvements	AWA, Plymouth	Water Quality	TBD	City general funds/ RUS Grant
Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA	Water Supply	TBD	PFS-ARSA Capital Improvement Fund
Reclaimed Wastewater Line Upgrade	ARSA	Water Recycling	TBD	PFS-ARSA Capital Improvement Fund
Regional Wastewater Project	AWA, ARSA, Sutter Creek	Water Quality	\$42,100,000	TBD
River Pines Water and Wastewater Improvements	AWA	Water Quality	TBD	TBD
South Shore Camanche Regional WTP Project (Joint WTP)	CCWD, EBMUD, AWA	Water Supply	\$2,000,000	Water district expansion funds, private developer fees, grants
Temperature Study - Mokelumne and Calaveras Rivers	UMWRC	Other	\$608,990	CalFed grant program
Treated Water to Residents Using Untreated Water	AWA	Water Supply	TBD	Water use efficiency grant, water rates

Project	Responsible Agency	Primary IRWMP Objective	Estimated Cost	Funding Source
Upper Mokelumne River Watershed Bacteria Monitoring Plan Summary	UMRWC	Water Quality	\$135,000	TBD
Upper Mokelumne River Watershed Management Plan	UMRWC	Water Quality	\$1,250,000	TBD
West Point Water Distribution Replacement Project	CCWD	Water Supply	\$3,800,000	USDA-RUS and DWR-WUE loan/grant, TBD

TBD – To Be Determined

The definitions of the various funding sources shown in Table 7-7 are provided below.

Capacity Fees

Capacity fees are used by water agencies almost universally as a measure to achieve and maintain equity among its past, present and future customers. For a growing water agency, capacity fees can represent more than half of the total revenue in any given year, and as such are very important to existing as well as future customers. Capacity fees are typically charged per connection, measured in equivalent dwelling units (“EDUs”). A single connection may encompass more than one EDU. In addition to the connection fee aspect of capacity fees, water agencies may also assess other fees: e.g. Commercial Acreage Fee (per acre) and Other Service Fee (per acre).

In some cases, if a developer builds a water pipeline or large water facility required by a water agency as a condition of development, then as partial or full payment for the water facility, a water agency may give fee credits to the developer in lieu of the developer paying fees. If the value of the water facility exceeds the amount of credits, a reimbursement agreement is typically executed authorizing payment to the developer of the remaining amount owed over a period of time which does not typically exceed a defined time period.

User Fees

Monthly user fees are assessed by some water agencies where an argument can be made that new facilities are directly benefiting the existing customers. This is especially true for water agencies that are developing conjunctive use water systems where the existing customers may have paid for the groundwater component when they paid the development fee (through the purchase of the home). The surface water and/or recycled water component is a new water supply for a water agency that is needed for conjunctive use with groundwater supplies. Income from this monthly revenue source is used in many cases to pay debt service on debt financed assets.

User Rates/Rate Recovery

User rates or rate recovery pays for the operations and maintenance of a water agency or public utility’s system. Within the user rate for a water agency there is a fixed cost component that does not vary with the amount of supplied water, such as labor and overhead expenses, and a variable cost component, such as the electrical and chemical costs, that are based on the amount of pumping and applied chemicals to meet the water demands of the customers. A customer of a water agency pays a monthly fixed rate and a variable rate based on the metered usage. In cases where billing is not based on a metered usage, a single monthly rate is assessed that is the combined average of the fixed and variable rates.

General or Capital Improvement Funds

General or capital improvement funds are monies that an agency sets aside for funding general operations and/or facility improvements, upgrades and, sometimes, development. These funds are usually part of their overall revenue stream and may or may not be project-specific.

Bonded Debt Service (Revenue Bonds)

Issuance of revenue bonds to pay for new capital is done in cases where a large facility is needed to support current services and future growth. In this way, a large facility can be paid for by bonded debt service at the time of construction with repayment of the debt service over a 20- to 30-year timeframe. This is a preferred approach to paying for high cost facilities because it avoids the perceived over-collection of fees from past customers that go towards facilities that serve present and future customers. The downside to bonded debt is that it cannot be accomplished with capacity fees alone due to the variability and uncertainty of new development over time. A user rate is needed as a bond document covenant in the event that development fees are not adequate to make the required annual payment for the debt service.

Local, State, and Federal Grant Programs

Grant programs at either the local, state, or federal level are available to the region from time to time. In the past, the M/A/C IRWMP PAC members have applied for and obtained state and federal funding for studies and projects benefiting the region. These monies typically require that a local matching amount be available to obtain the grant that typically comes from one or more of the funding sources above or from another grant. The matching requirement shows a local commitment to promoting and completing the study or project. A grant is typically administered and contracted by a single agency within the region that works directly with the state or federal granting agency. There is typically higher administration costs for grants since a small portion of the grant also pays for administration of the grant by the state or federal agency.

7.7.2 Potential Funding/Financing for IRWMP Implementation

In the past, the region has actively sought external funds for regional projects and programs. Examples of past sources of funding include:

- Federal Funding (Corps, Reclamation, FEMA)
- State Funding (Proposition 13, CALFED)
- Local Funding (impact fees, user rates, tax assessments)

These efforts are expected to continue, and may escalate, to fund implementation of the projects and programs developed in the M/A/C IRWMP. The rationale for seeking external funding for projects identified in this Plan is that local projects typically provide not only local, but statewide water supply benefits, improve and protect local and Delta water quality, and provide environmental and recreational benefits which are of value to more than just local residents.

7.7.3 Support and Financing for Operation and Maintenance of Implemented Projects

Ongoing support and financing for operation and maintenance (O&M) of projects implemented from this IRWMP is expected to come from many of the same sources as used to implement the projects. Support and financing will likely come primarily from local sources, including user rates, fees and assessments. Since the regional projects and programs usually involve multiple partner agencies, this broadens the range of local sources available. The details of financing these larger, multi-partner projects are typically worked out on a project-by-project basis. Large multi-purpose projects typically adhere to standard cost accounting and cost of service principles though which are typically described and codified in the

agreements for ownership, operation and maintenance of facilities that are typically assembled as part of a project financing package.

Cost associated with the O&M of projects proposed for implementation must be evaluated as part of determining the overall viability of a particular project effort. Any project that is advanced for implementation consideration must include an analysis to determine its ability to operate and maintain the project and project benefits. The annual fiscal impact on user rates, and further, the willingness of ratepayers to accept any increased cost of service as may be required for project implementation must be included in this analysis. The need for water and the economic hardship impacts that would fall on this same group, should this source not be available, may also be considered as part of the feasibility equation. Any benefits derived from replacing and/or updating existing systems can also be factored into this financial analysis.

For projects other than water supply projects, alternate criteria must be considered in evaluating the ability of the region to provide ongoing support. For example:

- Recycled water production costs, using strict cost of service principles, can be considerable (including O&M costs). Cost recovery is primarily a function of an agency's ability to charge user fees for the recycled water use and the degree of treatment required for a particular application. The benefits of the customers (i.e., large water users) to consider the use of recycled water are often factored into the costs for the water.
- Watershed improvement projects are designed in an effort to minimize the need for ongoing operation and maintenance expenses. Costs associated with monitoring and/or staff support to track and implement projects and studies can potentially be covered via membership contributions, via grants, or by other non-profit funding vehicles not necessarily available to governmental agencies.
- Projects geared toward providing water quality benefits must be designed to employ a process that allows for low cost operation and maintenance. For example, debris build-up (and hence the need for its removal) must be a consideration in the system design.

To improve the M/A/C region's ability to provide ongoing support to the projects contained herein, agencies and stakeholders in the region should work together to minimize associated O&M costs and gain savings from economies of scale.

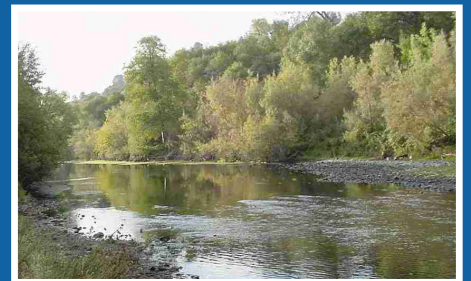
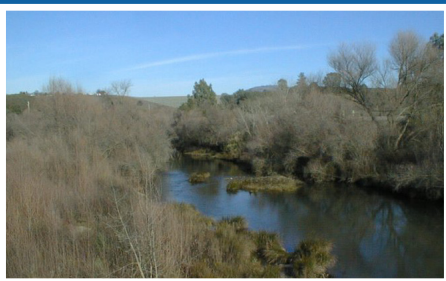
7.8 M/A/C IRWMP Updates

The MAC IRWMP is a living plan and, as such, is intended to be updated regularly. As time passes, the issues and needs of the region are expected to change. Similarly, as projects outlined in this Plan are implemented or new projects are identified, the regional goals and objectives will require periodic re-evaluation to ensure that they remain applicable to the conditions in the region at that time. The PAC and cooperating entities described in Chapter 2 of this document, along with any other stakeholders not already identified, will meet regularly to update and carry out the goals, objectives and strategies of the IRWMP. During these meetings, the MAC IRWMP PAC will review the plan performance measures, reprioritization or development of new strategies and projects, and, as appropriate, update the IRWMP. On average, it is anticipated that the MAC IRWMP will require updating every five years.

This IRWMP has been constructed to facilitate updates. Each step of the process to develop the Plan has been separated from the others and clearly explained. Any change made to the Plan should be followed through the document. For example, when a project is added or updated, its prioritization and implementation information should be updated as well. Should a goal of the region be added or changed, its impact on all of the projects should be analyzed, project tables updated, and prioritization levels checked.

Stakeholder participation will continue to be essential to the M/A/C IRWMP process and implementation. This continuing stakeholder involvement is envisioned to occur through multiple avenues, including workshops, board meeting and presentations, group meetings and personal communications (e.g., email groups). Stakeholder and public meetings will be held periodically to allow interested parties a forum in which to share their ideas and concerns and to address the PAC, as well as a place to identify, discuss and resolve regional conflicts associated with projects. These meetings will also be used as a working group to share information, discuss IRWMP progress, review key deliverables, collect comments and input, and gain consensus. Any periodic updates of the MAC IRWMP will be distributed in a manner similar to this first document, and data collected between IRWMP updates and in conjunction with the development of new projects will continue to be disseminated for inclusion in the State's databases.

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Appendices



Appendix A - Memorandum of Understanding

**MEMORANDUM OF UNDERSTANDING
AMONG AMADOR WATER AGENCY,
EAST BAY MUNICIPAL UTILITY DISTRICT,
CALAVERAS COUNTY WATER DISTRICT,
AMADOR COUNTY, CITY OF JACKSON,
CITY OF SUTTER CREEK, CITY OF PLYMOUTH, AND THE
AMADOR REGIONAL SANITATION AUTHORITY
FOR THE
MOKELUMNE/AMADOR/CALAVERAS INTEGRATED REGIONAL WATER MANAGEMENT
PLAN**

This MEMORANDUM OF UNDERSTANDING (MOU) among Amador Water Agency (hereinafter referred to as AWA), East Bay Municipal Utility District (hereinafter referred to as EBMUD), Calaveras County Water District (hereinafter referred to as CCWD), Amador County, the Cities of Jackson, Sutter Creek, and Plymouth, and the Amador Regional Sanitation Authority (hereinafter referred to as ARSA) **sets forth the respective roles and responsibilities** of AWA, EBMUD, CCWD, Amador County, the Cities of Jackson, Sutter Creek, and Plymouth, and ARSA in regard to the joint watershed study called the Mokelumne/Amador/Calaveras (M/A/C) Integrated Regional Water Management Plan (hereinafter referred to as PLAN), and is made and entered into as of 10/3/06.

AWA, EBMUD, CCWD, Amador County, the Cities of Jackson, Sutter Creek, and Plymouth, and ARSA are collectively referred to hereinafter as the PARTIES and may be referred to individually as PARTY.

RECITALS:

WHEREAS, the AWA was formed in 1959 with the purpose of providing water and wastewater services to residents of Amador County; and

WHEREAS, the EBMUD is a publicly owned utility formed in 1923 to provide water services, and in 1944 elected to form a special district to also provide wastewater services; and

WHEREAS, the CCWD is a public, non-profit special district formed in 1946 with authority to acquire, control, distribute, store, spread, sink, treat, purify, reclaim, process and salvage any water for beneficial use, to provide sewer service, to sell treated or untreated water, and to acquire or construct hydroelectric facilities; and

WHEREAS, Amador County was formed in 1854 with the division of Calaveras County, and is authorized to carry out flood control and stormwater management (through its Public Works Department) and the implementation of environmental health programs, such as the control of toxic materials, sewage management and the protection of water supplies (through its Environmental Health Department); and

WHEREAS, the Cities of Jackson, Sutter Creek, and Plymouth are all mandated to supply their local populations with domestic sanitary sewer facilities, storm sewer, wastewater treatment and water treatment facilities; and

WHEREAS, the ARSA is a joint powers authority consisting of Amador County, Sutter Creek and Amador City for the primary purpose of transporting and treating secondary effluent from the secondary treatment facility at Sutter Creek to the tertiary treatment facility at Ione; and

WHEREAS, the PARTIES share a common watershed, the Mokelumne River watershed, which forms the southern and eastern IRWMP regional border and most of the IRWMP region lies within Amador County; and

WHEREAS, the PARTIES have entered into a MOU for Coordination of Integrated Regional Water Management Planning on 10/3/06 that specifies their shared intent to coordinate and collaborate to create integrated regional strategies for the management of water resources to improve water supply reliability, plan for droughts, improve water quality, and improve local water security within the Mokelumne River watershed, Calaveras River watershed, and the Mokelumne/Amador/Calaveras IRWMP region; and

WHEREAS, it is in the interest of the PARTIES and the region served by the PARTIES that these water resources are responsibly managed and conserved to the extent feasible; and

WHEREAS, the PARTIES wish to coordinate their long-term water supply planning efforts to ensure that the water resource management benefits of conservation, water recycling, groundwater management and other water supply initiatives undertaken by each of the PARTIES on behalf of their constituents benefit primarily the PARTY making the financial investment; and

WHEREAS, the PARTIES anticipate the potential need for future agreements on specific projects or programs and with other affected agencies to further coordinate long-term water resources management; and

WHEREAS, the PARTIES have estimated the total cost of the PLAN to be \$194,000; and

WHEREAS, the PARTIES have jointly applied for and been awarded a \$145,500 Proposition 50 grant for this PLAN from the California Department of Water Resources (DWR) and this amount will cover 75% of the total cost of the PLAN; and

WHEREAS, the PARTIES wish to share the local match cost of this PLAN at a total amount not-to-exceed \$48,500; and

WHEREAS, the following PARTIES have already contributed to the local match cost as follows for preparation of the original grant application:

- AWA - \$7,000
- EBMUD - \$5,000
- CCWD- \$5,000

WHEREAS, DWR will contract only with a single agency, and AWA will be the lead agency for contracting purposes with DWR to receive the grant on behalf of the PARTIES.

NOW, THEREFORE, in consideration of the recitals and mutual obligations of the PARTIES herein expressed, AWA, EBMUD, CCWD, Amador County, the Cities of Jackson, Sutter Creek, and Plymouth, and ARSA agree as follows:

1. PLAN DESCRIPTION

The PARTIES are working together to prepare an Integrated Regional Water Management Plan consistent with Proposition 50 Chapter 8 guidelines and requirements.

The PARTIES may develop and implement projects and programs individually or jointly or enter into additional agreements in furthering those goals outside the scope of this Agreement.

Projects and programs applicable to the PLAN include, but are not limited to, the following:

- Water supply reliability programs, including drinking water quality improvement projects.
- Water conservation programs, water use efficiency and other demand management programs.
- Water recycling and groundwater basin management programs and projects.
- Water banking, conjunctive use and transfer arrangements.
- Groundwater recharge and management projects.
- Storage development to improve system reliability, efficiencies, and flexibility.
- Flood attenuation and protection projects.
- Water quality monitoring and improvement projects and programs.
- Storm water capture, storage, treatment and management projects.
- Wetlands creation and protection programs.
- Programs for the acquisition, protection and restoration of open space and watershed lands.
- Non-point source pollution reduction, management and monitoring projects.
- Saltwater intrusion monitoring and remediation projects.
- Watershed management planning and implementation programs.
- Project and program planning and development to solicit external funding.
- Other meritorious projects or programs consistent with the purposes of this MOU.

2. COST SHARING FOR PLAN WORK

The PARTIES shall share costs for this PLAN above what the grant covers but not-to-exceed \$48,500.

AWA, EBMUD, CCWD, Amador County, the Cities of Jackson, Sutter Creek, and Plymouth, and ARSA may, at their own discretion, track its own in-kind services costs for performing certain tasks described in the DWR grant application dated May 2005 as described in Attachment 1. These costs may be eligible to count against local matches for future grants.

3. AWA'S RESPONSIBILITIES

- 3.1 Contract with a technical consultant to undertake lead consultant portion of PLAN. The description of the technical consultant PLAN tasks is provided in Attachment 1 (Proposition 50-Chapter 8 Funding Application).
- 3.2 Oversee, manage and administer consultant's work.
- 3.3 Receive and verify the various consultant invoices and pay consultant in accordance with AWA and the consultant contract.
- 3.4 Track own in-kind services costs (at its discretion) for performing tasks in the DWR Proposition 50 Chapter 8 Funding Application.
- 3.5 Provide progress reports to DWR.
- 3.6 Invoice DWR for reimbursement.
- 3.7 Invoice PARTIES in a timely manner for their share of the consultant cost.
- 3.8 Provide pertinent information to the consultant performing this PLAN work.
- 3.9 Provide oversight and review of consultant's work products.
- 3.10 Distribute all work products and DWR contract to all MOU members.

4. PARTIES' RESPONSIBILITIES

- 4.1 Work with staff from AWA in developing DWR grant contract for this PLAN.
- 4.2 Pay AWA for cost-shared portion of this PLAN upon receipt of invoice from AWA within thirty (30) days after date of invoice.
- 4.3 Provide pertinent information to AWA and the consultants performing this PLAN work, when requested.
- 4.4 Provide oversight and review of consultant's work products.
- 4.5 Track its own in-kind services costs (at its discretion) for performing tasks mentioned in Attachment 1 (Proposition 50-Chapter 8 Funding Application).

5. REPORTS OF THE USE OF FUNDS

AWA shall maintain strict accountability of all expenditures on the PLAN concerning use and disbursement of said funds.

6. HEADINGS

The paragraph headings used in this Agreement are for reference only and shall not in any way limit or amplify the terms and provisions hereof, nor shall they enter into the interpretation of this Agreement.

7. HOLD HARMLESS, INDEMNITY AND LIABILITY

In performance of this Agreement, each Party, its agents, employees, and contractors shall act in an independent capacity and not as officers, employees, or agents of any other Party. No Party assumes any liability for the activities of another Party in performance of this Agreement. Each Party is responsible only in proportion to its fault for any liability, including but not limited to personal injury or property damage that may arise out of its own actions under this Agreement. Each Party expressly agrees to defend, indemnify, and hold harmless the other Parties and their Directors, officers, agents and employees from and against any and all loss, liability, expense, claims, suits, and damages, including attorneys' fees, arising out of or

resulting from it and its employees', independent contractors' and consultants', or agents' negligent acts, errors or omissions, or willful misconduct, in the operation and/or performance under this Agreement.

8. DOCUMENT REVIEW

All PARTIES will, upon reasonable advance written notice, make available for inspection to the other PARTIES all records, books and other documents directly relating to the PLAN, as well as any other work related to water supply institutional arrangements and agreements that are required for conducting the PLAN.

It is the intent of this item that project documentation be voluntarily made available for use in the PLAN and as such is reviewable by other members of the MOU.

9. TERM

This MOU shall be effective until the terms of the DWR contract for the PLAN have been satisfied.

10. AGENCY RELATIONSHIP

Each PARTY understands and agrees that there is no agency relationship between the PARTIES. It is further understood and agreed by the PARTIES that notwithstanding anything contained herein, the employees of each PARTY shall continue to be entirely and exclusively under the direction, supervision, and control of the employing PARTY.

11. ENTIRE AGREEMENT

This Agreement is freely and voluntarily entered into by the PARTIES after having the opportunity to consult with their respective attorneys. The PARTIES, in entering into this Agreement, do not rely on any inducements, promises, or representations made by the other PARTIES, their representatives, or any other person, other than those inducements, promises, and representations contained in this Agreement. Any amendment to this Agreement shall be of no force and effect unless it is in writing and signed by the PARTIES.

12. WAIVER OF RIGHTS

Any waiver at any time by any PARTY hereto of its rights with respect to a breach or default, or any other matter arising in connection with this Agreement, shall not be deemed to be a waiver with respect to any other breach, default or matter.

13. SUCCESSORS AND ASSIGNS

This Agreement shall be binding on the successors and assigns of the respective PARTIES; provided that no assignment or transfer of this Agreement, or any part thereof or interest therein, by a PARTY shall be valid unless and until approved by the other PARTIES, which approval shall not be withheld unreasonably.

14. NOTICE

Any notice, payment, credit or instrument required or permitted to be given hereunder shall be deemed received upon personal delivery or five (5) days after deposit in any United States mail depository, first class postage prepaid and addressed to the party for whom intended; or on the same day as a facsimile transmission is sent as long as original is placed in the mail on the same day.

If to AWA: Jim Abercrombie
General Manager
Amador Water Agency
12800 Ridge Road
Sutter Creek, CA 95685
Facsimile: (209) 257-5281
Email: jaberacrombie@amadorwa.com

If to EBMUD: Cliff Threlkeld
Manager of Water Supply Division
East Bay Municipal Utility District
P.O. Box 228
Stockton, CA 95201
Facsimile: (209) 463-9751
Email: cthrelke@ebmud.com

If to CCWD: Edwin Pattison
Water Resources Coordinator
Calaveras County Water District
423 East St. Charles Street
San Andreas, CA 95249
Facsimile: (209) 754-1069
Email: edwinp@ccwd.org

If to Amador County: Patrick Blacklock
County Administrative Officer
Amador County
810 Court Street
Jackson, CA 95642
Facsimile: (209) 257-0619
Email: pblacklock@co.amador.ca.us

If to City of Jackson: Mike Daly
City Manager
City of Jackson
33 Broadway
Jackson, CA 95642
Facsimile: (209) 223-1646
Email: mdaly@ci.jackson.ca.us

If to City of Sutter Creek: J. Robert Duke
City Manager
City of Sutter Creek
18 Main Street
Sutter Creek, CA 95685
Facsimile: (209) 267-0639
Email: jrduke@suttercreek.com

If to City of Plymouth: Gene Albaugh
City Manager
City of Plymouth
9426 Main Street
Plymouth, CA 95669
Facsimile: (209) 245-6953
Email: galbaugh@ci.plymouth.ca.us

If to ARSA: J. Robert Duke
Manager
Amador Regional Sanitation Authority
18 Main Street
Sutter Creek, CA 95685
Facsimile: (209) 267-0639
Email: jrduke@suttercreek.com

Any party may change such address by notice given to the other parties as provided herein.

15. AMENDMENTS

The MOU may be amended as circumstances necessitate by written agreement executed by all PARTIES. It is anticipated that this MOU may be extended for additional cooperative planning.

16. SEVERABILITY

The partial or total invalidity of one or more parts of this MOU will not affect the intent or validity or remaining parts of this MOU.

17. GOVERNING LAW

This MOU will be deemed a contract under the laws of the State of California and for all purposes shall be interpreted in accordance with such laws.

18. INTERPRETATION

This MOU shall be deemed to have been prepared equally by all PARTIES, and its individual provisions shall not be construed or interpreted more favorably for one PARTY on the basis that the other PARTIES prepared it.

19. DISPUTES

In the event of a dispute between PARTIES over the meaning of this MOU, the PARTIES shall meet to attempt to resolve the matter.

20. CONTRACTUAL RESTRICTION ON CONSULTANT'S USE OF STUDY MATERIALS

Contractual restrictions on the consultant's use of the study material and handling of confidential material will be included in the Consulting Agreements.

21. SIGNATURES

This agreement may be executed in counterparts, including facsimile counterparts, each of which when so executed, shall be deemed to be an original.

The individuals executing this MOU represent and warrant that they have the legal capacity and authority to do so on behalf of their respective legal entities. In WITNESS WHEREOF, the parties have executed this MOU as of the effective date.

AMADOR WATER AGENCY

Jim Abercrombie
General Manager
12800 Ridge Road
Sutter Creek, CA 95685

EAST BAY MUNICIPAL UTILITY DISTRICT

Michael J. Wallis
Director of Operations and Maintenance
375 11th Street
Oakland, CA 94607

CALAVERAS COUNTY WATER DISTRICT

David Andres
General Manager
423 East St. Charles Street
San Andreas, CA 95249

AMADOR COUNTY

Richard P. Vinson
Chairman, Amador County Board of Supervisors
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Jackson, CA 95642

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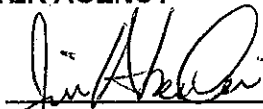
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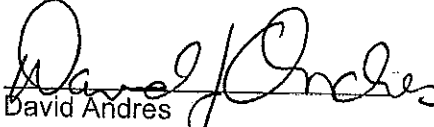
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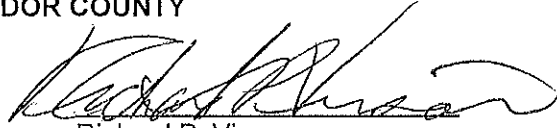
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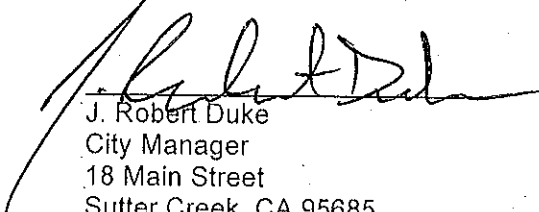
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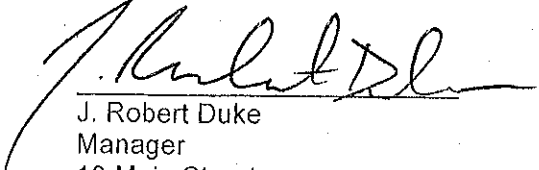


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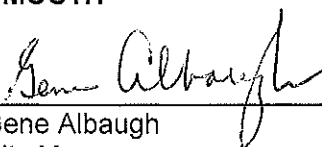
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Attachment 1: The description of PLAN tasks, schedule and costs as shown in Proposition 50-Chapter 8 Funding Application for the Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan, a joint project by Amador Water Agency, East Bay Municipal Utilities District, Calaveras County Water District, Amador County, the Cities of Jackson, Sutter Creek, and Plymouth, and Amador Regional Sanitation Authority dated May 2005.

Appendix B - IRWMP Adoption

Adoption resolutions available upon request.

Appendix C - Prioritization Documentation

Tier 2 Step 1 Prioritization

November-06

Project	Proponent	Primary IRWMP Objective	Primary Regional Criteria				Secondary Regional Criteria	Project Tier		
			Update Antiquated Water and Wastewater Infrastructure	Firm Regional Water Supply - Add Reclaimed Water	Firm Regional Water Supply - Improve Ability to Wheel	Firm Regional Water Supply - Additional Storage		Improve Fire Suppression Capabilities	First Tier	Second Tier
Amador Breached Dam Removal Project	Foothill Conservancy	Environmental / Habitat								Yes
Amador Canal Pipe Conversion Project	AWA	Water Supply	1		1		1	Yes	Yes	
Amador Dry Creek Watershed Assessment Implementation & Management Plan	UMRWC	Environmental / Habitat								Yes
Arroyo Ditch Pipe Conversion Project	AWA/Plymouth	Water Supply	1		1		1	Yes	Yes	
Backwash Water Reuse Project	AWA	Water Recycling		1				Yes		
Bear River Reservoir Expansion Project	AWA/CCWD/EBMUD/PG&E	Water Supply				1		Yes		
Broad St. Storm Drain Diversion	Sutter Creek	Stormwater & Flood Mgmt								Yes
Calaveras River Watershed Implementation Plan	UMRWC	Environmental / Habitat								Yes
Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD	Water Supply			1			Yes		
Camanche North Shore Wastewater Improvements	EBMUD	Water Quality	1					Yes		
Camanche South Shore Wastewater Improvements	EBMUD	Water Quality	1					Yes		
CAWP Fire Storage	AWA	Water Supply					1		Yes	
CAWP/AWS Inter-tie	AWA	Water Supply			1		1	Yes	Yes	
Cosgrove Creek Project	CCWD	Stormwater & Flood Mgmt								Yes
Enlarge Pardee Reservoir	AWA/CCWD/EMBUD	Water Supply				1		Yes		
Gayla Manor Wastewater Project	AWA	Water Quality	1					Yes		
Gravity Supply Line (GSL) Project	AWA	Water Supply	1		1		1	Yes	Yes	
Henderson Reservoir Dam Reinforcing Buttress	ARSA	Water Recycling	1					Yes		
Highway 4 Corridor Regional Water/ Wastewater Project	CCWD	Water Supply/ Water Quality	1	1	1			Yes		
Highway 12/26 Regional Water/ Wastewater Project	CCWD	Water Supply/ Water Quality	1	1	1			Yes		
Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA	Water Quality	1					Yes		
Inter-Regional Conjunction Use Project	AWA/CCWD/EBMUD/SJ GBA	Water Supply			1	1		Yes		
Ione Amador Plymouth Treated Water Loop	AWA	Water Supply			1			Yes		
Jackson Creek Enhancement Project	Jackson	Environmental / Habitat								Yes
Jackson Creek Watershed Project	PHAW	Environmental / Habitat								Yes
Lake Camanche WW Improvement Project	AWA/EBMUD	Water Quality	1	1				Yes		
Leak Testing and Repair Program	AWA	Water Supply	1					Yes		
Low Pressure Flow Improvements	AWA	Water Supply					1		Yes	
Marcucci Lane Culvert Project	Jackson	Stormwater & Flood Mgmt								Yes
New Hogan Reservoir Pumping Project	CCWD	Water Supply								Yes
New York Ranch Reservoir Conservation & Management	AWA/Joint	Environmental / Habitat								Yes
Off-Stream Storage on Cosumnes River	AWA	Water Supply				1		Yes		
Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMRWC	Water Supply				1		Yes		
Pardee Recreation Area Wastewater Improvements	EBMUD	Water Quality	1					Yes		
Plymouth Pipeline Improvement Project	AWA/Plymouth	Water Supply			1		1	Yes	Yes	
Plymouth Wastewater Improvements	AWA/Plymouth	Water Quality	1	1				Yes		
Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA	Water Recycling	1					Yes		
Reclaimed Wastewater Line Upgrade	ARSA	Water Recycling	1	1				Yes		
Regional Wastewater Project	AWA/ARSA/Sutter Creek	Water Quality	1	1				Yes		
River Pines Water and Wastewater Improvements	AWA	Water Quality	1					Yes		
South Shore Camanche Regional WTP Project (Joint WTP)	AWA/CCWD/EBMUD	Water Supply			1			Yes		
Temperature Study - Mokelumne and Calaveras Rivers	UMRWC	Environmental / Habitat								Yes
Treated Water to Residents Using Untreated Water	AWA	Water Supply	1					Yes		
Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC	Water Quality								Yes
Upper Mokelumne River Watershed Management Plan	UMRWC	Water Quality								Yes
West Point Water Distribution Replacement Project	CCWD	Water Supply	1				1	Yes	Yes	

Tier 2 Step 2 Prioritization

November-06

Project	Proponent	Primary IRWMP Objective	Tier 2 Step 1 Ranking	Benefits (Low=0; Medium=1; High=2; Very High = 3)				Tier 2 Step 2 Ranking
				Economic Benefits	Regional Needs	Multi-Agency/ Organization Benefits	DAC Benefits	
Amador Canal Pipe Conversion Project	AWA	Water Supply	1	2	0	1	1	15
Arroyo Ditch Pipe Conversion Project	AWA/Plymouth	Water Supply	1	1	0	1	3	13
Backwash Water Reuse Project	AWA	Water Recycling	1	2	2	0	0	15
Bear River Reservoir Expansion Project	AWA/CCWD/EBMUD/PG&E	Water Supply	1	2	2	2	2	4
Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD	Water Supply	1	3	1	0	0	15
Camanche North Shore Wastewater Improvements	EBMUD	Water Quality	1	1	0	0	1.5	24
Camanche South Shore Wastewater Improvements	EBMUD	Water Quality	1	1	0	0	1.5	24
CAWP/AWS Inter-tie	AWA	Water Supply	1	3	1	0	0	15
Enlarge Pardee Reservoir	AWA/CCWD/EMBUD	Water Supply	1	2	2	2	2	4
Gayla Manor Wastewater Project	AWA	Water Quality	1	2	0	0	0	26
Gravity Supply Line (GSL) Project	AWA	Water Supply	1	2	0	0	0	26
Henderson Reservoir Dam Reinforcing Buttress	ARSA	Water Recycling	1	0	0	0	0	30
Highway 4 Corridor Regional Water/Wastewater Project	CCWD	Water Quality / Water Supply	1	3	2	2	2	1
Highway 12/26 Regional Water/Wastewater Project	CCWD	Water Quality / Water Supply	1	3	2	2	0	6
Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA	Water Quality	1	1	1	0	1	21
Inter-Regional Conjunctive Use Project	AWA/CCWD/EBMUD/SJ GBA	Water Supply	1	2	2	3	2	1
Ione Amador Plymouth Treated Water Loop	AWA	Water Supply	1	3	1	0	1	13
Lake Camanche WW Improvement Project	AWA/EBMUD	Water Quality	1	3	0	1	0	15
Leak Testing and Repair Program	AWA	Water Supply	1	0	2	0	1	21
Off-Stream Storage on Cosumnes River	AWA	Water Supply	1	1	2	0	3	8
Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMWRC	Water Supply	1	1	2	1	2	8
Pardee Recreation Area Wastewater Improvements	EBMUD	Water Quality	1	1	0	0	0	28
Plymouth Pipeline Improvement Project	AWA/Plymouth	Water Supply	1	2	0	1	3	8
Plymouth Wastewater Improvements	AWA/Plymouth	Water Quality	1	2	0	1	3	8
Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA	Water Recycling	1	0	0	0	0	30
Reclaimed Wastewater Line Upgrade	ARSA	Water Recycling	1	2	1	0	0	21
Regional Wastewater Project	AWA/ARSA/Sutter Creek	Water Quality	1	3	2	2	2	1
River Pines Water and Wastewater Improvements	AWA	Water Quality	1	1	0	0	0	28
South Shore Camanche Regional WTP Project (Joint WTP)	AWA/CCWD/EBMUD	Water Supply	1	3	2	2	0	6
Treated Water to Residents Using Untreated Water	AWA	Water Supply	1	1	0	0	3	15
West Point Water Distribution System Replacement Project	CCWD	Water Supply	1	2	1	0	3	8
CAWP Fire Storage	AWA	Water Supply	2	2	1	0	0	32
Low Pressure Flow Improvements	AWA	Water Supply	2	1	0	0	0	33
Amador Breached Dam Removal Project	Foothill Conservancy	Environmental / Habitat	3	0	0	1	0	44
Amador Dry Creek Watershed Assessment Implementation and Management Plan	UMRWC	Water Quality	3	0	1	2	0	37
Broad St. Storm Drain Diversion	Sutter Creek	Stormwater & Flood Mgmt	3	0	0	0	0	46
Calaveras River Watershed Implementation Plan	UMRWC	Water Quality	3	0	2	2	0	34
Cosgrove Creek Project	CCWD	Stormwater & Flood Mgmt	3	3	0	0	0	37
Jackson Creek Enhancement Project	Jackson	Environmental / Habitat	3	0	0	0	3	37
Jackson Creek Watershed Project	PHAW	Environmental / Habitat	3	0	0	0	1	44
Marcucci Lane Culvert Project	Jackson	Stormwater & Flood Mgmt	3	0	0	0	3	37
New Hogan Reservoir Pumping Project	CCWD	Water Supply	3	3	1	0	0	34
New York Ranch Reservoir Conservation & Management	AWA/Joint	Environmental / Habitat	3	0	0	3	0	37
Temperature Study - Mokelumne and Calaveras Rivers	UMRWC	Environmental / Habitat	3	0	2	0	0	42
Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC	Water Quality	3	0	1	1	0	42
Upper Mokelumne River Watershed Management Plan	UMRWC	Water Quality	3	0	2	2	0	34

Tier 2 Step 3 Prioritization
November-06

Project	Proponent	Primary IRWMP Objective	Tier 2 Step 1 Ranking	Tier 2 Step 2 Ranking	Design Status				Environmental Documentation Status				Permitting Status		Implementation Period (Immediate=1; Near=2; Far=3)	Tier 2 Step 3 Ranking	
					Conceptual	Pre-Design	Design	Technical Specifications	Not Started	Project Description Initial Study Complete	Draft EIR/EIS	EIR/EIS Complete	Not Started	Started			Complete
Highway 4 Corridor Regional Water/Wastewater Project	CCWD	Water Quality / Water Supply	1	1	X					X				X			1
Inter-Regional Conjunctive Use Project	AWA/CCWD/EBMUD/SJ GBA	Water Supply	1	1	X					X				X			1
Regional Wastewater Project	AWA/ARSA/Sutter Creek	Water Quality	1	1	X					X				X			1
Bear River Reservoir Expansion Project	AWA/CCWD/EBMUD/PG&E	Water Supply	1	4	X					X				X		2	4
Enlarge Pardee Reservoir	AWA/CCWD/EMBUD	Water Supply	1	4	X					X				X		3	5
Highway 12/26 Regional Water/Wastewater Project	CCWD	Water Quality / Water Supply	1	6	X					X				X			7
South Shore Camanche Regional WTP Project (Joint WTP)	AWA/CCWD/EBMUD	Water Supply	1	6			X					X			X	1	6
Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMWRC	Water Supply	1	8	X					X				X		1	9
Off-Stream Storage on Cosumnes River	AWA	Water Supply	1	8	X					X				X			11
Plymouth Pipeline Improvement Project	AWA/Plymouth	Water Supply	1	8			X					X		X		1	8
Plymouth Wastewater Improvements	AWA/Plymouth	Water Quality	1	8	X					X				X			11
West Point Water Distribution System Replacement Project	CCWD	Water Supply	1	8		X				X				X			10
Arroyo Ditch Pipe Conversion Project	AWA/Plymouth	Water Supply	1	13	X					X				X			13
Ione Amador Plymouth Treated Water Loop	AWA	Water Supply	1	13	X					X				X			13
Amador Canal and Ione Canal Pipe Conversion Project	AWA	Water Supply	1	15				X				X			X	1	15
Backwash Water Reuse Project	AWA	Water Recycling	1	15		X	X	X	X		X	X		X		1	16
Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD	Water Supply	1	15	X					X						1	18
CAWP/AWS Inter-tie	AWA	Water Supply	1	15	X					X				X			19
Lake Camanche WW Improvement Project	AWA/EBMUD	Water Quality	1	15	X						X		X	X		1	17
Treated Water to Residents Using Untreated Water	AWA	Water Supply	1	15	X					X				X			19
Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA	Water Quality	1	21	X					X				X		2	22
Leak Testing and Repair Program	AWA	Water Supply	1	21	X					X				X			23
Reclaimed Wastewater Line Upgrade	ARSA	Water Recycling	1	21		X				X				X			21
Camanche North Shore Wastewater Improvements	EBMUD	Water Quality	1	24		X						X	X			1	24
Camanche South Shore Wastewater Improvements	EBMUD	Water Quality	1	24		X						X	X			1	24
Gayla Manor Wastewater Project	AWA	Water Quality	1	26			X				X			X		1	26
Gravity Supply Line (GSL) Project	AWA	Water Supply	1	26			X			X				X		1	27
Pardee Recreation Area Wastewater Improvements	EBMUD	Water Quality	1	28		X						X	X			1	28
River Pines Water and Wastewater Improvements	AWA	Water Quality	1	28	X					X				X		2	29
Henderson Reservoir Dam Reinforcing Buttress	ARSA	Water Recycling	1	30		X				X				X			30
Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA	Water Recycling	1	30		X				X				X			30
CAWP Fire Storage	AWA	Water Supply	2	32	X					X				X		2	32
Low Pressure Flow Improvements	AWA	Water Supply	2	33	X					X				X			33
Calaveras River Watershed Implementation Plan	UMRWC	Water Quality	3	34		X				X				X			34
New Hogan Reservoir Pumping Project	CCWD	Water Supply	3	34		X				X				X			34
Upper Mokelumne River Watershed Management Plan	UMRWC	Water Quality	3	34	X					X				X			36
Amador Dry Creek Watershed Assessment Implementation and Management Plan	UMRWC	Water Quality	3	37	X					X				X			41
Cosgrove Creek Project	CCWD	Stormwater & Flood Mgmt	3	37		X				X				X			38
Jackson Creek Enhancement Project	Jackson	Environmental / Habitat	3	37		X				X				X		1	37
Marcucci Lane Culvert Project	Jackson	Stormwater & Flood Mgmt	3	37		X				X				X			39
New York Ranch Reservoir Conservation & Management	AWA/Joint	Environmental / Habitat	3	37		X				X				X			39
Temperature Study - Mokelumne and Calaveras Rivers	UMWRC	Environmental / Habitat	3	42	X					X				X			43
Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC	Water Quality	3	42			X			X				X			42
Amador Breached Dam Removal Project	Foothill Conservancy	Environmental / Habitat	3	44				X				X			X		44
Jackson Creek Watershed Project	PHAW	Environmental / Habitat	3	44		X				X				X			45
Broad St. Storm Drain Diversion	Sutter Creek	Stormwater & Flood Mgmt	3	46	X					X				X			46

Final Prioritization

November-06

Project Priority	Project	Proponent
1	Highway 4 Corridor Regional Water/Wastewater Project	CCWD
1	Inter-Regional Groundwater Banking Project	AWA/CCWD/EBMUD/SJ GBA
1	Regional Wastewater Project	AWA/ARSA/Sutter Creek
4	Bear River Reservoir Expansion Project	AWA/CCWD/EBMUD/PG&E
5	Enlarge Pardee Reservoir	AWA/EMBUD/CCWD
6	South Shore Camanche Regional WTP Project (Joint WTP)	AWA/CCWD/EBMUD
7	Highway 12/26 Regional Water/Wastewater Project	CCWD
8	Plymouth Pipeline Improvement Project	AWA/Plymouth
9	Off-Stream Storage on Mokelumne and Calaveras Rivers	AWA/CCWD/UMWRC
10	West Point Water Distribution System Replacement Project	CCWD
11	Off-Stream Storage on Cosumnes River	AWA
11	Plymouth Wastewater Improvements	AWA/Plymouth
13	Arroyo Ditch Pipe Conversion Project	AWA/Plymouth
13	Ione Amador Plymouth Treated Water Loop	AWA
15	Amador Canal and Ione Canal Pipe Conversion Project	AWA
16	Backwash Water Reuse Project	AWA
17	Lake Camanche WW Improvement Project	AWA/EBMUD
18	Camanche - New Hogan Phase II Water Distribution Loop Project	CCWD
19	CAWP/AWS Inter-tie	AWA
19	Treated Water to Residents Using Untreated Water	AWA
21	Reclaimed Wastewater Line Upgrade	ARSA
22	Hwy 88 Corridor Wastewater Treatment/Transportation/Disposal	AWA
23	Leak Testing and Repair Program	AWA
24	Camanche North Shore Wastewater Improvements	EBMUD
24	Camanche South Shore Wastewater Improvements	EBMUD
26	Gayla Manor Wastewater Project	AWA
27	Gravity Supply Line (GSL) Project	AWA
28	Pardee Recreation Area Wastewater Improvements	EBMUD
29	River Pines Water and Wastewater Improvements	AWA
30	Henderson Reservoir Dam Reinforcing Buttress	ARSA
30	Preston Forebay Reservoir Dam Reinforcement Buttress	ARSA
32	CAWP Fire Storage	AWA
33	Low Pressure Flow Improvements	AWA
34	Calaveras River Watershed Implementation Plan	UMRWC
34	New Hogan Reservoir Pumping Project	CCWD
36	Upper Mokelumne River Watershed Management Plan	UMRWC
37	Jackson Creek Enhancement Project	Jackson
38	Cosgrove Creek Project	CCWD
39	Marcucci Lane Culvert Project	Jackson
39	New York Ranch Reservoir Conservation & Management	AWA/Joint
41	Amador Dry Creek Watershed Assessment Implementation and Management Plan	UMRWC
42	Upper Mokelumne River Watershed Bacteria Monitoring Plan	UMRWC
43	Temperature Study - Mokelumne and Calaveras Rivers	UMWRC
44	Amador Breached Dam Removal Project	Foothill Conservancy
45	Jackson Creek Watershed Project	PHAW
46	Broad St. Storm Drain Diversion	Sutter Creek

Appendix D - Public Involvement Documentation

The following pages are samples of Board and Council meeting agendas during which the M/A/C IRWMP was discussed.

AMADOR WATER AGENCY

Board of Directors Meeting

12800 Ridge Road, Sutter Creek, CA 95685

March 23, 2006

8:30 a.m.

Website Address: www.amadorwa.com

1. **CALL TO ORDER**

2. **CLOSED SESSION** - Closed session will convene at 8:30 a.m. If the matter identified below is not completed, the Board will suspend closed session and open the public portion of the meeting at 9:00 a.m. Any remaining closed session matter will be heard at the conclusion of the public portion of the meeting with the remaining Closed Session matters identified at the end of this agenda.

- A. Pursuant to Government Code Section 54957.6 -Conference with Labor Negotiators (Jim Abercrombie, Karen Gish and Doug Freifeld) –Employees' Association Group

3. **PLEDGE OF ALLEGIANCE**

4. **ADDITIONS TO AGENDA**

Items added to the agenda must be approved by the Board pursuant to Government Code Section 54954.2.

5. **PUBLIC COMMENT FOR MATTERS NOT ON THE AGENDA**

Discussion items only, no action to be taken. Any person may address the Board at this time upon any subject within the jurisdiction of Amador Water Agency; however, any matter that requires action will be referred to Staff for a report and action at a subsequent Board meeting. Please note there is a five (5) minute time limit per person.

6. **CONSENT AGENDA**

Items listed on the consent agenda (see attached) are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member.

7. **AGENCY GENERAL**

- A. Mokelumne River Forum
1. Update on status of the activities of the Forum
- B. Integrated Regional Water Management Plan (IRWMP)
1. Review and direction concerning projects for inclusion in the Plan

8. **AMADOR WATER SYSTEM**

BOARD OF DIRECTORS

Dan Brown, President Terence W. Moore, Vice President Heinz H. Hamann John P. Swift Theodore F. Novelli

- A. Lone Water Treatment Plant
 - 1. Status Update on the declaration of a maintenance emergency for the immediate replacement of the filter media

9. **COMMITTEE MEETING REPORTS**

- A. Joint Water Committee Meeting Report (2/27/06)
- B. Dry Creek Water Shed Meeting Report (3/15/06)
- C. PG&E Stewardship Council Meeting Report (3/14/06)
- D. Wastewater AdHoc Meeting Report (3/15/06)
- E. Engineering Committee

10. **GENERAL MANAGER'S MONTHLY REPORT** - General discussion of various issues for informational and communication purposes. Discussion only, no formal action will be taken. Any matter requiring action will be placed on an upcoming agenda for consideration.

11. **BOARD OF DIRECTOR DISTRICT REPORTS** - The Board Members may report on various activities, meetings, etc. that they have been involved in within their respective districts. Discussion only, no formal action will be taken. Any matter requiring action will be placed on an upcoming agenda for consideration.

12. **FUTURE AGENDA TOPICS** -This item is to provide the Board Members an opportunity to request items to be placed on future agendas.

13. **CLOSED SESSION** may be called for the following matters.

- A. Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators – Agency Negotiator, Jim Abercrombie, Gene Mancebo and Erik Christeson – concerning the following APNs
 - 020-010-039 – Perano
 - 044-110-074 and 044-110-102 – Mondani
 - 044-110-113, 044-110-114 and 044-110-115 – Timmons
 - 036-010-042, 036-010-043, 036-010-074 and 036-010-147 – Fregulia
- B. Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators – Agency Negotiator, Jim Abercrombie – concerning APN 003-420-021 – Negotiating Party, Richard and Maureen Curran– Price and Terms
- C. Pursuant to Government Code Section 54956.8 – Conference with Real Property Negotiators – Agency Negotiator, Jim Abercrombie – concerning APN 040-030-061 – Negotiating Party, Betty Gardella – Price and Terms

16. **ADJOURNMENT** - Next Regular Board Meeting – April 13, 2006

In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, then please contact Kim Toma at (209) 223-3018 or (209) 257-5281 (fax). Requests must be made as early as possible, and at least two-full business days before the start of the meeting.

BOARD OF DIRECTORS

Dan Brown, President Terence W. Moore, Vice President Heinz H. Hamann John P. Swift Theodore F. Novelli

AMADOR WATER AGENCY

CONSENT AGENDA

March 23, 2006

Items listed on the consent agenda are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member(s).

1. MINUTES
 - A. Approval of Regular Board meeting minutes of March 9, 2006

2. MISCELLANEOUS APPROVALS
 - A. Approval of Claims for the month of February, 2006

***** DATES TO REMEMBER *****

BOARD OF DIRECTORS

Dan Brown, President Terence W. Moore, Vice President Heinz H. Hamann John P. Swift Theodore F. Novelli

AMADOR WATER AGENCY

Board of Directors Meeting

12800 Ridge Road, Sutter Creek, CA 95685

June 8, 2006

9:00 a.m.

Website Address: www.amadorwa.com

1. **CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

2. **ADDITIONS TO AGENDA**

Items added to the agenda must be approved by the Board pursuant to Government Code Section 54954.2.

3. **STAFF REPORTS - 9:00 a.m. - 9:30 a.m.**

Staff Reports will be provided by Department Heads to update the Board of Directors on current activities within their areas of responsibility.

- 1) Construction
- 2) Operations
- 3) Administration
- 4) Engineering

4. **PUBLIC COMMENT FOR MATTERS NOT ON THE AGENDA**

Discussion items only, no action to be taken. Any person may address the Board at this time upon any subject within the jurisdiction of Amador Water Agency; however, any matter that requires action will be referred to Staff for a report and action at a subsequent Board meeting. Please note there is a five (5) minute time limit per person.

5. **CONSENT AGENDA**

Items listed on the consent agenda (see attached) are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member(s).

6. **AMADOR WATER SYSTEM**

- A. Update on the status of the emergency temporary/permanent repairs to the Amador Canal
 1. Ratification of Resolution No. 2006-36 Designating Agents to Execute Documents with the State of California Office of Emergency Services

7. **AGENCY GENERAL**

- A. City of Plymouth Pipeline Project
 1. Discussion, approval and direction concerning the Principles of Agreement

BOARD OF DIRECTORS

- B. Integrated Regional Water Management Plan
 - 1. Discussion and possible adoption of a Memorandum of Understanding Among the Parties
 - C. Mokelumne River Forum
 - 1. Discussion and possible adoption of the Assurance Agreement among the Parties
8. **COMMITTEE MEETING REPORTS**
- A. ACWA Conference Reports (carried over from 5/17/06)
 - B. ACWA/JPIA Meeting Report (5/8/06)
 - C. Personnel Committee Meeting Report (5/23/06)
 - D. Upper Mokelumne River Watershed Authority Meeting Report (carried over from 5/17/06)
9. **FUTURE AGENDA TOPICS** -This item is to provide the Board Members an opportunity to request items to be placed on future agendas.
10. **CLOSED SESSION** may be called for the following matters.
- A. Pursuant to Government Code Section 54956.9(a) – Existing Litigation – Conference with Agency Counsel
 - 1. Amador Water Agency vs. Mavis Marie Fregulia and Carolyn Denise Campbell, as Co-Trustees of the Mavis Fregulia 1992 Revocable Living Trust et al. Case No. 06-CV4206
 - 2. Amador Water Agency vs. Carolyn Denise Fregulia, as Trustee of the Carolyn Denise Fregulia Trust – 2002. Case No. 06-CV4205
 - 3. Amador Water Agency vs. Kenneth Perano, as Trustee of the Ernest W. Perano Exemption Trust, et al. Case No. 06-CV4189
 - 4. Amador Water Agency vs. Zelda Mondani, Case No. 06-CV4173
 - 5. Amador Water Agency vs. Gary L. Timmons and Carol L. Timmons, Trustees of the Gary L. and Carol L. Timmons Family Trust 2005, Case No. 06-CV4163
 - 6. Protect the Historic Amador Waterways vs. Amador Water Agency, Amador County Superior Court Case No. 01-CV-1191
 - 7. Protect the Historic Amador Waterways; Russell Evitt; and Susan Bragstad vs. Amador Water Agency
 - 8. Russell Evitt, et al vs. Amador Water Agency, Amador County Superior Court Case No. 05-CV-3903
 - B. Pursuant to Government Code Section 54957.6 -Conference with Labor Negotiators (Jim Abercrombie, Karen Gish and Doug Freifeld) –Employees’ Association Group, Management Group and the Confidential Group
 - C. Pursuant to Government Code Section 54956.9(b)(1) – Anticipated Litigation – Conference with Agency Counsel – one potential case
11. **ADJOURNMENT** - Next Regular Board Meeting – June 22, 2006

AMADOR WATER AGENCY

CONSENT AGENDA June 8, 2006

Items listed on the consent agenda are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member(s).

1. MINUTES
 - A. Approval of the regular Board meeting minutes of May 17, 2006

*** DATES TO REMEMBER ***

- June 6, 2006 – Transmission Pipeline Groundbreaking Ceremony, 1:30 p.m.
- June 7, 2006 – All Employee Meeting, 11:30 a.m.
- June 7, 2006 – CAMRA Meeting, 9:00 a.m.
- June 9, 2006 – Mountain Counties Water Resources Assn., 11:00 a.m.
- June 14, 2006 – Chamber Mixer, 5:30 p.m., (Kennedy Mine Amphitheater)
- June 19, 2006 – Joint Water Committee Mtg., 2:00 p.m. (Agency)

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BOARD OF DIRECTORS

AMADOR WATER AGENCY

Board of Directors Meeting

12800 Ridge Road, Sutter Creek, CA 95685

September 28, 2006

9:00 a.m.

Website Address: www.amadorwa.com

1. **CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

2. **ADDITIONS TO AGENDA**

Items added to the agenda must be approved by the Board pursuant to Government Code Section 54954.2.

3. **PUBLIC COMMENT FOR MATTERS NOT ON THE AGENDA**

Discussion items only, no action to be taken. Any person may address the Board at this time upon any subject within the jurisdiction of Amador Water Agency; however, any matter that requires action will be referred to Staff for a report and action at a subsequent Board meeting. Please note there is a five (5) minute time limit per person.

4. **CONSENT AGENDA**

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5. **IMPROVEMENT DISTRICTS**

A. Wastewater Improvement District No. 12 (Martell area)

1. Discussion and possible action concerning capacity constraints and the potential need for a suspension of processing applications for service

6. **AGENCY GENERAL**

A. County-wide Measure K – Amador County Traffic Safety and Improvement Measure

1. Presentation by Ed Swift – presentation only, no action required

B. Declaration of Surplus Property

1. Determination that APNs 033-720-001, 033-060-009 and 033-060-010 (Antelope Creek area upcountry) are Surplus Property and Authorize the General Manager to Dispose of the Surplus Real Property

C. Integrated Regional Water Management Plan (IRWMP)

1. Review Draft IRWMP Chapter 5 Project List and provide direction to Staff regarding the Agency's proposed projects

7. **COMMITTEE MEETING REPORTS**

BOARD OF DIRECTORS

- A. Dry Creek Watershed Meeting Report (9/20/06)
 - B. Joint Water Committee Meeting Report (9/18/06)
8. **GENERAL MANAGER'S MONTHLY REPORT** - General discussion of various issues for informational and communication purposes. Discussion only, no formal action will be taken. Any matter requiring action will be placed on an upcoming agenda for consideration.
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 - B. Pursuant to Government Code Section 54956.9(a) – Existing Litigation – Conference with Agency Counsel
 1. Protect the Historic Amador Waterways vs. Amador Water Agency, Amador County Superior Court Case No. 01-CV-1191
 2. Protect the Historic Amador Waterways; Russell Evitt; and Susan Bragstad vs. Amador Water Agency
 3. Russell Evitt, et al vs. Amador Water Agency, Amador County Superior Court Case No. 05-CV-3903
 12. **ADJOURNMENT** - Next Regular Board Meeting – October 12, 2006

In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, then please contact Kim Toma at (209) 223-3018 or (209) 257-5281 (fax). Requests must be made as early as possible, and at least two-full business days before the start of the meeting.

AMADOR WATER AGENCY

CONSENT AGENDA September 28, 2006

Items listed on the consent agenda are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member(s).

1. MINUTES

- A. Approval of the Board meeting minutes of September 14, 2006
- B. Approval of the Special Board meeting minutes of September 11, 2006
- C. Approval of the Special Board meeting minutes of September 14, 2006

2. RESOLUTIONS

- A. Adopt Resolution No. 2006-47 Accepting an Easement from John F. Lemke
- B. Adopt Resolution No. 2006-48 Adopting the National Incident Management System

3. MISCELLANEOUS APPROVALS

- A. Administrative Policy Manual – Section 3150 - Approval of formatting modifications to the Policy (concerning Internet, E-Mail and Electronic Communication Ethics, Usage and Security)
- B. Ione Backwash Pump Station Project – Approval of Project and Related Environmental Documentation, Findings and Filings

***** DATES TO REMEMBER *****

September 30, 2006 – Volcano Energy Expo, Volcano, CA 10:00 a.m. – 5:00 p.m.
October 9, 2006 – Holiday – Water Agency Offices Closed
October 11, 2006 – Chamber Mixer, 5:30 p.m., Umqua Bank
October 12, 2006 – Regular Board Mtg., 9:00 a.m.
October 13, 2006 – Mokelumne River Association Mtg., 10:00 a.m., Jackson
October 13, 2006 – Mountain Counties Water Resources Assn. Mtg., 11:00 a.m., Georgetown
October 16, 2006 – Joint Water Committee Mtg., 2:00 p.m., County offices

BOARD OF DIRECTORS

Dan Brown, President Terence W. Moore, Vice President John P. Swift Heinz H. Hamann Theodore F. Novelli

AMADOR WATER AGENCY

Board of Directors Meeting

12800 Ridge Road, Sutter Creek, CA 95685

October 26, 2006

9:00 a.m.

Website Address: www.amadorwa.com

1. **CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

2. **ADDITIONS TO AGENDA**

Items added to the agenda must be approved by the Board pursuant to Government Code Section 54954.2.

3. **PUBLIC COMMENT FOR MATTERS NOT ON THE AGENDA**

Discussion items only, no action to be taken. Any person may address the Board at this time upon any subject within the jurisdiction of Amador Water Agency; however, any matter that requires action will be referred to Staff for a report and action at a subsequent Board meeting. Please note there is a five (5) minute time limit per person.

4. **CONSENT AGENDA**

Items listed on the consent agenda (see attached) are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member(s).

5. **AGENCY GENERAL**

A. County-wide Measure K – Amador County Traffic Safety and Improvement Measure
Presentation only, no action

B. County-wide Measure L- Emergency Fire and Medical Aid Services Measure
Presentation only, no action

C. Integrated Regional Water Management Plan (IRWMP)

1. Approve in concept the Regional Integrated Project Concept.

D. Quarterly Investment Report

1. Presentation by Financial Services Manager Lee of the Agency's investment portfolio.

6. **AMADOR WATER SYSTEM**

A. Amador Water Transmission Pipeline Project Update

1. Presentation on the status of the construction of the pipeline project.

7. **IMPROVEMENT DISTRICTS**

BOARD OF DIRECTORS

- A. Wastewater Improvement District No. 11 (Lake Camanche)
 - 1. Discussion and direction on the wastewater treatment and disposal planning process.
- 8. **AGENCY COUNSEL REPORT**
 - A. State Legislative Update
- 9. **COMMITTEE MEETING REPORTS**
 - A. Dry Creek Watershed Meeting Report (09/30/06)
 - B. Mountain Counties Water Resources (10/13/06)
 - C. Joint Water Committee Meeting Report (10/16/06)
 - D. Mokelumne River Assn Meeting Report (10/19/06)
- 10. **GENERAL MANAGER'S MONTHLY REPORT** - General discussion of various issues for informational and communication purposes. Discussion only, no formal action will be taken. Any matter requiring action will be placed on an upcoming agenda for consideration.
- 11. **BOARD OF DIRECTOR DISTRICT REPORTS** - The Board Members may report on various activities, meetings, etc. that they have been involved in within their respective districts. Discussion only, no formal action will be taken. Any matter requiring action will be placed on an upcoming agenda for consideration.
- 12. **FUTURE AGENDA TOPICS** -This item is to provide the Board Members an opportunity to request items to be placed on future agendas.
- 13. **CLOSED SESSION** may be called for the following matters:
 - A. Pursuant to Government Code Section 54957.6 -Conference with Labor Negotiators (Jim Abercrombie and Karen Gish) –Employees' Association Group
 - B. Pursuant to Government Code Section 54956.9(a) – Existing Litigation – Conference with Agency Counsel
 - 1. Amador Water Agency vs. Carolyn Denise Fregulia, as Trustee of the Carolyn Denise Fregulia Trust – 2002. Case No. 06-CV4205
 - 2. Amador Water Agency vs. Kenneth Perano, as Trustee of the Ernest W. Perano Exemption Trust, et al. Case No. 06-CV4189
 - 3. Amador Water Agency vs. Zelda Mondani, Case No. 06-CV4173
 - 4. Amador Water Agency vs. Gary L. Timmons and Carol L. Timmons, Trustees of the Gary L. and Carol L. Timmons Family Trust 2005, Case No. 06-CV4163
 - 5. Protect the Historic Amador Waterways vs. Amador Water Agency, Amador County Superior Court Case No. 01-CV-1191

6. Protect the Historic Amador Waterways; Russell Evitt; and Susan Bragstad vs. Amador Water Agency
7. Russell Evitt, et al vs. Amador Water Agency, Amador County Superior Court Case No. 05-CV-3903

14. **ADJOURNMENT** - Next Regular Board Meeting – November 9, 2006

In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, then please contact Kim Toma at (209) 223-3018 or (209) 257-5281 (fax). Requests must be made as early as possible, and at least two-full business days before the start of the meeting.

AMADOR WATER AGENCY

CONSENT AGENDA October 26, 2006

Items listed on the consent agenda are considered routine and may be enacted by one motion. Any item may be removed for discussion and made a part of the regular agenda at the request of a Board member(s).

1. MINUTES

- A. Approval of the Board meeting minutes of September 28, 2006

2. RESOLUTIONS

- A. Adopt Resolution No. 2006-49 Approving the modified agreement between AWA And Sunset Heights
- B. Adopt Resolution No. 2006-50 Accepting property transfer from Betty J. Gardella

***** DATES TO REMEMBER *****

November 8th, 2006-Amador County Chamber Mixer- The ARC of Amador 5:30 p.m.
November 9th, 2006 Board Meeting
November 9th, 2006- By-Pass Ribbon Cutting Ceremony-Sutter Hill 2:30 p.m.
November 10th, 2006- Holiday

BOARD OF DIRECTORS

Dan Brown, President Terence W. Moore, Vice President John P. Swift Heinz H. Hamann Theodore F. Novelli

AMADOR WATER AGENCY

SPECIAL MEETING OF THE
BOARD OF DIRECTORS OF THE
AMADOR WATER AGENCY HAS
BEEN CALLED BY THE PRESIDENT FOR
November 1, 2006
7:00 p.m.
Amador County Administration Building
810 Court Street, Jackson, CA 95642
Board of Supervisors Chambers

1. **CALL TO ORDER**
2. **INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP)**
 - A. Presentation and discussion of the IRWMP Implementation Plan with the member entities
3. **ADJOURNMENT**

In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, then please contact Kim Toma at (209) 223-3018 or (209) 257-5281 (fax). Requests must be made as early as possible, and at least two-full business days before the start of the meeting.

AGENDA

MISSION STATEMENT

"Our team is dedicated to protecting, enhancing, and developing our rich water resources to the highest beneficial use for Calaveras County, while maintaining cost-conscious, reliable service, and our quality of life, through responsible management."

Regular Meeting Date:
Wednesday, May 11, 2005
8:30 a.m.

Calaveras County Water District
423 E. St. Charles St. (PO Box 846)
San Andreas, California 95249

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-3543, ext. 28. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility to this meeting.

ORDER OF BUSINESS

CALL TO ORDER / ROLL CALL – 8:30 A.M.
ANNOUNCEMENT OF CLOSED SESSION ITEM(S)
PUBLIC COMMENT AS TO CLOSED SESSION ITEM(S)

1. ADJOURN TO CLOSED SESSION

- 1a. CONFERENCE WITH LABOR NEGOTIATOR pursuant to Government Code Section 54957.6 (Gene Bell)
- SEIU

RECESS
9:00 A.M.

RECONVENE OPEN SESSION / PLEDGE OF ALLEGIANCE

2. A. REPORT ON CLOSED SESSION

B. PUBLIC COMMENT

At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work through staff members to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to five minutes per person / 15 minutes per subject.

BOARD OF DIRECTORS

Charles Hebrard, President Bertha Underhill, Vice-President
Leroy Fonseca, Director Don Deem, Director Jeff Davidson, Director

3. CONSENT AGENDA

The following items are expected to be routine / non-controversial. Items will be acted upon by the Board at one time without discussion. Any Board member, staff member, or interested person may request that any item be removed for later discussion.

- 3a. Approval of Minutes: Regular Meeting April 13, 2005
- 3b. Approval of Minutes: Special Meeting April 26, 2005
- 3c. Approval of Minutes: Special Meeting April 27, 2005
- 3d. Approval of Minutes: Special Meeting May 3, 2005

AGENDA

4. RECURRING BUSINESS

- 4a. Approval of Claim Summary #398 Secretarial Fund in the Amount of \$874,360.83 for April, 2005
(Rudy Hernandez, Finance Director) **RES. 2005 - _____**

5. OLD BUSINESS

- 5a. Discussion / Action on Commitment to Youth Watershed Stewardship Program
(Alan Turner, General Manager / Chief Counsel)
- 5b. Discussion / Action on Approval of Amendment to Water License Agreement with Rite of Passage Athletic Training Centers and Schools, Inc.
(Alan Turner, General Manager / Chief Counsel)
- 5c. Discussion / Action for Final Acceptance of Highway 26 and Silver Rapids Road Water Main Relocation Project
(Charles Palmer, Associate Civil Engineer) **RES. 2005 - _____**

6. NEW BUSINESS

- 6a. Discussion / Action on Approval to Participate in the Amador Water Agency Integrated Regional Water Management Plan
(Alan Turner, General Manager / Chief Counsel)
- 6b. Discussion / Action on Purchase of a 750 KW Standby Generator for Jenny Lind
(Bill Perley, Chief Engineer) **RES. 2005 - _____**

BOARD OF DIRECTORS

Charles Hebrard, President Bertha Underhill, Vice-President
Leroy Fonseca, Director Don Deem, Director Jeff Davidson, Director

- 6c. Discussion / Action on Contract for Investment Management Services with PFM Asset Management LLC
(Rudy Hernandez, Finance Director)
- 6d. Discussion / Action to Approve the Banking Services Contract with Central California Bank to Provide Banking Services
(Rudy Hernandez, Finance Director)
- 6e. Discussion / Action on Approval of Conveyance of 15 Acres to Kurt Cosgrove
(Steve Hutchings, Acting District Engineer) **RES. 2005 - _____**
- 6f. Discussion / Action to Establish a Limited Wastewater System Connection Moratorium for the Forest Meadows Service Area
(Alan Turner, General Manager / Chief Counsel) **RES. 2005- _____**

7. INFORMATION ITEMS (MONTHLY)

None.

8. GENERAL MANAGER'S REPORT

- 8a. Update on Finance Department Outsourcing of Utility Bills / Reminder Notices
- 8b. Proposed Draft of Water Services Agreement with VSPUD
- 8c. Update on Master Plans

9. BOARD COMMENTS, COMMITTEE REPORTS, FUTURE AGENDA ITEMS

10. NEXT BOARD MEETING(S)

- Wednesday May 25, 2005 Special Meeting
- Wednesday June 8, 2005 Regular Meeting

11. ADJOURNMENT

BOARD OF DIRECTORS

Charles Hebrard, President Bertha Underhill, Vice-President
Leroy Fonseca, Director Don Deem, Director Jeff Davidson, Director

AGENDA

MISSION STATEMENT

"Our team is dedicated to protecting, enhancing, and developing our rich water resources to the highest beneficial use for Calaveras County, while maintaining cost-conscious, reliable service, and our quality of life, through responsible management."

Special Meeting Date:
Wednesday, February 22, 2006
9:00 a.m.

Calaveras County Water District
423 E. St. Charles St. (PO Box 846)
San Andreas, California 95249

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-3543, ext. 28. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility to this meeting.

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE - 9:00 a.m.

1. ROLL CALL
2. PUBLIC COMMENT

At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work through staff members to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to five minutes per person / fifteen minutes per subject.

3. CONSENT AGENDA

The following items are expected to be routine / non-controversial. Items will be acted upon by the Board at one time without discussion. Any Board member, staff member, or interested person may request that any item be removed for later discussion.

- 3a Minutes of Special Meeting, January 25, 2006
- 3b Minutes of Regular Meeting, February 8, 2006
- 3c Approval of Engineering Committee recommendations from its February 7, 2006 meeting relative to two water service concept applications:
 - (a) Division 1 / Wallace Community Service District Concept Review for Water Service.

BOARD OF DIRECTORS

Bertha Underhill, President Jeff Davidson, Vice President
Bob Dean, Director Ed Rich, Director Charles Hebard, Director

(b) Division 5 / Jenny Lind / Water Service to APN 060-003-025, Concept Review for Water Service.

4. **PUBLIC HEARINGS** (None)

AGENDA

5. **REPORTS (MONTHLY)**

*5a General Manager's Report (Larry Diamond, Interim General Manager)

5b Engineering Department Report (Steve Hutchings, Acting District Engineer)

5c Field Activities Report (Bill Perley, Operations Superintendent)

*5d Finance Department Report (Rudy Hernandez, Finance Director)

5e Regulatory Report (Fred Burnett)

6. **RECURRING BUSINESS**

6a Discussion/approval of the Asset Replacement Revenue project budget for FY 2005/06, and approve funds transfer from the water and wastewater ARR reserves.
(Fred Burnett, Operations/Regulatory)

RES. 2006 - _____

7. **OLD BUSINESS**

7a Review, discussion, and approval of proposed revised CCWD investment policy.
(Rudy Hernandez, Financial Manager)

RES. 2006 - _____

7b Review, discussion, and approval of the MOU and Potential Projects List for the coordinated IRWMP effort with Amador County Water District.
(Ed Pattison, Grants/Water Resources)

RES. 2006 - _____

7c Approval of bids for replacement vehicles (as previously approved by Board at meetings of 11/9/05 and 2/8/06).
(Fred Burnett, Operations/Regulatory)

RES. 2006 - _____

7d Upper Mokelumne River Watershed Authority : Discussion / approval of CCWD's share of funding for the Part 2 of the Watershed Assessment Project and the Youth Watershed Stewardship Program.
(Larry Diamond, Interim General Manager)

RES. 2006 - _____

RES. 2006 - _____

7e Discussion / approval of contract extension for District's Washington D.C. lobbyist, Carmen Group.
(Larry Diamond, Interim General Manager)

RES. 2006 - _____

8. NEW BUSINESS

8a Approval and award of design contract for the La Contenta Wastewater Treatment Plant Phase 2 Expansion, CIP Project No. 15027. (Bids in 2/17; too late for packet)
(Steve Hutchings, Acting District Engineer)

RES. 2006 - _____

8b Review/discussion of proposed department goals for FY 2006/2007.
(Rudy Hernandez, Financial Manager)

8c Approval of funding for Administrative Building Repairs.
(Larry Diamond, Interim General Manager)

8d Discussion / action – COLA request.
(Fred Burnett, O&M/Regulatory Compliance)

RES. 2006 - _____

ANNOUNCEMENT OF CLOSED SESSION ITEM(S)

PUBLIC COMMENT AS TO CLOSED SESSION ITEM(S)

9. ADJOURN TO CLOSED SESSION

*9a PUBLIC EMPLOYMENT – Govt. Code 54957b(1)
▪ General Manager Recruitment

*9b CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Govt. Code 54956.9 (b) & (c)
▪ 1 Case

*9c CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Govt. Code 54956.9 (b) & (i)

- 1 Case

*9d CONFERENCE WITH LEGAL COUNSEL – POTENTIAL LITIGATION
Govt. Code 54956.9 & (c)

- 1 Case

RETURN TO OPEN SESSION _____ P.M.

10. **REPORT ON CLOSED SESSION ITEMS**

11. **INFORMATION/FUTURE AGENDA ITEMS/BOARD REPORTS**

12. **NEXT BOARD MEETING(S)**

- Wednesday March 8, 2006, 9:00 a.m. Regular Meeting

13. **ADJOURNMENT**

AGENDA

MISSION STATEMENT

"Our team is dedicated to protecting, enhancing, and developing our rich water resources to the highest beneficial use for Calaveras County, while maintaining cost-conscious, reliable service, and our quality of life, through responsible management."

Regular Meeting Date:
Wednesday, March 8, 2006
9:00 a.m.

Calaveras County Water District
423 E. St. Charles St. (PO Box 846)
San Andreas, California 95249

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-3543, ext. 28. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility to this meeting.

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE - 9:00 a.m.

1. ROLL CALL

2. PUBLIC COMMENT

At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work through staff members to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to five minutes per person / fifteen minutes per subject.

3. CONSENT AGENDA

The following items are expected to be routine / non-controversial. Items will be acted upon by the Board at one time without discussion. Any Board member, staff member, or interested person may request that any item be removed for later discussion.

3a Review/approval of Prisma Meadows Subdivision (Mapoy), Division 3, Ebbetts Pass, Concept Review for Water and Wastewater Service, as recommended by the Engineering Committee.

4. PUBLIC HEARINGS (None)

BOARD OF DIRECTORS

Bertha Underhill, President
Bob Dean, Director

Jeff Davidson, Vice President
Ed Rich, Director

Charles Hebard, Director

AGENDA

5. REPORTS (MONTHLY)

- *5a General Manager's Report (Larry Diamond, Interim General Manager)
- *5b Engineering Department Report No Report
(Steve Hutchings, Acting District Engineer)
- *5c Field Activities Report (Bill Perley, Operations Superintendent)
- *5d Finance Department Report (Rudy Hernandez, Finance Director)
- *5e Regulatory Report (Fred Burnett)

6. RECURRING BUSINESS

- 6a Review, discussion, and approval of consolidated and updated CIP Projects List.
(Rudy Hernandez, Financial Manager)

RES. 2006 - _____

7. OLD BUSINESS

- 7a Review, discussion, and approval of the Projects List for the coordinated IRWMP effort with Amador County Water District, as reviewed and recommended by the Engineering Committee
(Ed Pattison, Water Resources/Grants)

RES. 2006 - _____
- 7b Discussion / authorization for application for grant funds: EPA STAG Program, for the West Point Middle Fork Pump Station.
(Ed Pattison, Water Resources/Grants)

RES. 2006 - _____
- 7c Accept proposal of \$49,317 from Larry Walker and Associates (LWA) and authorize the Interim General Manager to enter into contract with LWA for preparation of the Copper Cove / Saddle Creek NPDES Permit.
(Fred Burnett, Operations/Regulatory Compliance)

RES. 2006 - _____
- 7d Discussion: Charging other public agencies (as originally initiated in response to request related to Ebbetts Pass new fire station at Blagen Road).
(Patricia Emerson, Administrative Services Manager)
- 7e Discussion and update on the Cosgrove Creek project.
(Larry Diamond, Interim General Manager)

- 7f For recordation, review / approval of Resolution related to previously approved refund of capacity charges for the owners of APN 034-066-006.
(Larry Diamond, Interim General Manager)

RES. 2006 - _____

8. NEW BUSINESS

- 8a Discussion / approval to extend Property Lease Agreement with Friends of the Logging Museum and the White Pines Park Committee to a 10-year term to facilitate their grants and funding applications.
(Larry Diamond, Interim General Manager)

RES. 2006 - _____

RES. 2006 - _____

ANNOUNCEMENT OF CLOSED SESSION ITEM(S)

PUBLIC COMMENT AS TO CLOSED SESSION ITEM(S)

9. ADJOURN TO CLOSED SESSION

- *9a PUBLIC EMPLOYEE APPOINTMENT – Govt. Code 54957
▪ General Manager
- *9b CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Govt. Code 54956.9 (b)
▪ 1 Case
- *9c CONFERENCE WITH LEGAL COUNSEL – POTENTIAL LITIGATION
Govt. Code 54956.9 (c)
▪ 1 Case

RETURN TO OPEN SESSION _____ P.M.

10. REPORT ON CLOSED SESSION ITEMS

11. INFORMATION/FUTURE AGENDA ITEMS/BOARD REPORTS

12. NEXT BOARD MEETING(S)

- Wednesday March 22, 2006, 9:00 a.m. Special Meeting

13. ADJOURNMENT

AGENDA

MISSION STATEMENT

"Our team is dedicated to protecting, enhancing, and developing our rich water resources to the highest beneficial use for Calaveras County, while maintaining cost-conscious, reliable service, and our quality of life, through responsible management."

Special Meeting Date:
Wednesday, August 23, 2006
9:00 a.m.

Calaveras County Water District
423 E. St. Charles St. (PO Box 846)
San Andreas, California 95249

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-3543, ext. 28. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility to this meeting.

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE

1. ROLL CALL

2. PUBLIC COMMENT

At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work through staff members to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to five minutes per person / fifteen minutes per subject.

3. CONSENT AGENDA

The following items are expected to be routine / non-controversial. Items will be acted upon by the Board at one time without discussion. Any Board member, staff member, or interested person may request that any item be removed for later discussion.

3a Approve Minutes of Regular Meeting, August 9, 2006.

3b Update list of authorized signers able to conduct Local Agency Investment Fund (LAIF) transactions
(Rudy Hernandez, Finance Director)

RES. 2006 - _____

3c Authorizing the General Manager to approve and authorize overtime pay at the rate of double-time for continuous work in excess of twelve hours until the end of the employee's work shift in emergency situations affecting public health safety.
(David Andres, General Manager)

BOARD OF DIRECTORS

Bertha Underhill, President
Bob Dean, Director

Jeff Davidson, Vice President
Ed Rich, Director

Charles Hebrard, Director

4. PUBLIC HEARINGS

- 4a Discussion / possible action to adopt the Initial Study/Negative Declaration, approve the project, and authorize preparation and filing of a Notice of Determination for the Jenny Lind Water Treatment Plant Filter Addition and Solids Handling Improvements Project, in accordance with CEQA requirements.
(Steve Hutchings, Acting District Engineer)

RES. 2006 - _____

AGENDA

5. REPORTS (MONTHLY)

- 5a *General Manager's Report (David Andres, General Manager)
- 5b Engineering Department Report Projects and Timber Harvest Activity Reports
(Steve Hutchings, Acting District Engineer)
- 5c *Field Activities Report (Bill Perley, O&M Superintendent)
- 5d *Finance Department Report (Rudy Hernandez, Finance Director)
- 5e *Regulatory Report (Fred Burnett, Operations/Regulatory Compliance)

6. RECURRING BUSINESS None

- 6a Annual Status Report, Logging Museum at White Pines Lake, including request for long-term lease.
(Pat Bradley, Logging Museum Representative)

7. OLD BUSINESS None

- 7a Adoption of Memorandum of Understanding for preparation of the Mokelumne / Amador / Calaveras Integrated Resource Management Plan and authorizing the GM to execute the MOU.
(Larry Diamond, Assistant to the General Manager)

RES. 2006 - _____

- 7b Discussion of recommendations to update water and wastewater Capacity Charges.
(Larry Diamond, Assistant to the GM / John Gomes, Information Systems Administrator)

8. NEW BUSINESS

8a Action to award a construction contract to the lowest responsible bidder for the Jenny Lind Water Treatment Plant Filter Addition & Solids Handling Improvement Project, CIP #11041; approval to issue a Construction Management Services Agreement, and approval of all construction phase expected costs.
(Steve Hutchings, Acting District Engineer)

RES. 2006 - _____

RES. 2006 - _____

8b Approving an exception to the Purchasing Policy due to project time constraints to use existing on-call contractors to relocate sewer lines at Six Mile Village as required by Caltrans' Angels Camp Bypass Project on Highway 4. Authorizing the General Manager to execute a Utility Agreement with Caltrans for reimbursement, and authorizing a temporary transfer of funds into CIP #15048 until reimbursement and project closeout.
(Steve Hutchings, Acting District Engineer)

RES. 2006 - _____

RES. 2006 - _____

8c Discussion/Action regarding participation in a water element of the County General Plan.
(David Andres, General Manager)

ANNOUNCEMENT OF CLOSED SESSION ITEM(S)

PUBLIC COMMENT AS TO CLOSED SESSION ITEM(S)

9. ADJOURN TO CLOSED SESSION

9a *CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Govt. Code 54956.9 (b)
▪ 1 Case

9b *CONFERENCE WITH LEGAL COUNSEL – POTENTIAL LITIGATION
Govt. Code 54956.9 (c)
▪ 4 Cases

9c *CONFERENCE WITH LABOR NEGOTIATORS, Govt. Code 54957.6
SEIU Local 4988 - Koff arbitration decision and labor negotiations

RETURN TO OPEN SESSION

10. REPORT ON CLOSED SESSION ITEMS

11. BOARD REPORTS / INFORMATION / FUTURE AGENDA ITEMS

12. NEXT BOARD MEETING(S)

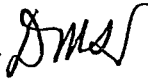
- Wednesday September 13, 2006, 9:00 a.m. Regular Meeting
- Wednesday September 27, 2006, 9:00 a.m. Special Meeting


13. ADJOURNMENT

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: June 29, 2006

MEMO TO: Board of Directors

THROUGH: Dennis M. Diemer, General Manager 

FROM: Michael J. Wallis, Director of Operations and Maintenance 

SUBJECT: Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan

INTRODUCTION

Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, authorized the Legislature to appropriate \$380 million to fund the Integrated Resource Water Management Plan Grant Program (IRWMP). The District, in cooperation with upcountry agencies, is participating in the development of the Mokelumne/Amador/Calaveras (MAC IRWMP) to qualify for funding under Proposition 50. This memo describes the MAC IRWMP and the District's involvement.

SUMMARY

The purpose of the IRWMP is to foster coordination, collaboration, and communication among regional and local agencies responsible for water and wastewater related issues, to achieve efficiency and public support for vital projects, and to provide funding through competitive grants for projects that protect communities from drought, protect and improve water quality, and improve local water security.

The District is participating with upcountry agencies to develop an integrated water plan for areas of Amador and Calaveras Counties. This effort to develop the MAC IRWMP is being led by the Amador Water Agency with local participation by Calaveras County Water District, Amador County, the cities of Jackson, Sutter Creek, and Plymouth, and the Amador Regional Sanitation Authority. All participating agencies are financial contributors and signatories to the MAC IRWMP Memorandum of Understanding.

DISCUSSION

In December 2005, Amador Water Agency was awarded and accepted a \$145,000 Proposition 50, Chapter 8 grant to prepare the MAC IRWMP for the Mokelumne, Amador, and Calaveras region. The total cost to develop the plan is \$193,600. The District was a co-applicant for this grant and has contributed \$10,000 towards its share of the application for the grant and the

Board of Directors

June 29, 2006

MAC IRWMP

Page 2

\$48,600 local match. It is the intent of the participating agencies to pursue implementation grants in the second round of funding once the plan has been adopted by the participants.

The MAC IRWMP will identify and prioritize water resource projects according to a set of criteria specified by the Proposition 50 process in order to improve regional competitiveness for future project funding. The District's regional water treatment plant in partnership with Amador Water Agency and Calaveras County Water District, a regional wastewater treatment plant in partnership with Amador Water Agency and the District's ongoing upcountry water, wastewater and recreation area improvements all totaling about \$23 million will be included in this plan by the end of 2006. Individual Proposition 50 grant applications will be prepared and submitted once the MAC IRWMP has been reviewed and accepted. Amador Water Agency has hired a consultant to prepare the plan. Staff is actively participating and representing the District in this process.

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: November 9, 2006

MEMO TO: Board of Directors

THROUGH: Dennis M. Diemer, General Manager *DM*

FROM: W. R. Alcott, Director of Water and Natural Resources *WR*

SUBJECT: Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan Update

INTRODUCTION

This memo provides an update on activities related to the development of the Integrated Regional Water Management Plan (IRWMP) for the Mokelumne/Amador/Calaveras (M/A/C) area. The development of IRWMPs has been promoted by the State through administration of grants authorized by the passage of Proposition 50 (Prop 50) in 2002. IRWMPs foster regional collaboration and integration of water resources development projects. Projects identified in an IRWMP may be eligible for Prop 50 implementation grant funding. The target deadline for completion and adoption of the M/A/C IRWMP is January 1, 2007 which will maximize chances to qualify for implementation grant funding in 2007. The M/A/C IRWMP will be presented to the Planning Committee on November 14, 2006 and will be recommended for adoption at the December 12, 2006 Board meeting.

DISCUSSION

The District has been an active participant in the development of the M/A/C IRWMP. A draft plan has been developed and presented for public review through two public meetings in Amador County and through postings on the internet. The M/A/C IRWMP describes 38 projects including four projects proposed by the District:

1. Camanche North and South Shore Wastewater Improvements – The improvements will replace major portions of the existing sewage collection and transmission systems to reduce infiltration and inflow, prevent overflows, and reduce the total loads on each of the existing oxidation pond wastewater treatment systems.
2. Pardee Area Wastewater Improvements - This project will replace the sewage collection system and laterals that serve the RV area and concessionaire facilities.
3. Camanche North Shore Joint WW Treatment Plant – This is an EBMUD/Amador Water Agency (AWA) joint wastewater improvement project to build a regional wastewater system to serve EBMUD's North Shore facilities and AWA's Lake Camanche System. The project will expand the storage and spray field disposal system to avoid future spills and enable AWA to serve the existing approved development in the area.

4. Camanche South Shore Regional WTP – This proposed project is a joint effort among EBMUD, AWA and Calaveras County Water District, to replace EBMUD’s South Shore and North Shore water treatment plants with a single plant that will serve EBMUD, AWA’s North Camanche area and CCWD’s Wallace-Burson area.

In a separate IRWMP process administered by the Eastern San Joaquin Groundwater Banking Authority (GBA), an IRWMP for a region that is adjacent to and overlaps the M/A/C IRWMP region is being developed (see Figure 1). Because the two integrated plans include several common projects participants in the two regions have tentatively agreed to include a section describing these ‘inter-regional’ projects. The inter-regional project sections of the two plans identify the Mokelumne River Forum as the venue for working with stakeholders to develop potential inter-regional projects that improve water resources management within the two adjacent planning regions.

While most of the projects in the M/A/C IRWMP are intra-regional in nature (i.e. water and wastewater infrastructure improvement projects within Amador and Calaveras Counties) the several inter-regional projects involve facilities or implementation steps that could affect the GBA’s IRWMP region. Similarly, the GBA’s IRWMP includes inter-regional project alternatives that could affect the M/A/C region. Consequently, because of the clear need for coordination between the M/A/C and GBA IRWMPs, participants have tentatively agreed that a section discussing these potential inter-regional projects should be included in both IRWMPs.

The three inter-regional projects described in the M/A/C IRWMP are:

Bear River Expansion Project – This conceptual project would increase the storage of either the Upper or Lower Bear Reservoirs by 26,000 acre feet. Both reservoirs are part of PG&E’s Upper Mokelumne River Hydro Project.

Enlarge Pardee Project – This conceptual project was proposed to be included in the plan by Amador and Calaveras participants and is based on the project alternative studied in EBMUD’s July 2003 Freeport Regional Water Project Environment Impact Report.

Ground Water Banking in San Joaquin County - This inter-regional conjunctive use project relies on new surface water supplies that are conveyed through EBMUD facilities and stored in the San Joaquin groundwater basin in wet years. In dry years water stored in the groundwater basin will be available for extraction. Figure 2 shows the different operations in wet and dry years. Participants in the Mokelumne River Forum anticipate further development of this project through the winter of 2007.

The M/A/C Integrated Regional Water Management Plan will be presented for Board consideration on December 12, 2006. The other plan partners also are scheduled to consider adoption of the M/A/C IRWMP during December 2006.

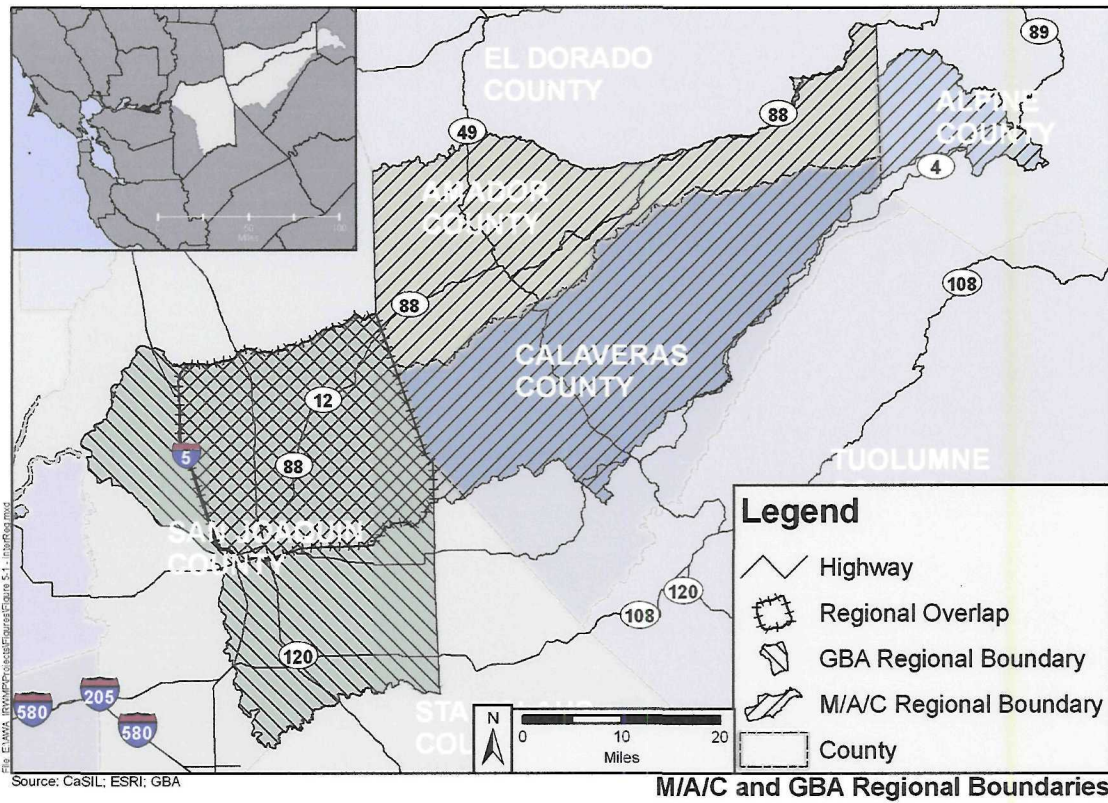


Figure 1: M/A/C and GBA Regional Boundaries

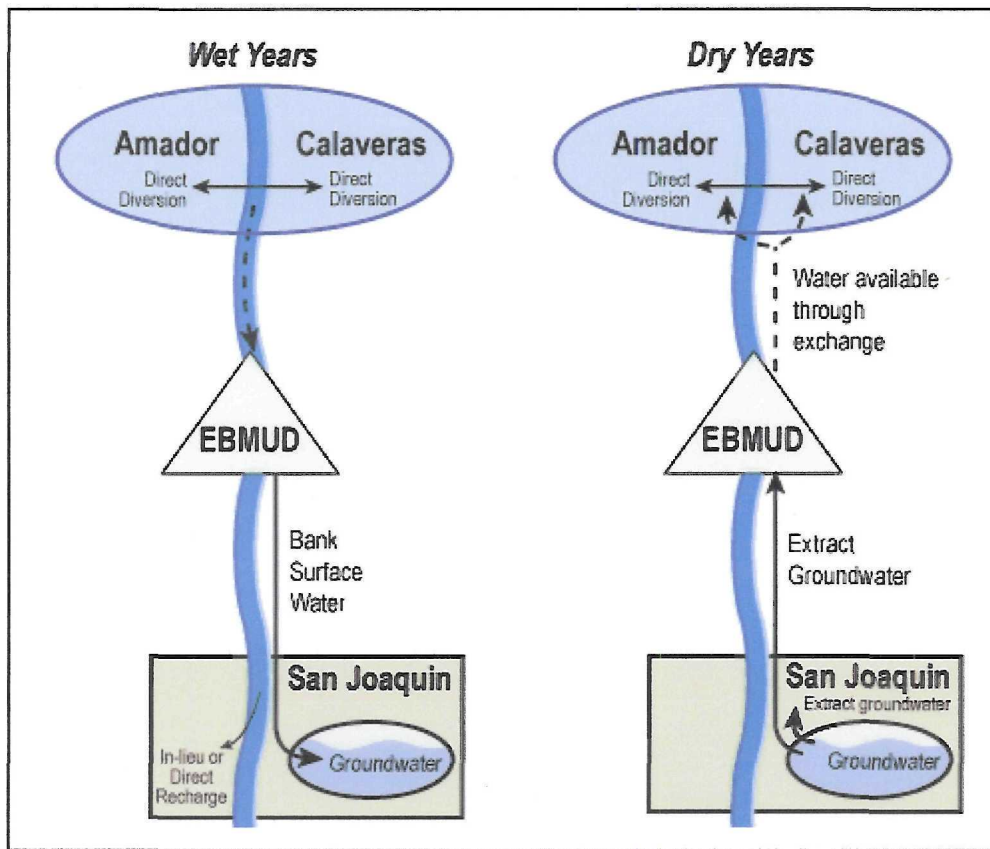


Figure 2: Inter-Regional Ground Water Banking Project Schematic



**BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT**

375 – 11th Street, Oakland, CA 94607

Office of the Secretary: (510) 287-0440

AGENDA
Special
Planning Committee
Tuesday, November 14, 2006
8:30 a.m.
Training Resource Center

(Committee Members: Directors Foulkes {Chair}, Coleman and Richardson)

ROLL CALL:

PUBLIC COMMENT: The Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

DETERMINATION AND DISCUSSION:

1. Upcountry Wastewater Improvement Program Update (Wallis)
2. Emergency Preparedness Update (Wallis)
3. Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan Update (Alcott)
4. Bay Area Integrated Regional Water Management Plan Update (Kanouse)

ADJOURNMENT:

If you require a disability-related modification or accommodation to participate in an EBMUD public meeting, please call the Office of the Secretary (510) 287-0404. We will make reasonable arrangements to ensure accessibility. Some special equipment arrangements may require 48 hours advance notice.

Jackson City Council Agenda

Monday, June 12, 2006 - 7:00 PM Regular Meeting
Jackson City Hall, 33 Broadway, Jackson, California 95642

1. CEREMONIAL. Introduction of Police Officer Michael Collins.

2. APPROVAL OF AGENDA. Approval of agenda for this date; any and all off-agenda items must be approved by the City Council (pursuant to §54954.2 of the Government Code.)

3. PUBLIC MATTERS NOT ON THE AGENDA. Discussion items only, no action will be taken. Any person may address the Council at this time on any subject within the jurisdiction of the City Council. Please note - there is a five (5) minute limit.

4. CONSENT CALENDAR. Items listed on the consent calendar are considered routine and may be enacted by one motion. Any item may be removed for discussion upon request.

- a. Approval of Minutes of December 12, 2005 and January 9, 2006 meetings.
- b. Approval of Expenditure Report for the period of June in the amount of \$ 233,354.65.
- c. Approval of Salary related items for May in the amount of \$252,326.75.
- d. Receive Jackson Police Department Monthly Report.
- e. Receive Jackson Fire Department Monthly Report.
- f. Receive Building Department Monthly Reports for May 2006
- g. Approve Application for Person to Person Transfer of Alcoholic Beverage License, "Good Friends," Jishen Pan to "China City," Sunny La, 535-536 S. Hwy 49, Jackson.
- h. Approve Application for Modification of Conditions for Alcoholic Beverage License, California Wine Sellers, Diana and Donald Johnson.
- i. Approve Special Event Permit – "Stop Home Depot/Big Boxes" Protest March.

5. ADMINISTRATIVE REPORTS. This section is to provide staff an opportunity to present oral status reports on issues. No action is expected to be taken by the Council.

6. COUNCIL REPORTS. This section is to provide Council members an opportunity to present reports on their activities and to request items be placed on future agendas.

DISCUSSION CALENDAR

7. **Public Hearing - Presentation and Discussion of the 03-PTAA-0063 CDBG Grant: A Planning Study for the Amador-Tuolumne Community Action Agency (ATCAA) Multi-Services Facility.** Conduct public hearing and accept report.
8. **Public Hearing - Jackson Business Improvement District.** Conduct public hearing and determine Council action.
9. **Public Hearing – Tentative Parcel Map 2728 and Rezone from C-2 to C-2 with a Planned Development (PD) Overlay, Susie Simmons & Eve Fenstermaker, APN 020-311-003.** Conduct public hearing to determine Council action.
10. **Citizen Request to Rezone 58 Acre Parcel(s) Between North Main Street and Highway 49/88, APNs 020-070-025, 020-070-027, 044-010-031.** Review and determine Council action.
11. **Memorandum of Understanding for the Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan.** Review and determine Council action.
12. **Planning Commission and Cemetery Committee Vacancies.** Announce and schedule appointments for June 26, 2006 meeting.

13. ADJOURNMENT

Posted: City Hall, 33 Broadway, Jackson

In compliance with the Americans with Disabilities Act (ADA), if you need special assistance to participate in this meeting, you should contact the Office of the City Clerk at (209) 223-1646 (voice) or (209) 223-3141 (fax). Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting.

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for copies of previous agendas, minutes and City budget.

CITY OF JACKSON

MEMORANDUM

TO: Honorable Mayor and Members of the City Council

FROM: Michael Daly, City Manager

DATE: June 12, 2006

SUBJECT: Memorandum of Understanding for the Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan

RECOMMENDATION

That the City Council pass a motion authorizing the City Manager to sign the Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan (M/A/C IRWMP) Memorandum of Understanding (MOU), solidifying the City's commitment to the regional planning process necessary to develop and implement projects with regional and local benefits.

DISCUSSION

The IRWM Grant Program is a joint program between the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB). The purpose of the IRWM Grant Program is "to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water."

Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, authorized the Legislature to appropriate approximately \$380 million to fund the IRWM Grant Program (Chapter 8). This money is available in two rounds. The first round will award to successful applicants approximately \$160 million. The second round will award approximately \$220 million.

Funding is available for IRWM Planning and Implementation Grants. The M/A/C project team has already been awarded \$145,500 as a Planning Grant to complete an IRWM Plan. It is the intent of the project sponsors to pursue an Implementation Grant in the second round of funding.

Attached is a copy of the staff report presented to and approved by the City Council at the January 23, 2006, meeting to participate in this program. The MOU document demonstrates the commitment of each stakeholder agency to participate in the future program elements.

/attachments

Jackson City Council Agenda

**Monday, January 23, 2006 - 7:00 PM Regular Meeting
Jackson City Hall, 33 Broadway, Jackson, California 95642**

1. APPROVAL OF AGENDA. Approval of agenda for this date; any and all off-agenda items must be approved by the City Council (pursuant to §54954.2 of the Government Code.)

2. PUBLIC MATTERS NOT ON THE AGENDA. Discussion items only, no action will be taken. Any person may address the Council at this time on any subject within the jurisdiction of the City Council. Please note - there is a five (5) minute limit.

3. CONSENT CALENDAR Items listed on the consent calendar are considered routine and may be enacted by one motion. Any item may be removed for discussion at the request of a Council member.

- a. Approval of Minutes of June 27, 2005 and July 11, 2005 meetings.
- b. Approval of Expenditure Report for the period of January \$ 272,087.69.
- c. Accept November, 2005 Treasurer's Report and Sales Tax Report.
- d. Receive Jackson Police Department Monthly Report.
- e. Receive Jackson Fire Department Monthly and Yearly Reports.
- f. Adopt Resolution Approving One-Way Direction on Shopping Circle Drive.
- g. Adopt Resolution for Notice of Completion – Court and Water Street Resurfacing Project.

4. ADMINISTRATIVE REPORTS. This section is to provide staff an opportunity to present oral status reports on issues. No action is expected to be taken by the Council.

DISCUSSION CALENDAR

- 5. Continued Public Hearing: Request from Amador Tuolumne Community Action Agency for Emergency Grant for Transitional Shelter.** Review and determine Council action.
- 6. Request for Participation in the Integrated Regional Water Management Plan with Amador Water Agency, Amador County, cities of Sutter Creek, Ione and Plymouth, and other Interested Parties.** Review and determine Council action.
- 7. Accept Presentation of State Route 88 Corridor Improvement Alternatives Analysis**

Report. Accept Presentation and Provide Direction to Staff.

- 8. Public Hearing: Regional and Local Traffic Mitigation Fee Programs – Annual Report of Activities for Both Programs and Consideration of Amended Memorandum of Understanding with Other Participating Agencies for the Regional Traffic Mitigation Fee Program.** Review and determine Council action.
- 9. Comment Letter Regarding Proposed Statewide Wastewater Collection System Agency Waste Discharge Requirements.** Discuss and determine Council action.
- 10. Council Committee Assignments.** Review current assignments and appointment process.

11. COUNCIL REPORTS. This section is to provide Council members an opportunity to present reports on their activities and to request items be placed on future agendas.

12. CLOSED SESSION.

- a. Public Employee Annual Performance Evaluation: City Manager. (Pursuant to Government Code Section 54957)

13. ADJOURNMENT

Posted: City Hall, 33 Broadway, Jackson

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for copies of previous agendas, minutes and City budget.

CITY OF JACKSON

MEMORANDUM

TO: Honorable Mayor and Members of the City Council

FROM: Michael Daly, City Manager

DATE: January 23, 2006

SUBJECT: Request for Participation in the Integrated Regional Water Management Plan

RECOMMENDATION

That the City Council authorize the expenditure of up to \$5,000 from the General Fund reserves to become a participant in the Integrated Regional Water Management Plan grant obtained by the Amador Water Agency.

DISCUSSION

The Amador Water Agency recently received notice of a \$145,000 grant award to prepare an Integrated Regional Water Management Plan (IRWMP). The IRWMP is an essential planning tool for development of projects that could receive funding from Proposition 50, Chapter 8, which has approximately \$380 million available for planning and implementation grants for water management projects, as well as future state funding opportunities beyond Proposition 50.

The City's participation in the IRWMP will greatly improve its standing for obtaining Proposition 50 funding for projects that could improve water quality in Jackson Creek or environmental enhancement projects such as the Jackson Creek restoration project. The state places a high funding priority for projects developed in a collaborative manner. The plan's goals and objectives fall into the broad categories of water supply, water quality, flood protection, environmental protection and enhancement, and regional communication and cooperation.

The total cost to develop this plan is estimated to be \$194,000. As noted above, the Amador Water Agency received a grant to cover \$145,000 of this cost. They have already spent \$17,000 on plan development with RMC Water and Environment, the consultant hired to prepare the plan. The remaining \$31,500 is proposed to be shared among all participating agencies, including all cities in the County and the Amador Regional Sanitation Agency (ARSA). The Upper Mokelumne River Watershed Council has also expressed interest in being a stakeholder.

Attached are some of the draft documents developed to date related to the goals, objectives and priorities of the IRWMP. An MOU document will also be developed and brought back to the City Council for consideration if it opts to participate in this opportunity.

/attachments

cc: Jim Abercrombie, Amador Water Agency

The following page is the November 1, 2006
public meeting sign-in sheet.

M/A/C IRWMP Jackson 11/1/00

<u>Sign In</u>	<u>Representing</u>	<u>Phone / e-mail</u>
Cliff Threlkeld	SBWUD	209-946-8210 / ctthrelkeld@sbwud.ca
Dan Brown	AWA	
Caul Clinch	AWA / WSA	294-1763
MIKE FLOYD	DAY R (STATE)	9166537912 / MFLORP@WATER.CA.GOV
GRANT REYNOLDS	COSC / ARSA	223-0381 / grant@urfed.com
GENE MANCIBO	AMADOR WATER	2572545 / gmancib@amadorwatersupply.com
Julie Leimbach	Serra Nevada Alliance	julees@serrianevadaalliance.org 530-622-8497
Pete Bell	Foothill Conservancy	791-5734 pbell@edspot.net
PAT CROSBY	Sutter Creek	CROSBY PAT99@Comcast.net
Kirk Lindsay	Amador City	wrdogood.Things@gmail.com
ROD SCHULER	AMADOR COUNTY RETIRED	223-0723 rschuler@volcano.net
Mike Daly	City of Jackson	
Edwin Fattison	CCWD	edwinf@ccwd.org 209/734-3543 X229
Terry Strange	UMRWC	223-0336 makewatershade@volcano.net
JILL NORTH	SELF	223-0336
Ted Novelli	AWA / downey	RNA@Volcano.net

