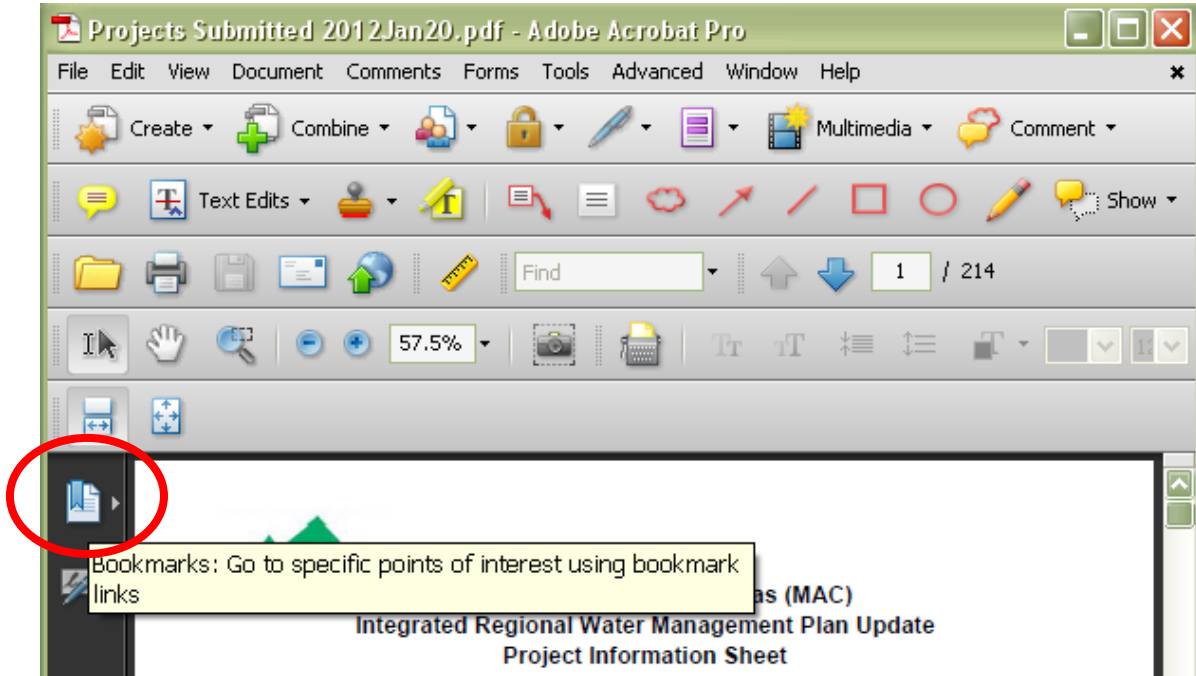


This file consists of the 28 project information sheets submitted by January 20, 2012 as part of the Mokelumne/Amador/Calaveras (MAC) Integrated Regional Water Management (IRWM) Plan Update project solicitation process.

You can navigate through the project forms using the bookmarks in Adobe Acrobat or you can jump to a project based on the page numbers provided below.



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**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: CAWP & AWS Intertie

Project Location: Ridge Road, Climax, New York Ranch Rd., Amador County

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Will meet and or exceed all applicable water quality regulatory standards.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Provide additional water storage and fire supplies.

Goal: Maintain and improve water infrastructure reliability.

Description: Provide additional capacity for water storage and emergency water needs.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: Provides for emergency water transfers between two impacted water systems.

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input checked="" type="checkbox"/> Water Transfers |

Conjunctive Management & Groundwater Storage

Desalination

Precipitation Enhancement

Recycled Municipal Water

Surface Storage – CALFED

Surface Storage – Regional/local

Drinking Water Treatment and Distribution

Groundwater Remediation/Aquifer Remediation

Matching Quality to Use

Pollution Prevention

Salt and Salinity Management

Urban Runoff Management

Flood Risk Management

Agricultural Lands Stewardship

Economic Incentives (Loans, Grants and Water Pricing)

Ecosystem Restoration

Forest Management

Recharge Area Protection

Water-Dependent Recreation

Watershed Management

Crop Idling for Water Transfers

Dewvaporation or Atmospheric Pressure Desalination

Fog Collection

Irrigated Land Retirement

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 systems 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 other plant. The CAWP system would delivery water via gravity to AWS and AWS would 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.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is in the conceptual planning stage. Design and environmental documentation are contingent on securing funding for the project.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

It is anticipated that the appropriate environmental document for this project will be a Negative Declaration. Environmental documentation is contingent on securing funding for the project.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

N/A

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Ken Zeier, Amador Canal Potable Water Feasibility Report, 2009

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 5.4 million

Annual O&M Costs: \$ Unknown

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Unknown

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): N/A

Possible Funding Sources: Not yet determined

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Ken Zeier, Amador Canal Potable Water Feasibility Report, 2009

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: N/A

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Avoided Costs of New Supplies: Unknown

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: N/A

Acre-feet Per Year of Reduced Demand: N/A

Water Quality Benefits

Reduction in pollutant loading: N/A

Reduction in pollutant transport: N/A

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: N/A

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): N/A

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

The Jackson Band of Mi-Wuk Indians receives water from AWS and would benefit from this project during the scenarios discussed previously.

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the

project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: CAWP Gravity Supply Line

Project Location: Buckhorn Area of Amador County

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Water quality from the Tiger Creek Regulator is superior to the Afterbay.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Eliminates the need for constant pumping of water from Tiger Creek Afterbay

Goal: Maintain and improve water infrastructure reliability.

Description: Eliminating the need for year-round pumping provides water reliability during significant storm events and wildfires when the power supply to the pump stations, which are the sole source of water to the treatment plant, is interrupted.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency

- | | |
|---|---|
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input checked="" type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Watershed Management |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The Central Amador Water Project (CAWP) is owned and operated by the Amador Water Agency and consists of a pumped diversion from the Mokelumne River at the PG&E Tiger Creek Afterbay through two pump stations to the Buckhorn Water Treatment Plant (WTP). PG&E has a series of hydroelectric facilities along the Mokelumne River, which include Tiger Creek, West Point and Electra Powerhouses. Water from the Tiger Creek Regulator travels 2.5 miles along the Tiger Creek conduit to the Tiger Creek Forebay, which is a 42 AF concrete lined reservoir. Water from the Forebay travels through 4,750 feet of penstock to the Tiger Creek powerhouse and empties into the Tiger Creek Afterbay where water is diverted and pumped to Buckhorn WTP.

Buckhorn WTP provides treated water on a wholesale basis to four (4) retail water purveyors as well as providing treated water for retail sale by Amador Water Agency to five (5) Improvement Districts. These areas are located primarily along the Highway 88 corridor from the Mace Meadow area to Sunset Heights. Currently, construction of a new membrane Buckhorn WTP is underway with anticipated completion in Spring 2005. The new Gravity Supply Line (GSL) will divert water from the PG&E Forebay and connect to an existing pipe at the Silver Lake Pines Pump Station and then use the existing 12-inch line to connect to the new Buckhorn WTP (Figure A). The GSL would greatly reduce Amador Water Agency's dependence on the existing Silver Lake Pines and Tiger Creek pump stations and electrical dependence and expenditures. 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 6 mile, 18 & 24-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 are complete.

The estimated project cost is \$13 million including design costs. A potential funding source includes the Rural Utility Services (RUS) program administered by the United States Department of Agriculture.

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is ready to bid and begin construction, there is, however, no start date. The design is finished, the easements are obtained. Environmental documentation is complete. The project still needs funding.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

All environmental documentation has been completed in the form of a Mitigated Negative Declaration (CEQA) and a Environmental Impact Statement (Federal).

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

1989 – Leedshill-Herkenhoff Study

1995 – HDR CAWP System Master Plan

2007 – AWA In-House Study

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 13.5 million – 0.5 million PG&E grant and 6 million USDA grants have already been obtained, but this already impacted community can not currently afford the 40 year loan on the remaining project costs.

Annual O&M Costs: \$ 5,700

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): N/A

Possible Funding Sources: PG&E, USDA Rural Services

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: \$300,000 per year

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Avoided Costs of New Supplies: N/A

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: N/A

Acre-feet Per Year of Reduced Demand: N/A

Water Quality Benefits

Reduction in pollutant loading: N/A

Reduction in pollutant transport: Benefit no quantified, but sampling reveals better water quality via the Regulator versus the Afterbay.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: N/A

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): N/A

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Treated Water to Residents Using Untreated Water

Project Location: Sutter Creek Vicinity, Jackson Valley and Buena Vista areas

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Project will provide treated domestic water supplies to residents currently utilizing untreated water.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency
- Conveyance – Delta
- Conveyance – Regional/local

- | | |
|---|--|
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Watershed Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your

project, related water and environmental resources within the project boundaries, and any potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

Historically, some residents of Amador County along the Amador Canal have utilized untreated water in their homes for domestic use. Water is transferred from Lake Tabeaud via the Amador Canal conveyance 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 extend treated water service to the Bosse/Previtali area and to 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.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is currently in the conceptual design phase and is contingent upon funding.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

The environmental documentation is complete and was an Environmental Impact Report.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

A STUDY ON THE FEASIBILITY OF SUPPLYING POTABLE WATER TO CUSTOMERS ALONG THE UPPER SECTION OF THE AMADOR CANAL IN CENTRAL AMADOR COUNTY, Ken Zeier, P.E. 2009

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 3,870,087

Annual O&M Costs: \$ 3,060

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 Years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: State Revolving Fund

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Avoided Costs of New Supplies: N/A

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: N/A

Acre-feet Per Year of Reduced Demand: 1,120

Water Quality Benefits

Reduction in pollutant loading: N/A

Reduction in pollutant transport: N/A

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: N/A

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): N/A

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Lake Camanche Wastewater Improvement Program

Project Location: Lake Camanche, Amador County

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|--|--|
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Watershed Management |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input checked="" type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input checked="" type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 has been completed. Phase II will cost approximately \$14 million.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is in the conceptual planning phase, with some environmental work completed and is contingent upon funding.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Draft EIR/EIS

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Other possible project participants include EBMUD and the project by combining customer bases brings an economy of scale to the ratepayers.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 14 million

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): Click here to enter text.

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: SWRCB – Small Community Wastewater Grant Program, State Revolving Fund and Rates / Fees.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: N/A

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Avoided Costs of New Supplies: N/A

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: Unquantified

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: N/A

Acre-feet Per Year of Reduced Demand: N/A

Water Quality Benefits

Reduction in pollutant loading: Improved treatment processes.

Reduction in pollutant transport: Improved treatment processes.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: N/A

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): N/A

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

Portions of the Lake Camanche area have been established as a disadvantaged community.

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Small Diameter Pipeline - Raw Water Canal to Pipe Conversion Project

Project Location:

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 90% 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.

Piping the earthen canal in place would conserve approximately 11,200 acre feet of water per year and allow that water to flow further down the Mokelumne River.

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 allows AWA to begin delivering water to the treatment plant and other customers. Phase I construction has been completed. 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.

The replacement of the canal 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. The project design is complete and cost estimates have been produced. Phase I has been completed. Phase II will take approximately two years to complete. The Phase II cost is approximately \$3.5 million.

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

[Click here to enter text.](#)

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

[Click here to enter text.](#)

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ [Click here to enter text.](#)

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): [Click here to enter text.](#)

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: [Click here to enter text.](#)

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: 1,120 acre feet per year

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: 56 acres restored

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: *Inter-Regional Conjunctive Use Project*

Project Location: Click here to enter text.

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Conveyance – Regional/local |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): CCWD, EBMUD, SJGBA

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

[Click here to enter text.](#)

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

[Click here to enter text.](#)

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 5 million

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): Click here to enter text.

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Click here to enter text.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

Click here to enter text.

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Amador Water System Regional Water Treatment Plant

Project Location: Martell Area

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input checked="" type="checkbox"/> Water Transfers |

Conjunctive Management & Groundwater Storage

Desalination

Precipitation Enhancement

Recycled Municipal Water

Surface Storage – CALFED

Surface Storage – Regional/local

Drinking Water Treatment and Distribution

Groundwater Remediation/Aquifer Remediation

Matching Quality to Use

Pollution Prevention

Salt and Salinity Management

Urban Runoff Management

Flood Risk Management

Agricultural Lands Stewardship

Economic Incentives (Loans, Grants and Water Pricing)

Ecosystem Restoration

Forest Management

Recharge Area Protection

Water-Dependent Recreation

Watershed Management

Crop Idling for Water Transfers

Dewvaporation or Atmospheric Pressure Desalination

Fog Collection

Irrigated Land Retirement

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: [Click here to enter text.](#)

Affiliation: [Click here to enter text.](#)

Address: [Click here to enter text.](#)

Phone: [Click here to enter text.](#)

Email: [Click here to enter text.](#)

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The Amador Water System is owned and operated by the Amador Water Agency and consists of gravity diversion from the Mokelumne River at the PG&E Lake Tabeaud to a newly constructed nine mile, 30" CMLC steel pipeline to the Tanner WTP. The existing WTP is a conventional plant with an ultimate treatment capacity of 6 MGD and provides treated water on a wholesale basis to the City of Jackson and Drytown Community Service District as well as providing treated water for retail sale to the cities of Sutter Creek, Amador City and the Martell Area. Raw water is also delivered from Tanner WTP to the Lone WTP which services the City of Lone.

Agency Staff investigated conventional versus membrane treatment plants, evaluated the various membrane providers and presented the findings to the Agency Board in August 2007. Based on those findings, Staff was directed to proceed with design of a Pall membrane WTP. The new Tanner Membrane MF WTP will initially built to 8 MGD, expandable to 20 MGD (plus necessary redundant capacity), such that it will ultimately replace both of the existing Tanner and Lone WTPs.

Project Status: In Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Project pre-design is completed.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Environmental review completed.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 20 million

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): Click here to enter text.

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Click here to enter text.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



Mokelumne/Amador/Calaveras (MAC) Integrated Regional Water Management Plan Update Project Information Sheet

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Lower Amador Canal Project

Project Location: Sutter Creek, CA

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

Conjunctive Management & Groundwater Storage

Desalination

Precipitation Enhancement

Recycled Municipal Water

Surface Storage – CALFED

Surface Storage – Regional/local

Drinking Water Treatment and Distribution

Groundwater Remediation/Aquifer Remediation

Matching Quality to Use

Pollution Prevention

Salt and Salinity Management

Urban Runoff Management

Flood Risk Management

Agricultural Lands Stewardship

Economic Incentives (Loans, Grants and Water Pricing)

Ecosystem Restoration

Forest Management

Recharge Area Protection

Water-Dependent Recreation

Watershed Management

Crop Idling for Water Transfers

Dewvaporation or Atmospheric Pressure Desalination

Fog Collection

Irrigated Land Retirement

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The Lower Amador Canal in Sutter Creek, CA flows from the Tanner Water Treatment Plant to the City of Suter Creek in an open earthen canal and 120 year old riveted pipe. This untreated water system has extensive leaks and is a tremendous waste of water. The leaking water has the potential to contaminate agricultural lands and waterways.

This project plans to replace the canal in place with 12,000 feet of new 10” C900 water piping at a cost of approximately 1.5 million dollars.

Project Status: Pre-Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

In Design

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

[Click here to enter text.](#)

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 1.5 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Rates, private developers, utility cooperation, state, federal and grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

All of the affected service areas are areas of low income housing. Benefits

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



Mokelumne/Amador/Calaveras (MAC) Integrated Regional Water Management Plan Update Project Information Sheet

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Backwash Water Reuse Project

Project Location: Buckhorn, Lone & Tanner Water Treatment Plants

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|--|--|
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input checked="" type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 2012. 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 Water Treatment Plant.

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Design complete for Buckhorn and Ione, pre-design for Tanner.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Buckhorn – CEQA complete, Ione – Document in progress, Tanner CEQA not started

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Unimin Supply, Amador Water System Conservation, Lone Sewer System Capacity, Tanner Backwash Improvement Project, Mace Meadows Golf Course Water Supply

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ Click here to enter text.

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): Click here to enter text.

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Buckhorn- rate recovery, City of Lone – local developer and AWA, Tanner – rate recovery.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: CAWP Fire Storage

Project Location: Pioneer & Pine Grove areas, CSA #1 and #2

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Project not ready to begin. After 2012 to be determined

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Not Started

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Project would include the communities of Pioneer, Pine Grove, Ranch House, Sunset Heights, Rabb Park, Pine Acres, Ridgeway Pines, Mace Meadows and Castle Oaks.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 5 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Not yet identified.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Highway 88 Corridor Wastewater Treatment, Transportation and Disposal

Project Location: Highway 88, Buckhorn to Martell, Amador City

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" type="checkbox"/> Pollution Prevention | <input checked="" type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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. Preliminary planning shows that the project could be completed with approximately 25 miles of mainly 8” C900 pipe. 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. Based on price escalations on similar projects, the project cost is now estimated to be approximately \$10 million.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Not ready

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Not started

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 10 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Not yet identified

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the

project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Lone / Plymouth Treated Water Loop

Project Location: Lone, Plymouth, Amador City, Dry Town along Highways 16, 49, 124 locale

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input checked="" type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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.

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 Treated Water Loop is expected to run from Plymouth, along Highway E16, to Ione via Highway 124. The project would install 12 miles of 12” C900 water piping at a cost of approximately \$7 million.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is not yet ready with no anticipated start date. The design is conceptual.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

The Environmental documents have not been started. It is anticipated that this project will require ????????

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 7 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: [Click here to enter text.](#)

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



Mokelumne/Amador/Calaveras (MAC) Integrated Regional Water Management Plan Update Project Information Sheet

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Regional Wastewater Project

Project Location: Jackson, Martell, Sutter Creek, Amador City & Vicinity

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

Conjunctive Management & Groundwater Storage

Desalination

Precipitation Enhancement

Recycled Municipal Water

Surface Storage – CALFED

Surface Storage – Regional/local

Drinking Water Treatment and Distribution

Groundwater Remediation/Aquifer Remediation

Matching Quality to Use

Pollution Prevention

Salt and Salinity Management

Urban Runoff Management

Flood Risk Management

Agricultural Lands Stewardship

Economic Incentives (Loans, Grants and Water Pricing)

Ecosystem Restoration

Forest Management

Recharge Area Protection

Water-Dependent Recreation

Watershed Management

Crop Idling for Water Transfers

Dewvaporation or Atmospheric Pressure Desalination

Fog Collection

Irrigated Land Retirement

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Gene Mancebo

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The communities of Jackson, Sutter Creek, Amador City, Ione and Martell all have independently operated wastewater treatment facilities. All of the facilities are old, in need of repair and upgrades. 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*.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Click here to enter text.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Environmental not started

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 20 million

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Click here to enter text.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



Mokelumne/Amador/Calaveras (MAC) Integrated Regional Water Management Plan Update Project Information Sheet

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: New York Ranch Reservoir Conservation and Management

Project Location: Amador County off of Ridge Road

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input checked="" type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 Tabeaud to the Tanner Reservoir. After the Amador Canal and Ione Canal Pipe Conversion Project s 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 \$600,000 for the management plan and implementation. \$75,000 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).

Project Status: Pre-Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

[Click here to enter text.](#)

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

[Click here to enter text.](#)

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 600,000

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Click here to enter text.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: 19 acres

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the

project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Amador Water Agency Low Pressure Flow Improvements

Project Location: Pioneer

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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.

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Ready to proceed with the study.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Not yet determined.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ Not determined

Annual O&M Costs: \$ 500,000

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): [Click here to enter text.](#)

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Not identified

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Lake Camanche Water Storage tank & Transmission Main

Project Location: Lake Camanche, Lone , Amador County

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

Lake Camanche Water Improvement District No. 7 (WID #7) is a groundwater system with a series of wells, storage tanks, hydro-pneumatic tanks and booster stations with an estimated yearly production of 100 million gallons that serves over 740 service connections.

The Camanche water system has a number of existing deficiencies that burden this small disadvantaged community. Among these are the inability to provide: the required minimum required chlorine contact time, the minimum level of water quality, and the minimum emergency and fire flow water storage.

Positive Coliform bacteria tests, in source water from Well No. 9, have been frequent and are discussed in several CDPH Notice of Violation letters. The new Well No. 14 is located approximately 1,300' from Well No. 9 and appears to draw from the same aquifer. Well No. 14 has been observed to draw down well No. 9 and is expected to have the same problems with Coliform bacteria detection. Chlorine treatment of the well water along with sufficient chlorine treatment contact time is needed.

Currently Well No. 9 and Well No. 14 source waters are pumped directly into the distribution system. The Water Agency has recently begun chlorine injection at the well sites, but due to the close proximity (3,600') of service connections to the wells, the required chlorine contact time is not currently being achieved, as required in Health and Safety Section 64426.1 of Title 22.

A dedicated disinfection pipeline has been proposed from the existing Wells No 9 & 14 to Tank 9. Chlorine contact time cannot be obtained solely with this pipeline as the existing tank is too small. It would be impractical to retrofit Tank 9 due to the tank's age, small size and decaying condition.

WID #7 currently provides a total of 674,000 gallons of emergency and operational storage. The old redwood storage tanks often suffer from weather damage, general decay and small animal damage, usually at the high water level. In order to reduce water waste the high levels of these tanks have been operationally lowered. Several iterations of lowering the tank high levels have significantly reduced the storage capacity of the tanks below their nominal capacity, several feet in some cases. These reduced storage capacities of the tanks have reduced the emergency availability of water during power failures, fire events, and drought situations by approximately 13%.

The water system has a distribution storage of 0.674 million gallons and currently is out of

compliance with the minimum 0.959 million gallons water storage requirement under the California Code of Regulations, Chapter 16 of the Title 22 California Water Works Standards, Section 64554. The existing system shows a water storage deficiency of 373,290 gallons or 39% with the existing decaying old redwood tanks.

A. Tank 9 Disinfection Pipeline

Chlorine disinfection stations are to be added at wells No. 9 & 14. In order to provide a dedicated disinfection pipeline from these wells to Tank 9, the existing 8" C900 pipeline will be disconnected from the distribution system and used exclusively for the wells. A new distribution pipeline is needed to run from Tank 9 past Well No. 14 to replace the modified pipeline just mentioned. This pipeline must be upsized to the hydraulic equivalent of a 12" pipeline in order to solve the pressure and flow problems throughout the system. In addition the chlorine contact time can be achieved.

B. Tank 9

A new 1,000,000 gallon storage tank would be constructed on the Tank 9 site and designed to replace the existing old tank. This new tank meets the requirements of Title 22, Section 64554.

C. Tank 10 Transmission Main

A new 1.5 mile transmission main would be constructed from the Tank 9 site to the tank 10 site.

The benefits of implementing the proposed project include the following:

- Provides the Title 22 required chlorine contact time and disinfection prior to distribution through the piped system conforming to Safe Drinking Water Standards.
- Improves water quality through chlorination and removing the old redwood storage tank, thereby reducing water contamination issues and increasing reliability to protect the health and safety of the Amador Water Agency's customers.
- Provides additional emergency water storage, fire flow storage, and drought reliability.
- Reduces reliance on portable emergency generators through increased storage.
- Reduces security risks, improving reliability and conveyance of the water supply.

A. Alternative #3 - Camanche System Improvements (Preferred)

Alternative #3 does not consolidate any other water systems and only proposes improvements to the WID #7 Back System. The Front System would benefit from the improvements through increased emergency water storage and water supply during peak demand times. The Back System would see pressures and flows increased to adequately meet the requirements of Title 22, including improved fire flows.

This alternative includes the following:

- 1) A dedicated chlorine disinfection pipeline from Wells No. 9 & 14 to Tank 9 to allow for proper CT.
- 2) A 1.0 million gallon water storage tank to replace Tank 9, which will supply the Back System solely by gravity feed with adequate pressures and flows.
- 3) A transmission pipeline to bring supply water from Tank 9 to the Tank 10 site, which will supply the Front System with additional water supply and storage during peak summer demands.
- 4) The demolition of Sites 8 & 10 and the existing Tank 9.

The NPV of Alternative #3 - Camanche System Improvements (Preferred) is estimated at \$89,410, with an initial capital cost of \$4,087,696.

Table #9 - Alternative #3 Net Present Value

Camanche Improvement Options 20yr NPV - Alternative #3 Replace Tank 9, install disinfection pipeline to Tank 9 & transmission pipeline loop to Tank 10								4.3% = Discount Rate 2.9% = Inflation Rate 5.9% = Electric Inflation Rate	
Year	Yearly Total	Improvements	Part. Fees	Water Sales	Admin/Debt	Electricity	O & M	Comments	
0	2009	\$ (4,000,266)	\$ (4,087,696)	\$ 149,800	\$ 462,600	\$ (145,455)	\$ (30,000)	\$ (349,515)	Install Improvements
1	2010	\$ 135,207	\$ -	\$ 154,144	\$ 487,787	\$ (149,673)	\$ (29,609)	\$ (327,442)	Demo Sites 8, 9 & 10
2	2011	\$ 151,241	\$ -	\$ 158,614	\$ 514,047	\$ (154,014)	\$ (30,468)	\$ (336,938)	
3	2012	\$ 168,092	\$ -	\$ 163,214	\$ 541,419	\$ (158,480)	\$ (31,352)	\$ (346,709)	
4	2013	\$ 185,793	\$ -	\$ 167,947	\$ 569,946	\$ (163,076)	\$ (32,261)	\$ (356,764)	
5	2014	\$ 204,379	\$ -	\$ 172,818	\$ 599,672	\$ (167,805)	\$ (33,196)	\$ (367,110)	
6	2015	\$ 223,887	\$ -	\$ 177,830	\$ 630,644	\$ (172,672)	\$ (34,159)	\$ (377,756)	
7	2016	\$ 244,354	\$ -	\$ 182,987	\$ 662,907	\$ (177,679)	\$ (35,150)	\$ (388,711)	
8	2017	\$ 265,820	\$ -	\$ 188,293	\$ 696,511	\$ (182,832)	\$ (36,169)	\$ (399,983)	
9	2018	\$ 288,326	\$ -	\$ 193,754	\$ 731,507	\$ (188,134)	\$ (37,218)	\$ (411,583)	
10	2019	\$ 311,914	\$ -	\$ 199,373	\$ 767,947	\$ (193,590)	\$ (38,297)	\$ (423,519)	
11	2020	\$ 336,627	\$ -	\$ 205,154	\$ 805,885	\$ (199,204)	\$ (39,408)	\$ (435,801)	
12	2021	\$ 362,511	\$ -	\$ 211,104	\$ 845,378	\$ (204,981)	\$ (40,551)	\$ (448,439)	
13	2022	\$ 389,613	\$ -	\$ 217,226	\$ 886,483	\$ (210,925)	\$ (41,727)	\$ (461,444)	
14	2023	\$ 417,983	\$ -	\$ 223,525	\$ 929,262	\$ (217,042)	\$ (42,937)	\$ (474,826)	
15	2024	\$ 447,670	\$ -	\$ 230,008	\$ 973,776	\$ (223,336)	\$ (44,182)	\$ (488,596)	
16	2025	\$ 478,727	\$ -	\$ 236,678	\$ 1,020,091	\$ (229,813)	\$ (45,463)	\$ (502,765)	
17	2026	\$ 511,210	\$ -	\$ 243,542	\$ 1,068,273	\$ (236,478)	\$ (46,782)	\$ (517,345)	
18	2027	\$ 545,173	\$ -	\$ 250,604	\$ 1,118,391	\$ (243,335)	\$ (48,138)	\$ (532,348)	
19	2028	\$ 580,677	\$ -	\$ 257,872	\$ 1,170,518	\$ (250,392)	\$ (49,534)	\$ (547,786)	
20	2029	\$ 617,782	\$ -	\$ 265,350	\$ 1,224,728	\$ (257,654)	\$ (50,971)	\$ (563,672)	
20 Year Net Present Value =		\$89,410							

Assumptions

- 1) See Construction Cost Estimate - Alternative #3 for Improvement Value
- 2) Participation Fees and Water Sales to increase by 20 connections per year (2.9% Amador County General Plan)

Figure #11 - Alternative #3 Net Present Value Graph

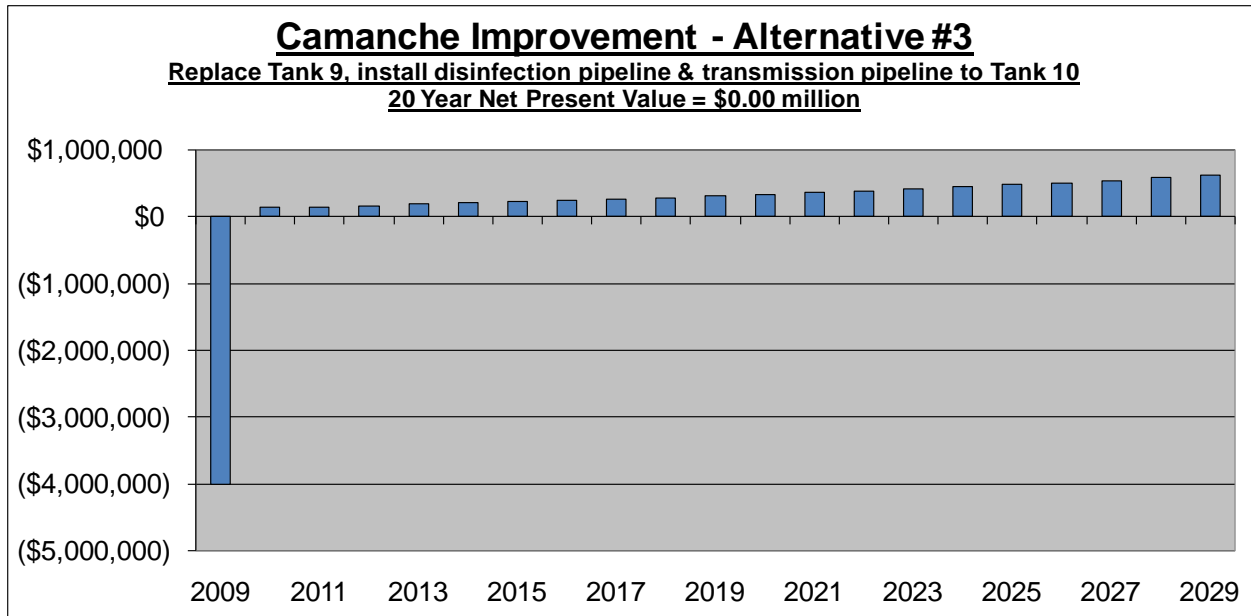


Figure #12 - Alternative #3 Construction Cost Estimate

Construction Cost Estimate - Alternative #3 for Camanche Improvements					
Replace Tank 9, install disinfection pipeline to Tank 9 & transmission pipeline loop to Tank 10					
<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>\$/unit (\$)</u>	<u>Total Price (\$)</u>
1	1 MG Tank (40'Hx708'D)	1	LS	1,174,000	1,174,000
2	Piping, 8" C900 PC165	20	ft	60	1,200
3	Piping, 10" C900 PC165	9,300	ft	80	744,000
4	Piping, 12" C900 PC165	3,800	ft	100	380,000
5	Chlorine Station	2	LS	10,000	20,000
6	Tank Security, Fencing & Lighting	1	LS	15,000	15,000
7	4" A.B.	3,185	tons	60	191,100
8	Storm Drain Improvements	1	LS	5,000	5,000
9	CAVRV	4	ea	1,500	6,000
10	Blow-Off	4	ea	3,000	12,000
11	8" GV	7	ea	1,500	10,500
12	10" GV	15	ea	2,000	30,000
13	12" GV	5	ea	2,500	12,500
14	Grading/Landscaping/Erosion Control	1	LS	10,000	10,000
15	Abandon Existing Sites 8, 9 & 10	3	ea	20,000	60,000
16	Live Intertie	2	ea	2,500	5,000
17	Private Land Acquisition	10,000	sf	0.50	5,000
18	Public Easements	81,000	sf	0.40	32,400
19	Temporary Const. Easements	131,500	sf	0.25	32,875
20	Surveying, Staking, & Legal Desc.	1	LS	15,000	15,000
21	Cleaning and Testing	1	LS	5,000	5,000
22	Safety/Shoring	1	LS	10,000	10,000
23	Blasting	1,100	cy	100	110,000
24	Environmental & Permitting	1	LS	12,500	12,500
				Sub-total	2,899,075
Subtotal					
20	Environmental & Geotechnical			3%	86,972
21	Plans & Specifications			5%	144,954
22	Mobilization/Demobilization			3%	86,972
23	Engineering, Insp & Const Mgmt			15%	434,861
24	Administration & Reporting			5%	144,954
25	Contingency			10%	289,908
				Total	\$ 4,087,696

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Design Complete

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

completed

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 4.1 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Rates, private developers, utility cooperation, state, federal and grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): 2009 Technical Information Engineering Report for the Camanche System

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

All of the affected service areas are areas of low income housing. Benefits

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Lake Camanche Water Service Replacement – Phase II

Project Location: Lake Camanche, Lone , Amador County

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

Lake Camanche Water Improvement District No. 7 (WID #7) is a groundwater system with a series of wells, storage tanks, hydro-pneumatic tanks and booster stations with an estimated yearly production of 100 million gallons that serves over 740 service connections. Approximately 340 service laterals will have been replaced by the completion of Phase one which is currently under construction.

This project proposes to replace the remaining 400 polyethylene (“Poly-Tube”) service laterals within the system. These laterals were originally installed in the late 1970s and as they continue to age, the material becomes very brittle and subject to severe longitudinal cracking. Thus they regularly leak and fail, causing significant damage to other infrastructure and substantial water losses. Agency crews, on average, repair and replace twenty laterals each year as they fail.

This project could be done in portions if complete funding is not available. Total project completion would require \$1,188,000.

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Design Complete

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

completed

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 1.2 million

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Rates, private developers, utility cooperation, state, federal and grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

All of the affected service areas are areas of low income housing. Benefits

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: South Shore Camanche Regional Water Treatment Plant Project

Project Location: South Shore Camanche

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input checked="" type="checkbox"/> Water Transfers |

- | | |
|--|--|
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 to provide potable water to all of the above service areas. 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 and southwestern Amador 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 2013. Construction could begin in 2014 depending on funding. The project will cost approximately \$20 million with funding available from rates, private developers, and grants.

Regional Surface Water Treatment Plant

Numerous feasibility studies and engineering reports have been conducted over the past ten to fifteen years by Amador Water Agency, EBMUD & Calaveras County Water District ('CCWD') to either initiate or improve potable water service in the Camanche area of Calaveras and Amador Counties. A conclusion to each of the studies is that the most reliable source and cost effective benefits would be achieved through a new regional surface water supply, 2 MGD membrane water treatment plant at South Shore Lake Camanche, a water supply line from EBMUD's existing Aqueducts and distribution system including a treated water pipeline across the lake to serve North Shore Lake Camanche. This water treatment plant would serve the three districts above in addition to the service areas described below and Camanche WID #7. See the KASL Feasibility Study: Camanche Regional Water System, October 1999, Appendix S and the KASL Preliminary Engineering Report: Camanche South Shore Water Treatment Replacement, December 2000, Appendix T.

The community served by AWA has now reached a critical need to secure a reliable water source and provide treatment meeting current and future State Treatment Rules and Regulations. The Water Agency could own and operate the regional WTP, providing retail and wholesale service, which represents a cost effective alternative to the independent upgrade, modification, replacement and permitting of each of the separate, existing systems serving AWA's WID No. 7, EBMUD's North & South Shores Lake Camanche ('CNS' & 'CSS' respectfully) and CCWD's Burson & Wallace Service Areas. It is possible that EBMUD or CCWD could also operate and maintain the water treatment plant.

All of the 3 individual water service areas historically have had capacity issues from existing groundwater well sources. Additionally, each service area has had to abandon individual wells due to poor quality and production. EBMUD and Wallace Lake Estates ('WLE'), in Calaveras County, further provide treatment processes which include monitoring elevated Coliform, Iron, Manganese and Hydrogen Sulfide levels from their ground water sources. The regional system would be beneficial to balance the financial impact in an already economically challenged area, incorporating area need for water treatment and providing a reliable surface water source. This alternative also eliminates reliance on well source water for each of the above systems. The Regional WTP would encompass an area of approximately 20 square miles ranging in elevations from 200 to 700 feet. The Water Agency believes this is the best long term solution for a reliable water supply in the Camanche area. Currently the capital outlay for this option is too cost prohibitive.

Existing System Background Information

EBMUD - Camanche North Shore:

CNS includes 128 mobile homes and 31 RV sites and serves up to 2,500 daily visitors on peak recreational weekends. In addition, the CNS system serves 17 rental units (duplex and "motel" residences, a centrally located marina, office and coffee shop and approximately 250 campsites with public restrooms, showers and laundry facilities. Annual water demands averaged 82,110 gpd. Average daily summer demands are approximately 140,000 gpd and 212,000 gpd maximum day summer demands. CNS is served by groundwater wells and a pressure filtration water treatment. There are 4 wells that have been drilled to serve CNS, because of poor quality and production, well No. 1 was abandoned. Elevated Coliform levels have been detected in well No. 2 and is closely monitored and controlled. Well No.3 is located at the North Shore WTP and is the primary water supply. A new well, No.4, was drilled in 1997. Water produced from this well is high in hydrogen sulfide and therefore has not been fully developed or placed into regular service. The safe yield from Well No.3 is approximately 100 gpm. Summer demands require water use from both wells No. 2 & 3 with continued treatment. The existing pressure filter plant uses potassium permanganate and chlorine to remove high iron, manganese and hydrogen sulfide levels from the ground water. CNS is served by a 140,000 gallon capacity welded steel tank with a base elevation of 364 feet. The CNS service area ranges in elevation from 230 to 310 feet. All water service is provided by gravity from the storage tank. The residential and economic composition is similar to WID No.7 with the exception of no bedroom growth from Sacramento. The WID No 7 and the CNS water treatment plants are within 1± mile of each other.

EBMUD - Camanche South Shore:

CSS includes 70 mobile homes, 131 recreational vehicle (RV) sites, restroom / shower facilities and serves up to 3,000 seasonal visitors per day on peak summer weekends. Average annual water demands are approximately 97,350 gpd. During summer months average daily demands increase to approximately 154,900 gpd. Maximum day demand production records are approximately 227,200 gpd. Water used for outside irrigation during summer months is estimated at 50% of the domestic water demands. The existing WTP is a direct filtration facility. While the current plant consistently meets the DHS Drinking Water Standards, the plant does not fully comply with the current Surface Water Treatment Rules for multi-barrier treatment and would be replaced by the Camanche Regional WTP. Existing water distribution mains range in size from 1 to 12 inches in diameter. Water storage is provided by a 210,000 gallon capacity welded steel tank.

CCWD - Wallace:

Included in the Wallace Service Area are the Wallace Lake Estates ('WLE') Project, the community of Wallace and several proposed single family, multi-family and mobile home

projects. The Wallace area includes 379 single family parcels, 60 multiple family units and approximately 15 commercial acres. The Wallace area is served by a ground water supply system, consisting of 3 wells, with a total rated capacity of 300 gpm. The water treatment facility utilizes Well No. 2 as the active well and Well No. 3 as the standby well. Well No. 1 has been inactive since it was drilled and is not served by an electrical service. The treatment process consists of an iron and manganese oxidation, precipitation, and filtration system. Water is directly pumped to the 190 gpm capacity treatment unit. Treated water is now stored in an elevated 60,000 storage tank, base elevation 426' and a 224,000 gallon capacity ground level storage tank, base elevation of 336'. Water is transferred from the ground level storage tank to the elevated tank and distribution system via a three pump station. Each pump is capable of pumping 500 gpm at 116 feet of head to insure a 1,500 gpm fire flow capacity. Pump operation is automatically controlled by water level in the elevated tank. The existing elevation varies from 190 to 395 feet.

CCWD - Burson North and Burson South:

Burson North includes the area adjacent to Hwy 12 and North. There is a cluster of commercial and residential uses in the vicinity of Hwy 12 and Burson Road. It is estimated that there are no more than 75 equivalent single family services now in this area. Water is now provided by individual wells. Residents in this area have actively sought a resolution to their on-going water issues for the past 20+ years with no actual solution delivered to date. Elevations range from 380 to 500 feet. Burson South includes services west of Rancho Calaveras, south of Highway 12 and along both sides of Burson Road.

The total initial demands for Wallace, Burson North and Burson South are estimated at 0.5 MGD and projected 20 year demand at 2.0 MGD.

Alternative #2 proposes the supply transition from wells to surface/aqueduct source water. The water rights for this alternative are discussed in the KASL Feasibility Study: Camanche Regional Water System, October 1999, Appendix S and the KASL Preliminary Engineering Report: Camanche South Shore Water Treatment Replacement, December 2000, Appendix T.

This alternative includes the following:

- 1) A 2.0 MGD Regional Water Treatment Plant located at South Shore Lake Camanche that would consolidate all of the above districts.
- 2) A regional transmission pipeline crossing Lake Camanche to bring water across the lake to Camanche Village and EBMUD.

- 3) A transmission pipeline to bring supply water from the lake crossing to Tank 9, which will supply the entire WID #7 by gravity.
- 4) A transmission pipeline to bring water from tank 9 to the Front System
- 5) All of the improvements in Alternative #3 are also required for this option.

The NPV of Alternative #2 - Regional Surface Water Treatment Plant - South Shore Lake Camanche is estimated at (\$21,179,685), with an initial capital cost of \$31,474,802.

Table #8 - Alternative #2 Net Present Value

Camanche Improvement Options 20yr NPV - Alternative #2									4.3% = Discount Rate
Construct a Surface Water Treatment Plant at South Lake Camanche, install transmission pipeline from WTP to Tank 9, replace Tank 9, install disinfection pipeline to Tank 9 & transmission pipeline loop to Tank 10									2.9% = Inflation Rate
									5.9% = Electric Inflation Rate
Year	Yearly Total	Improvements	Part. Fees	Water Sales	Admin/Debt	Electricity	O & M	Comments	
0	2009	\$ (31,231,357)	\$ (31,474,802)	\$ 299,600	\$ 462,600	\$ (145,455)	\$ (30,000)	(\$343,300)	Install Improvements
1	2010	\$ 381,094	\$ -	\$ 308,288	\$ 499,559	\$ (74,837)	\$ (30,870)	\$ (321,047)	Demo Sites 8, 9 & 10
2	2011	\$ 416,373	\$ -	\$ 317,229	\$ 538,273	\$ (77,007)	\$ (31,765)	\$ (330,357)	
3	2012	\$ 453,377	\$ -	\$ 326,428	\$ 578,813	\$ (79,240)	\$ (32,686)	\$ (339,937)	
4	2013	\$ 492,177	\$ -	\$ 335,895	\$ 621,250	\$ (81,538)	\$ (33,634)	\$ (349,796)	
5	2014	\$ 532,847	\$ -	\$ 345,636	\$ 665,663	\$ (83,903)	\$ (34,610)	\$ (359,940)	
6	2015	\$ 575,461	\$ -	\$ 355,659	\$ 712,129	\$ (86,336)	\$ (35,613)	\$ (370,378)	
7	2016	\$ 620,099	\$ -	\$ 365,973	\$ 760,730	\$ (88,840)	\$ (36,646)	\$ (381,119)	
8	2017	\$ 666,841	\$ -	\$ 376,587	\$ 811,551	\$ (91,416)	\$ (37,709)	\$ (392,171)	
9	2018	\$ 715,774	\$ -	\$ 387,508	\$ 864,680	\$ (94,067)	\$ (38,802)	\$ (403,544)	
10	2019	\$ 766,983	\$ -	\$ 398,745	\$ 920,208	\$ (96,795)	\$ (39,928)	\$ (415,247)	
11	2020	\$ 820,561	\$ -	\$ 410,309	\$ 978,229	\$ (99,602)	\$ (41,086)	\$ (427,289)	
12	2021	\$ 876,601	\$ -	\$ 422,208	\$ 1,038,842	\$ (102,490)	\$ (42,277)	\$ (439,681)	
13	2022	\$ 935,202	\$ -	\$ 434,452	\$ 1,102,147	\$ (105,463)	\$ (43,503)	\$ (452,431)	
14	2023	\$ 996,464	\$ -	\$ 447,051	\$ 1,168,251	\$ (108,521)	\$ (44,765)	\$ (465,552)	
15	2024	\$ 1,060,493	\$ -	\$ 460,015	\$ 1,237,261	\$ (111,668)	\$ (46,063)	\$ (479,053)	
16	2025	\$ 1,127,397	\$ -	\$ 473,356	\$ 1,309,292	\$ (114,907)	\$ (47,399)	\$ (492,945)	
17	2026	\$ 1,197,290	\$ -	\$ 487,083	\$ 1,384,460	\$ (118,239)	\$ (48,773)	\$ (507,241)	
18	2027	\$ 1,270,289	\$ -	\$ 501,209	\$ 1,462,887	\$ (121,668)	\$ (50,188)	\$ (521,951)	
19	2028	\$ 1,346,515	\$ -	\$ 515,744	\$ 1,544,698	\$ (125,196)	\$ (51,643)	\$ (537,087)	
20	2029	\$ 1,426,093	\$ -	\$ 530,700	\$ 1,630,023	\$ (128,827)	\$ (53,141)	\$ (552,663)	
20 Year Net Present Value =		(\$21,179,685)							

Assumptions

- 1) See Construction Cost Estimate - Alternative #2 for Improvement Value
- 2) Participation Fees and Water Sales to increase by 40 connections per year (2.9% Amador County General Plan + 2.9% Camanche 3B)
- 3) WTP costs from KASL Consulting Engineers Feasibility Study - Camanche Regional Water System
- 4) Construction Escalators per Consumer Cost Index where applicable

Figure #9 - Alternative #2 Net Present Value Graph

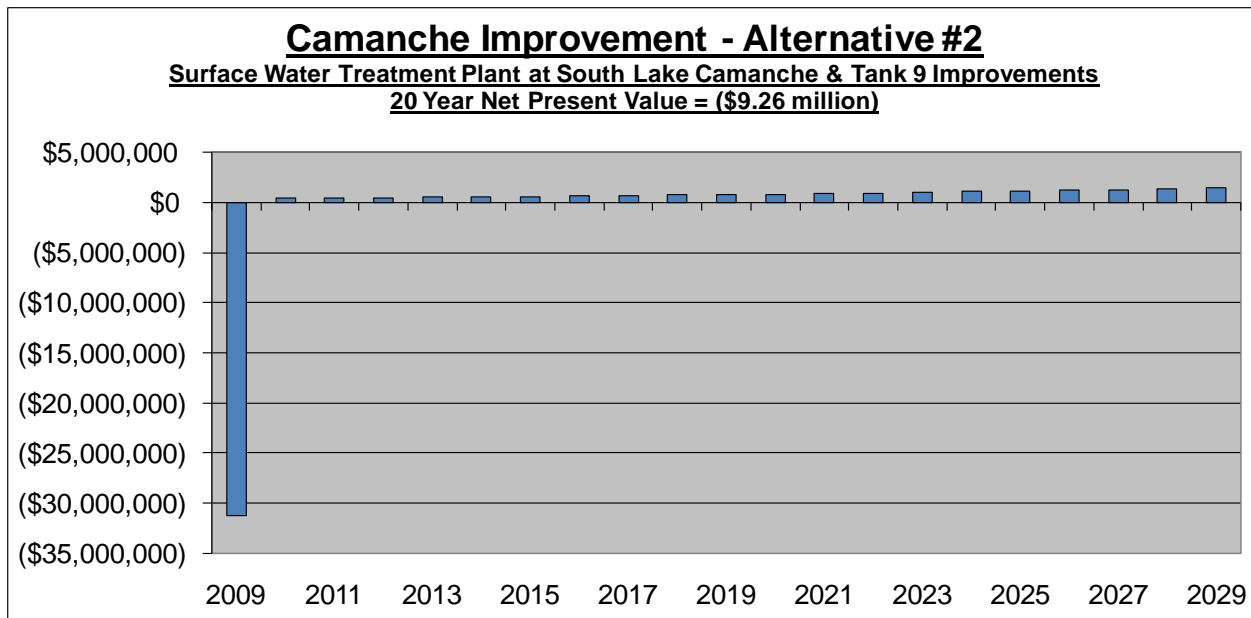


Figure #10 - Alternative #2 Construction Cost Estimate

Construction Cost Estimate - Alternative #2 for Camanche Improvements					
Construct a Surface Water Treatment Plant at South Lake Camanche, install transmission pipeline from WTP to Tank 9, replace Tank 9, install disinfection pipeline to Tank 9 & transmission pipeline loop to Tank 10					
WTP System Improvements					
Item	Description	Quantity	Units	\$/unit (\$)	Total Price (\$)
1	Regional WTP South Lake, 2 MGD	1	LS	6,618,875	6,618,875
2	Regional Trans. Costs, less WTP	1	LS	8,821,750	8,821,750
3	Piping, 10" C900 PC165	16,800	ft	80	1,344,000
4	Piping, 12" C900 PC165	11,900	ft	100	1,190,000
5	10" GV	20	ea	2,000	40,000
6	12" GV	15	ea	2,500	37,500
7	4" A.B.	1,400	tons	60	84,000
8	4" A.C.	30875	sf	6	185,250
9	Grading/Landscaping/Erosion Control	1	LS	20,000	20,000
10	Live Intertie	4	ea	2,500	10,000
11	Public Easements	574,000	sf	0.40	229,600
12	Temporary Const. Easements	861,000	sf	0.25	215,250
13	Surveying, Staking, & Legal Desc.	1	LS	29,754	29,754
14	Cleaning and Testing	1	LS	15,000	15,000
15	Safety/Shoring	1	LS	30,000	30,000
16	Blasting	5,000	cy	100	500,000
17	Environmental & Permitting	1	LS	12,500	12,500
Sub-total					19,383,479
Back System Improvements					
Item	Description	Quantity	Units	\$/unit (\$)	Total Price (\$)
18	1 MG Tank (40'Hx708'D)	1	LS	1,174,000	1,174,000
19	Piping, 8" C900 PC165	20	ft	60	1,200
20	Piping, 10" C900 PC165	9,300	ft	80	744,000
21	Piping, 12" C900 PC165	3,800	ft	100	380,000
22	Chlorine Station	2	LS	10,000	20,000
23	Tank Security, Fencing & Lighting	1	LS	15,000	15,000
24	4" A.B.	3,185	tons	60	191,100
25	Storm Drain Improvements	1	LS	5,000	5,000
26	CAVRV	4	ea	1,500	6,000
27	Blow-Off	4	ea	3,000	12,000
28	8" GV	7	ea	1,500	10,500
29	10" GV	15	ea	2,000	30,000
30	12" GV	5	ea	2,500	12,500
31	Grading/Landscaping/Erosion Control	1	LS	10,000	10,000
32	Abandon Existing Sites 6,8,9,10&12	5	ea	20,000	100,000
33	Live Intertie	2	ea	2,500	5,000
34	Private Land Acquisition	10,000	sf	0.50	5,000
35	Public Easements	81,000	sf	0.40	32,400
36	Temporary Const. Easements	131,500	sf	0.25	32,875
37	Surveying, Staking, & Legal Desc.	1	LS	15,000	15,000
38	Cleaning and Testing	1	LS	5,000	5,000
39	Safety/Shoring	1	LS	10,000	10,000
40	Blasting	1,100	cy	100	110,000
41	Environmental & Permitting	1	LS	12,500	12,500
Sub-total					2,939,075
Subtotal					
42	Environmental & Geotechnical			3%	669,677
43	Plans & Specifications			5%	1,116,128
44	Mobilization/Demobilization			3%	669,677
45	Engineering, Insp & Const Mgmt			15%	3,348,383
46	Administration & Reporting			5%	1,116,128
47	Contingency			10%	2,232,255
Total					\$ 31,474,802

Project Status: In Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Design is 90% complete

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

EIR/EIS Complete

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 31.5 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): [Click here to enter text.](#)

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Rates, private developers and grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

All of the affected service areas are areas of low income housing. Benefits

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Wildwood Leachfiled Replacement Project

Project Location: Pine Grove, CA

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Conveyance – Regional/local |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Watershed Management |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The Wildwood Estates Community Leachfield System is a gravity fed effluent disposal system operated by the Amador Water agency in Pine Grove, CA serving 37 single family residences. The disposal site is 4.2 acres with 4,300 feet of leach lines that disposes of a maximum 11,000 gallons per day. The site currently has two monitoring wells.

Historic nitrate as nitrogen concentrations have shown a continued increase in nitrate as nitrogen concentration for the monitoring wells since the site began operating in 2003. In 2009 nitrate as nitrogen levels exceeded the MCL and has continued to rise with possible groundwater contamination. Corrective action is warranted to address the elevated nitrate as nitrogen concentrations in ground water.

Complete replacement of the leachfield is required along with the installation of a small lift station to bring the effluent to the higher elevations of the disposal site at an estimated cost of \$2.2 million. The permitting process could begin immediately with construction beginning in May 2013.

Project Status: Pre-Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Pre- Design

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Click here to enter text.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 2.2 million

Annual O&M Costs: \$ Click here to enter text.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Click here to enter text.

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Rates, private developers, utility cooperation, state, federal and grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

All of the affected service areas are areas of low income housing. Benefits

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Bear River Reservoir Expansion Project

Project Location: Bear River Reservoir, Amador County

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input checked="" type="checkbox"/> Water Transfers |

Conjunctive Management & Groundwater Storage

Desalination

Precipitation Enhancement

Recycled Municipal Water

Surface Storage – CALFED

Surface Storage – Regional/local

Drinking Water Treatment and Distribution

Groundwater Remediation/Aquifer Remediation

Matching Quality to Use

Pollution Prevention

Salt and Salinity Management

Urban Runoff Management

Flood Risk Management

Agricultural Lands Stewardship

Economic Incentives (Loans, Grants and Water Pricing)

Ecosystem Restoration

Forest Management

Recharge Area Protection

Water-Dependent Recreation

Watershed Management

Crop Idling for Water Transfers

Dewvaporation or Atmospheric Pressure Desalination

Fog Collection

Irrigated Land Retirement

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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

Footnotes:

a. Assumes public district financing.

b. 72 M kWhrs @ \$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 (2017) and is estimated to cost a total of \$50 million.

Project Status: Pre-Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

In Design

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

[Click here to enter text.](#)

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

[Click here to enter text.](#)

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 50 million

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 100 years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Rates, private developers, utility cooperation, state, federal and grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: 2,600

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

All of the affected service areas are areas of low income housing. Benefits

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Upper Mokelumne Septic System Management Program

Project Location: Amador and Calaveras Counties (West slope)

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Conveyance – Regional/local |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- Conjunctive Management & Groundwater Storage
- Desalination
- Precipitation Enhancement
- Recycled Municipal Water
- Surface Storage – CALFED
- Surface Storage – Regional/local
- Drinking Water Treatment and Distribution
- Groundwater Remediation/Aquifer Remediation
- Matching Quality to Use
- Pollution Prevention
- Salt and Salinity Management
- Urban Runoff Management
- Flood Risk Management

- Agricultural Lands Stewardship
- Economic Incentives (Loans, Grants and Water Pricing)
- Ecosystem Restoration
- Forest Management
- Recharge Area Protection
- Water-Dependent Recreation
- Watershed Management
- Crop Idling for Water Transfers
- Dewvaporation or Atmospheric Pressure Desalination
- Fog Collection
- Irrigated Land Retirement
- Rainfed Agriculture
- Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Rob Alcott

Affiliation: UMRWA

Address: 15083 Camanche Pkwy South, Valley Spings, CA 95252

Phone: 209-772-8340

Email: robalcott@aol.com

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The proposed program consists of five elements as described below.

I. Community Outreach Plan - A strong outreach program will be developed and implemented as a first step to raise awareness of the problem posed by leaking septic systems in the watershed. Effective outreach is critical to secure support and cooperation for the other elements of the Septic Management Program. The outreach plan will utilize several communication and education tools including fact sheets/flyers, workshops, media outreach and a program website. The target audiences for the outreach plan will be local residents and business owners and owners of second homes in the watershed. Many residents and owners of second homes do not realize they are on septic systems and that many of the older or smaller capacity systems may be improperly functioning. It is a particular outreach challenge in the Upper Mokelumne River watershed to reach residents who chose to live in remote areas to avoid the general public, government entities, and additional governmental regulations.

II. Program Advisory Committee – The PAC will be established to include agency representatives and residents throughout the watershed. The PAC will serve to guide the development of the Septic System Management Program. Former members of the Project Advisory Committee that guided the development of the *Upper Mokelumne River Watershed Assessment and Planning Project* will be invited to join the PAC.

III. Septic Survey – The completed *Upper Mokelumne River Watershed Assessment and Planning Project* implicates failing septic systems as the primary cause of elevated pathogen levels. Site-specific analysis is needed to supplement the documented empirical and anecdotal information to conclusively demonstrate to residents and funding agencies that investment is needed to confirm and correct the problems. A septic survey will document sources, causes, and evidence of the threat to public health. The survey will be performed in three parts.

(a) Watershed Characterization – Watershed characteristics relevant to septic system suitability, such as geologic conditions, soils and water resources, will be investigated and documented to understand what constitute acceptable conditions within the Upper Mokelumne watershed for properly functioning septic systems.

(b) Conduct Water Quality Monitoring – Water quality monitoring will be performed to conclusively demonstrate that the source of microbial contamination is leaking septic systems, and to identify the locations where contamination is most acute. This testing will also include identification of the species of origin to confirm that microbial contamination is indeed of human origin.

(c) Inventory and Assessment of Septic System Infrastructure – This task would inventory, map the locations, and evaluate the extent of leaking, poorly constructed and unpermitted systems.

IV. Sewer System Extension Feasibility – The feasibility of extending sewage collection systems to serve unsewered areas in the communities of West Point, Wilseyville and Mokelumne Hill will be evaluated. The evaluation will focus on relevant engineering, environmental and economic factors. A project description and conceptual engineering plan will be prepared for any community for which sewer service is deemed potentially feasible.

V. Homeowner Septic System Reference Guide – A reference guide designed to educate homeowners on important aspects of septic system design, use and maintenance will be produced. With the viability of a septic system oftentimes dependent on the homeowner’s understanding of their system and the periodic actions needed to maintain system functionality, this reference guide will enable homeowners to take proactive roles in avoiding septic system failures.

Project Status: Planning

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The program has been designed and CEQA is not applicable. No matching funds have been identified. Program implementation can be initiated upon the recruitment and engagement of a qualified consultant.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

This program is CEQA exempt.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

This is presently an independent program. The two most directly benefitted agencies are the Amador and Calaveras County Environmental Health Departments as implementation of the program will reduce the number of failing and failed septic systems with the two counties.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

The \$1.27 million *Upper Mokelumne River Watershed Assessment and Planning Project*, completed in December 2007, was completed in two phases. The first phase, a thorough assessment of watershed water quality, found elevated pathogen concentrations along the Middle and South Forks and Main Stem. Elevated fecal coliform concentrations were observed in the Middle Fork Mokelumne River, with high peaks also seen in the South Fork. *E. coli* concentrations on the Main Stem, Middle Fork, and North Fork also exceeded benchmark levels. Based on an analysis of the historic and simulated microorganism data and river flows, septic systems were identified as likely significant contributors of fecal coliform loading along the Middle and South Forks of the Mokelumne River.

The assessment was followed by the development of a watershed management plan which addresses the water quality problems revealed by the assessment. Recommendations from the watershed management plan, referred to as management measures, were developed to specifically target the sources, causes, and transport of contaminants and to encourage actions to eliminate or reduce degradation of source water quality. Due to risks to human health posed by failing septic systems the highest priority management response was the development of the Septic System Management Program for the Upper Mokelumne River watershed.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 260,000

Annual O&M Costs: \$ N/A

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): N/A

Estimated Project Life (Years): N/A

Cost Basis (if not 2011 dollars): N/A

Possible Funding Sources: Grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): No economic analysis of the program has been performed.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: N/A

Acre-feet Per Year of Reduced Demand: N/A

Water Quality Benefits

Reduction in pollutant loading: Reductions in fecal coliform, *Cryptosporidium*, *E. coli*

Reduction in pollutant transport: N/A

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: N/A

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): N/A

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: Improved water quality for human contact (swimming) and for fish and invertebrates.

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

Unknown/to be determined.

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

Unknown/to be determined.

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

N/A



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Leak Testing and Repair Program

Project Location: Calaveras County Water District Improvement Districts located within the MAC IRWMP boundaries: West Point/Wilseyville, Valley Springs/Rancho Calaveras, Sheep Ranch

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Click here to enter text.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: Click here to enter text.

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

Agricultural Water Use Efficiency

Urban Water Use Efficiency

- | | |
|---|--|
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Edwin Pattison

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: 209/754.3090

Email: edwinp@ccwd.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

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 that directly contaminate surface and ground water and have potential for human contact. Through leaks in the pipes, during the wet season these same collection pipes collect stormwater (Inflow and Infiltration or I&I), doubling, tripling, and at times contributing up to 10-times 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 contamination to the surface and ground water supplies, and maximize wastewater treatment and disposal through reduction of I&I.

Project Status: Choose from Dropdown Menu

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

A leak testing and repair program is in place on a small scale and can quickly scale up to include a larger program as funds come available.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

Not applicable for a testing program. Individual repairs will perform CEQA specific documentation.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

This program could be coordinated with other water/wastewater entities within the MAC IRWMP region.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Extensive studies, such as AWWA et al, exist that detail the benefits of a comprehensive Leak Detection Testing and Repair program. Leak detection testing and repair is a California Urban Water Conservation Council BMP 1.2 Water Loss Control. This program is implemented to the extent it is locally cost effective. For CCWD, a comprehensive program is not locally cost-effective, so grant funding would help develop a more comprehensive program with the corresponding statewide benefits.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ [Click here to enter text.](#)

Annual O&M Costs: \$ \$250,000

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): To be determined by the Leak Detection Program

Estimated Project Life (Years): [Click here to enter text.](#)

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: Grant funds

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

Benefits the West Point DAC by increasing infrastructure operation efficiency thereby reducing / delaying the need for expensive infrastructure upgrades.

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

CCWD is the largest power user in Calaveras County. Power is used to pump, treat, and convey potable water and wastewater throughout rapidly changing topography in Calaveras County. This project will enable CCWD to implement a comprehensive leak detection and repair program to increase the efficiency of the infrastructure necessary to treat and convey potable water and wastewater throughout the county. Operational and infrastructure improvements will improve water savings and reduce energy consumption, hence lower greenhouse gas emissions.



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Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: New Hogan Reservoir Pumping Project

Project Location: New Hogan Dam, Valley Springs, CA, 38° 9'22.67"N, 120°48'53.41"W and western Calaveras County bound on the north by Camanche and Pardee Reservoirs, the eastern extent of the Eastern San Joaquin Groundwater Sub-Basin and the western Calaveras County line.

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

Agricultural Water Use Efficiency

Urban Water Use Efficiency

- | | |
|--|--|
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Watershed Management |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Edwin Pattison

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: 209/754.3090

Email: edwinp@ccwd.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

One of the regions most susceptible to the effects of climate change is the New Hogan system. New Hogan is a small, rain-fed reservoir that experiences large swings from wet to dry in a short period of time because of the small carryover storage it provides. Integrating New Hogan operations into a regional conjunctive use project, such as the Inter-Regional Conjunctive Use Program being proposed for the Mokelumne River and the Mokelumne-Calaveras Intertie and Camanche-New Hogan Phase II Water Distribution Loop Project will provide opportunities for conjunctive use, groundwater overdraft mitigation, and habitat restoration.

For this effort, a pumping plant and water conveyance facilities are proposed to deliver New Hogan Reservoir water to the communities of Camanche, Valley Springs, Rancho Calaveras, Burson, Lancha Plana, and Wallace Lake Estates area (HWY 12/26 area or New Hogan/Camanche/Valley Springs area). Currently Camanche and Valley Springs rely solely on groundwater and Ranchos Calaveras relies on treated Calaveras River water from the Jenny Lind Water Treatment Plant (WTP). The pumping facility would be constructed on the north abutment of the old concrete dam, located approximately ¼ mile east of the earthen New Hogan 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 ephemeral streams (Bear, No Name, and Indian Creeks) that meander through the west county area. 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 existing state of groundwater overdraft and future growth 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, habitat restoration, enhanced flood management opportunities, and greater capacity to meet growing water supply needs for agriculture and growth in the west county area. 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.

Project Status: Choose from Dropdown Menu

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is in the conceptual/pre-design phase and the project description is complete. Project construction 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 and regional agencies, and federal grant/loan funding sources, and private developers.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

It is expected a project level CEQA analysis will be completed once efforts reach the final design phase.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

This project could be linked to the Mokelumne River Forum's effort to develop an Inter-Regional Conjunctive Use Program, San Joaquin County's MORE water effort, and the South Shore Camanche Regional Water Treatment Plant.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Technical Memorandum "Evaluating the Potential for Agricultural Development in Calaveras County", June 2011, "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974. "The Potential Agriculture of Calaveras County, Howard Nelson for Tudor Engineering, January 1960, "Proceedings of the Conference on the Economy of Calaveras County, March 1965.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ \$22,000,000

Annual O&M Costs: \$ To be determined.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): [Click here to enter text.](#)

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: [Click here to enter text.](#)

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): “Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR”, Tudor Engineering, January 1974.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: 28,000 AF/YR average year supply

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: This project will help restore habitat losses across a 30,000 acre area of western Calaveras County associated with natural springs. This project proposes to mitigate overdraft conditions associated within the 30,000 acre portion of the Eastern San Joaquin Groundwater Basin underlying western Calaveras County. The project will provide the following direct and indirect benefits: Directly, this project will stabilize groundwater elevations, and restore the sustainable interaction between surface water and groundwater. The over-reliance on groundwater in the western Calaveras County region is upsetting the balance between a sustainable surface water and groundwater interaction, which is negatively impacting natural springs that provide habitat to endangered species and the agricultural community. An opportunity is available by developing an integrated solution between flood management and conjunctive use that will indirectly provide ecosystem benefits to the natural spring losses in western Calaveras County, as well as to the timing and magnitude of flows that reach the Delta. Agricultural production will also benefit by implementing this integrated solution.

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: This project could be tied into a comprehensive flood management solution for Cosgrove Creek within the vicinity of New Hogan project. An ongoing \$1,400,000 US Army Corps of Engineers-Calaveras County Cosgrove Creek Flood Reduction and Enhancement feasibility level project is nearing completion.

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Camanche – New Hogan Phase II Water Distribution Loop Project

Project Location: New Hogan Dam, Valley Springs, CA, 38° 9'22.67"N, 120°48'53.41"W and western Calaveras County bound on the north by Camanche and Pardee Reservoirs, the eastern extent of the Eastern San Joaquin Groundwater Sub-Basin and the western Calaveras County line.

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

Agricultural Water Use Efficiency

Urban Water Use Efficiency

- Conveyance – Delta
- Conveyance – Regional/local
- System Reoperation
- Water Transfers
- Conjunctive Management & Groundwater Storage
- Desalination
- Precipitation Enhancement
- Recycled Municipal Water
- Surface Storage – CALFED
- Surface Storage – Regional/local
- Drinking Water Treatment and Distribution
- Groundwater Remediation/Aquifer Remediation
- Matching Quality to Use
- Pollution Prevention
- Salt and Salinity Management
- Urban Runoff Management
- Flood Risk Management
- Agricultural Lands Stewardship
- Economic Incentives (Loans, Grants and Water Pricing)
- Ecosystem Restoration
- Forest Management
- Recharge Area Protection
- Water-Dependent Recreation
- Watershed Management
- Crop Idling for Water Transfers
- Dewvaporation or Atmospheric Pressure Desalination
- Fog Collection
- Irrigated Land Retirement
- Rainfed Agriculture
- Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Edwin Pattison

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: 209/754.3090

Email: edwinp@ccwd.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

This project is intended to follow and build upon the South Shore Camanche Regional Water Treatment Plant Project. The South Shore Camanche Regional WTP project serves as Phase I and this project serves as Phase II to interconnect raw and potable water users in the western Calaveras County area. For Phase II, approximately four to six miles of water conveyance pipeline will be constructed connecting the Wallace Lake/Lancha Plana/Burson area served by raw or treated Mokelumne River. This system would be interconnected to the New Hogan system that currently serves potable water to the Valley Springs/La Contenta/Rancho Calaveras system and the New Hogan Pumping Plant Project that proposes to provide raw water to the western Calaveras County area to stabilize dropping groundwater levels and mitigate groundwater overdraft in the short-term, and in the long-term, provide ecosystem benefits by restoring disappearing springs and the habitat they provide for two primary endangered species, the red-legged frog and the tiger salamander.

The Phase II water distribution intertie loop between the Mokelumne and Calaveras systems will provide greater flexibility and reliability in delivering potable and raw water to the western Calaveras County users, mitigate groundwater overdraft in the Eastern San Joaquin Groundwater Sub-basin, and provide the opportunity to implement conjunctive. Conjunctive use will allow optimal use of surface water between the Calaveras and Mokelumne Rivers and the groundwater basin for water users and the environment. This project will therefore provide a mechanism for improved water management and land use practices that are currently over relying on groundwater and contributing to multiple groundwater overdraft impacts, such as the loss of natural springs and the habitat they provide to endangered species, stream-aquifer interaction, and deteriorating groundwater quality conditions.

The overall objective is to integrate the use of surface water sources and groundwater in the area to ensure a high quality, reliable water supply for both surface water and groundwater users and to restore the natural stream-aquifer interaction and springs in the area that provide habitat and rely on a healthy interaction with groundwater.

Project Status: Conceptual Design.

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is in the conceptual/pre-design phase with continuing work necessary to complete the project description. Project construction is estimated to be approximately \$3 million to construct the initial intertie and backbone system to Wallace Lake Estates. Additional

conveyance facilities to irrigated agriculture and groundwater recharge basins may add to this cost. Funding sources include the Water Resources Development Act, water district expansion funds, local and regional agencies, and federal grant/loan funding sources, and private developers.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

It is expected a project level CEQA analysis will be completed once efforts reach the final design phase.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

This project could be linked to the Mokelumne River Forum's effort to develop an Inter-Regional Conjunctive Use Program, San Joaquin County's MORE water effort, and the South Shore Camanche Regional Water Treatment Plant.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Technical Memorandum "Evaluating the Potential for Agricultural Development in Calaveras County", June 2011, "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974. "The Potential Agriculture of Calaveras County, Howard Nelson for Tudor Engineering, January 1960, "Proceedings of the Conference on the Economy of Calaveras County, March 1965.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ \$3,000,000

Annual O&M Costs: \$ To be determined.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): [Click here to enter text.](#)

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: [Click here to enter text.](#)

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: 28,000 AF/YR average year supply

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: This project will help restore habitat losses across a 30,000 acre area of western Calaveras County associated with natural springs. This project proposes to mitigate overdraft conditions associated within the 30,000 acre portion of the Eastern San Joaquin Groundwater Basin underlying western Calaveras County. The project will provide the following direct and indirect benefits: Directly, this project will stabilize groundwater elevations, and restore the sustainable interaction between surface water and groundwater. The over-reliance on groundwater in the western Calaveras County region is upsetting the balance between a sustainable surface water and groundwater interaction, which is negatively impacting natural springs that provide habitat to endangered species and the agricultural community. An opportunity is available by developing an integrated solution between flood management and conjunctive use that will indirectly provide ecosystem benefits to the natural spring losses in western Calaveras County, as well as to the timing and magnitude of flows that reach the Delta. Agricultural production will also benefit by implementing this integrated solution.

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: This project could be tied into a comprehensive flood management solution for Cosgrove Creek within the vicinity of New Hogan project. An ongoing \$1,400,000 US Army Corps of Engineers-Calaveras County Cosgrove Creek Flood Reduction and Enhancement feasibility level project is nearing completion.

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

Click here to enter text.

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

Click here to enter text.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: Sheep Ranch Drinking Water Compliance Project

Project Location: 11719 Armstrong Road, Sheep Ranch, CA. 38°12'39.13"N, 120°27'19.53"W

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

- | | |
|---|--|
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Salt and Salinity Management | <input type="checkbox"/> Irrigated Land Retirement |
| <input type="checkbox"/> Urban Runoff Management | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: Edwin Pattison

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: 209/754.3090

Email: edwinp@ccwd.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

Sheep Ranch is a rural, disadvantaged community located in the central area of Calaveras County. The Sheep Ranch Improvement District was formed on March 2, 1960 and currently serves 48 customers. CCWD diverts water from San Antonio Creek and delivers raw water through an old, mining-era Fricot Ditch, with a history of catastrophic failure due to erosion, the collapse of a hillside and its proximity to extreme fire risk.

The Sheep Ranch Drinking Water Compliance Project involves upgrading the current small water treatment plant currently out of compliance. The Sheep Ranch water treatment plant currently produces 30 gallons per minute via an out of date, non-compliant pressure filter according to the California Department of Public Health (CA DPH). CCWD was first notified in 1993 that the current system is out of compliance and not an approved technology. CA DPH recommends current technology to include a membrane filter system with sodium hypochlorite disinfection. In addition, the current WTP technology cannot treat water to drinking water standards during storm events when turbidity levels increase. At these times, the WTP must shut down. The estimated cost of the project is \$200,000.

Project Status: Design Complete.

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The Sheep Ranch Water Treatment Plant Compliance Project is ready to proceed. Project design is complete. CA DPH permitting will proceed with commencement of project. Project will commence once grant funds are identified.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

CEQA Guidelines authorize the use of a categorical exemption for projects performed on utility owned land in a previously disturbed area for infrastructure upgrades.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

Click here to enter text.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Click here to enter text.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ \$200,000

Annual O&M Costs: \$ No additional annual O&M costs above current costs as a result of the project.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Membrane filters have to be replaced once every 10-years at a cost of \$25,000.

Estimated Project Life (Years): 40-years

Cost Basis (if not 2011 dollars): Click here to enter text.

Possible Funding Sources: Grant funding

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

[Click here to enter text.](#)

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

[Click here to enter text.](#)

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: CCWD-AWA-EBMUD Regional Water Treatment Plant

Project Location: EBMUD property, Camanche Reservoir (South Shore). Pipelines (Transmission and Distribution) will be located within EBMUD property as well as within AWA and CCWD service areas adjacent to EBMUD's Camanche Reservoir.

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: The possibility of negative impacts to reservoir water quality, as potentially created in future years by the continued operation (i.e., discharges from) aging existing water treatment plants, will be eliminated via construction of modern / updated facilities.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: This project will provide a reliable water supply to communities / homes / recreational areas as served by EBMUD, CCWD and AWA (in particular, homes that rely on wells that are failing)

X Goal: Maintain and improve water infrastructure reliability.

Description: This project will replace aging water treatment plants as operated by EBMUD to serve Camanche Reservoir recreational areas. In addition, it will upgrade water service as provided to nearby customers of AWA and CCWD by providing new distribution system connections (allowing said customers to be served via the water treatment plant vs. existing wells).

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: NA

X Goal: Develop appropriate drought mitigation measures.

Description: Portions of CCWD's service area face water reliability issues, particularly during times of drought. Construction of a regional water treatment plant that serves said communities will result in water supply reliability during drought times. In addition, the overtaxed groundwater basin will recover over time as over-pumping will be eliminated.

Policy 3: Practice Resource Stewardship

X Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: Construction of a regional water treatment plant that would jointly serve a number of water agencies / service areas eliminates the need for construction of repetitive facilities that serve only one agency. Such practice is seen as more protective of the region's natural resources. Care will be taken during the environmental review process to identify suitable routes for pipelines / suitable grounds for facility construction to limit impacts to the region's natural resources.

X Goal: Minimize adverse effects on biological and cultural resources.

Description: Construction of a regional water treatment plant that would jointly serve a number of water agencies / service areas eliminates the need for construction of repetitive facilities that serve only one agency. Such practice is seen as more protective of the region's biological and cultural resources. Care will be taken during the environmental review process to identify suitable routes for pipelines / suitable grounds for facility construction to limit impacts to the region's biological and cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: NA

Statewide Priorities

Please check all that apply.

- X Drought Preparedness
 - Use and Reuse Water More Efficiently
 - Climate Change Response Actions
 - Expand Environmental Stewardship
 - Practice Integrated Flood Management
- X Protect Surface Water and Groundwater Quality
 - Improve Tribal Water and Natural Resources
- X Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Agricultural Lands Stewardship |
| X Water Transfers | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Crop Idling for Water Transfers |
| X Drinking Water Treatment and Distribution | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Irrigated Land Retirement |

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Tom Francis

Affiliation: East Bay Municipal Utility District

Address: 375 11th Street, Oakland, CA 94708

Phone: 510-287-1303

Email: tfrancis@ebmud.com

Other Participating Agencies (if applicable): Calaveras County Water District, Amador Water Agency

Project Description

Three separate Small Water System purveyors; East Bay Municipal Utility District, Amador Water Agency, and Calaveras County Water District, serve three discrete service areas at and adjacent to EBMUD's Camanche Reservoir. This project proposes to construct a Regional Water Treatment Plant (RWTP) that would provide potable water to the three purveyors for distribution and use within their respective service areas (this plant would replacing an aging, smaller facility currently operated by EBMUD to address their needs in the Camanche Reservoir vicinity). In addition to the RWTP, project elements include conveyance system construction (to connect the new treatment plant to the respective services areas). Also, the project proposes to install a new pipeline connection between the proposed RWTP and EBMUD's Mokelumne Aqueduct (such that the source water for the plant is Pardee Reservoir vs. Camanche Reservoir).

The RWTP would address the following water resource concerns.

The East Bay MUD services the communities at Camanche South Shore Recreation Area (CSS-system#05-10012) and at Camanche North Shore Recreation Area (CNS-system#03-10008). The existing challenges and problems at CNS include low quality groundwater due to the presence of heavy metals and total coliform contamination as well as groundwater well production failures and reduced production at the remaining wells. The CNS WTP backwash ponds will not meet pending California Toxics Rule requirements. The CSS Water Treatment Plant is a very old direct filtration facility utilizing a surface water supply which includes body contact recreation. The plant currently meets the Department of Health Service Drinking Water Standards however the plant does not fully comply with the current Surface Water Treatment Rules for multi barrier treatment. Both CNS and CSS Areas would be serviced by the RWTP.

The Amador Water Agency services CSA No. 3 (Lake Camanche Village) a residential development consisting of approximately 2,000 parcels. The Lake Camanche village development was designed to be served by five (5) water supply wells. Presently only three (3) wells are in service because of water quality and quantity problems.

The Calaveras County Water District's (CCWD) sphere of influence includes the whole county although other agencies own and operate water systems in the county. Such is the case for Wallace where they have formed a community service District (CSD). They rely on groundwater as their only source. This source is in danger of drying up as a result of over-pumping in neighboring San Joaquin County. These wells also have iron and manganese water quality issues. They serve a small residential community of 70 lots, but a neighboring residential development of about the same size wants to share their water system.

The Burson area consists of several hundred residents on individual wells that have been drying up at an alarming rate due to the aquifer being drawn down. A recent groundwater study showed water quality issues for some of these wells: arsenic, boron, iron and/or manganese. CCWD is the agency charged with finding a way to bring public water to these residents. By partnering with EBMUD and AWA on a Regional Plant, CCWD could provide a reliable water source both in terms of quantity and quality.

A prior design for a Camanche South Shore Water Treatment Plant replacement project was completed and regulatory approvals were previously been obtained for project construction. That project includes construction of a 0.5 MGD ultra filtration water treatment plant at Camanche South Shore Recreation Area (CASS), a new raw water pipeline to provide raw water from the Mokelumne Aqueducts No. 1 & 2 to the new treatment plant, and a new cross-reservoir treated water pipeline from CASS WTP to provide treated water to the Camanche North Shore Recreation Area. This proposed project calls for constructing a slightly larger, 2 mgd facility, such that the additional capacity could be used to supply neighboring areas of Amador and Calaveras counties since the agencies responsible for serving these communities have determined that service from a new CASS water treatment plant is desired.

Project Status:

Readiness to Proceed

The project as currently detailed is in the planning stage. Designs have been prepared for various components of a smaller 0.5 mgd, EBMUD-only facility. Those designs are being revisited / expanded for a 2 MGD regional facility.

Environmental Documentation

A mitigated negative declaration was prepared in July 2001 for a 0.5 MGD treatment plant project and other associated elements consistent with an EBMUD-only facility. As this proposed project is larger / regional in scale, and as it will serve additional customers (beyond EBMUD's), new documentation will be required.

Estimated timeframe for completing environmental documentation = 12 months

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

NA

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

Predesign Report – Water Treatment Facilities Camanche South Shore Recreation Area – EBMUD and CCWD – 1994

Camanche South Shore Water Treatment Plant Feasibility Study – EBMUD - 1999

Draft Mitigated Negative Declaration – EBMUD's Camanche Water Treatment Plant Replacement Project – July 2001

Camanche South Shore and North Shore Treatment Plants Evaluation – EBMUD – May 2003

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ ----

Annual O&M Costs: \$ ----

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): \$----

Estimated Project Life (Years): \$----

Cost Basis (if not 2011 dollars): \$----

Possible Funding Sources: Agency funding, loans, grants, user connection fees.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the

findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): Click here to enter text.

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: Click here to enter text.

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: Click here to enter text.

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: 2 MGD (= 2,240 Acre Ft / Yr)

Acre-feet Per Year of Reduced Demand: NA

Water Quality Benefits

Reduction in pollutant loading: For EBMUD: the project will address low quality groundwater due to the presence of heavy metals and total coliform contamination as well as groundwater well production failures and reduced production at the remaining wells. The CNS WTP backwash ponds will not meet pending California Toxics Rule requirements. The CSS Water Treatment Plant is a very old direct filtration facility utilizing a surface water supply which includes

body contact recreation. The plant currently meets the Department of Health Service Drinking Water Standards however the plant does not fully comply with the current Surface Water Treatment Rules for multi barrier treatment

For CCWD: This project will provide a replacement water supply such that approximately 70 homes as served by wells with iron and manganese water quality issues will now be provided an alternative water supply source. In addition, the Burson area relies on groundwater. A recent groundwater study for said area showed water quality issues for some of that community's wells: arsenic, boron, iron and/or manganese was found. CCWD is the agency charged with finding a way to bring public water to these residents.

Reduction in pollutant transport: NA

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: NA

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): NA

Reduction in flood-related damages: NA

Reduction in greenhouse gas emissions: **** ???? ****

Other: NA

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

This project will provide a reliability water services to the following disadvantaged communities as defined in the MAC IRWMP:

***** INSERT *****

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

NA

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

This project replaces two aging water treatment facilities as operated by EBMUD with a new facility that addresses not just EBMUD's treatment needs, but also the needs of CCWD and AWA (for the portions of their respective service areas adjacent to EBMUD's Camanche Reservoir). Regarding GHG reduction, the operation of a regional facility removes the need to operate individual homeowner pumps and wells. Replacing the two aging EBMUD plants is also predicted to result in the reduction of GHG generation (as more energy efficient treatment systems will be installed). Finally, some homeowners rely on water as supplied via truck (i.e., water is trucked to residents during times of drought and/or when their wells have failed). Regional treatment plant construction will minimize GHG emissions from vehicles used to facilitate said transport.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: West Point Water Treatment Plant Drinking Water Compliance Project

Project Location: West Point, California. Calaveras County. 38°24'26.65"N, 120°30'51.25"W

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: [Click here to enter text.](#)

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: [Click here to enter text.](#)

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: [Click here to enter text.](#)

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Conveyance – Regional/local |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> System Reoperation |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Water Transfers |

Conjunctive Management & Groundwater Storage

Desalination

Precipitation Enhancement

Recycled Municipal Water

Surface Storage – CALFED

Surface Storage – Regional/local

Drinking Water Treatment and Distribution

Groundwater Remediation/Aquifer Remediation

Matching Quality to Use

Pollution Prevention

Salt and Salinity Management

Urban Runoff Management

Flood Risk Management

Agricultural Lands Stewardship

Economic Incentives (Loans, Grants and Water Pricing)

Ecosystem Restoration

Forest Management

Recharge Area Protection

Water-Dependent Recreation

Watershed Management

Crop Idling for Water Transfers

Dewvaporation or Atmospheric Pressure Desalination

Fog Collection

Irrigated Land Retirement

Rainfed Agriculture

Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Ed Pattison

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: 209/754.3090

Email: edwinp@ccwd.org

Other Participating Agencies (if applicable): [Click here to enter text.](#)

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any

potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The West Point Drinking Water Compliance Project is a project to address a current violation with the Department of Public Health regarding a backup filter system for an economically disadvantaged community. Currently, the treatment process is an Absorption Clarifier followed by Sodium Hypochlorite disinfection. However, the West Point Water Treatment Plan does not include a backup filtration system. The DPH issued permit requires a backup system to produce potable water for a minimum period of 2-weeks. This backup treatment system does not exist. As a result, in the last 5-years, the community of West Point was out of potable water for 3-days during treatment plant outage, risking both the health and safety of the community and its ability to combat high fire risk.

The region is at risk to a large devastating fire with a probability of fire identified as 100-percent chance in any given year. According to the Tuolumne-Calaveras Unit Pre-Fire Management Plan, completed in 2005 by the Tuolumne-Calaveras Unit (TCU) of the California Department of Forestry and Fire Protection (CDF), the fire environment in Calaveras County, and more specifically in the West Point area, is conducive to these large, damaging fires. Fire history in combination with the occurrence of hazardous fuels, topography, and weather create conditions that are highly likely to result in damaging fires on a regular basis in the proposed project area. Without the quick access to fire hydrants served by the potable water supply, the risk of a catastrophic fire is extreme.

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

Start date will commence with the availability of some form of grant funding.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

The compliance project will involve installing a backup filter system on CCWD owned land to existing infrastructure on previously disturbed land, which according to CEQA Guidelines is covered by a Categorical Exemption.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

No

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

[Click here to enter text.](#)

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 600,000

Annual O&M Costs: \$ [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): [Click here to enter text.](#)

Estimated Project Life (Years): 40-years

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: State and federal grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: [Click here to enter text.](#)

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: [Click here to enter text.](#)

Reduction in pollutant transport: [Click here to enter text.](#)

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: [Click here to enter text.](#)

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): [Click here to enter text.](#)

Reduction in flood-related damages: [Click here to enter text.](#)

Reduction in greenhouse gas emissions: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

The West Point Water Treatment Plant Drinking Water Compliance Project will ensure CCWD can operate the water treatment plant to meet current California Department of Public Health permit regulatory requirements that mandates a backup filter to produce potable water for a minimum period of 2-weeks per year. During the last 5-years, the community of West Point has been out of potable water for 3-days because the water treatment plant does not have a backup treatment process.

The economically disadvantage community of West Point meets the State of California's criteria for a Disadvantage Community. According to an official Rural California Housing Corporation (RCHC) MHI survey conducted in 1999 the MHI was certified to be \$18,500. The West Point CDP MHI was \$25,417 in 1999 dollars.

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

A significant Native American population exists in the West Point community, the second largest race by percentage according to the US Census Bureau.

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

[Click here to enter text.](#)



**Mokelumne/Amador/Calaveras (MAC)
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Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:

Alyson Watson
RMC Water and Environment
415-404-6442
awatson@mcwater.com

Proposed Project

Project Title: East Panther Creek Restoration Project

Project Location: East Panther Creek, Amador County, tributary to the North Fork Mokelumne River, 20 miles east of Jackson, CA.

Eligibility

In order to be considered for inclusion in the MAC Plan Update, the project must meet at least one MAC Plan Goal, at least one Statewide Priority, and address at least two Resource Management Strategies. If your project does not meet these minimum requirements it will not be included in the MAC Plan Update.

MAC Plan Update Goals

Please describe how your project advances one or more of the MAC IRWM goals.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

Description: Breaching of East Panther Creek dam has resulted in scouring of the opposite bank and sediment flow into the creek and river. The project will remediate the problem and reduce stream turbidity that is harmful to aquatic resources and undesirable for drinking water.

Goal: Manage stormwater flows and transport of sediment and contaminants.

Description: See above. Project will reduce transport of sediments into East Panther Creek and the North Fork of the Mokelumne River.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: [Click here to enter text.](#)

Goal: Maintain and improve water infrastructure reliability.

Description: [Click here to enter text.](#)

Goal: Promote water conservation, recycling and reuse for urban and agricultural uses.

Description: [Click here to enter text.](#)

Goal: Develop appropriate drought mitigation measures.

Description: [Click here to enter text.](#)

Policy 3: Practice Resource Stewardship

Goal: Identify opportunities to conserve, enhance and restore the region's natural resources.

Description: [Click here to enter text.](#)

Goal: Minimize adverse effects on biological and cultural resources.

Description: Project will reduce the harmful effects of erosion on downstream biological resources and stabilize the stream bank to provide healthier riparian habitat.

Goal: Identify opportunities for public access, open spaces, trails, and other recreational benefits.

Description: [Click here to enter text.](#)

Statewide Priorities

Please check all that apply.

- Drought Preparedness
- Use and Reuse Water More Efficiently
- Climate Change Response Actions
- Expand Environmental Stewardship
- Practice Integrated Flood Management
- Protect Surface Water and Groundwater Quality
- Improve Tribal Water and Natural Resources
- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Desalination | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Fog Collection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Irrigated Land Retirement |
| <input checked="" type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Rainfed Agriculture |
| <input checked="" type="checkbox"/> Pollution Prevention | <input type="checkbox"/> Waterbag Transport/Storage Technolog |

Responsible Agency Information

Contact Name: R. Winston “Pete” Bell, Jr. or Chris Wright

Affiliation: Foothill Conservancy

Address: P.O. Box 1255 Pine Grove, CA 95665

Phone: 209-296-5734 (Bell) or 209-295-4900 (Wright)

Email: pete@mokeriver.com chris@foothillconservancy.org

Other Participating Agencies (if applicable): U.S. Forest Service, CA Dept of Fish and Game, PG&E, CA. Dept of Boating and Waterways, US Fish and Wildlife Service, Friends of the River, American Whitewater, Natural Heritage Institute, Bureau of Land Management.

Project Description

Project Description

Please provide a description of your project, including the project location (please provide GPS coordinates if available), area and/or entities that will be affected by or will benefit from your project, related water and environmental resources within the project boundaries, and any potential obstacles to implementation. Attach extra pages if necessary. If feasible, please attach a copy of all relevant project literature.

The goal of this project, the final phase of a more than 10-year restoration effort, is to fully remove the East Panther Creek Dam (which was notched in an earlier phase) and restore 2 miles of upper Panther Creek, 150 feet of riparian area and 2.5 acres to reduce erosion and sedimentation and stabilize the riparian zone. This will be done by removing 22.8 cubic yards of concrete that comprise the dam, removing 40 cubic yards of sediment behind the dam, restoring and replanting the dam area and the inundation site, and restoring 150 feet of stream and riparian zone harmed by erosion resulting from the current notched condition of the dam. The project will benefit downstream water purveyors which serve more than 1.4 million customers, including the Amador Water Agency and East Bay Municipal Utility District. In addition to improving water quality and instream flow, the project will benefit foothill yellow legged frog, brown trout, rainbow trout and other aquatic species.

Construction methods that will be used for this project include:

- Installing a fishwater bypass for the period of actual dam removal and removing it once the dam and all concrete and sediment have been removed
- Mechanical methods will be used to remove sediment and concrete at the dam and the weir
- Eroded stream banks will be stabilized using some of the sediment and rocks from behind the dam and native trees and grasses will be planted to provide additional stabilization
- Sediment and concrete will be removed to a site which is 6.3 miles away at Doak's Ridge, already approved as a deposition site by PG&E, which owns the site. Contractor will use mechanical methods to grade the Doaks Ridge site after sediment and concrete have been deposited.

Location: East Panther Creek, upstream of its confluence with West Panther Creek and the North Fork Mokelumne River. Twenty miles east of Jackson off Tiger Creek Road. LAT N38 29 24, LON W 120 23 51.

Project Status: Choose from Dropdown Menu Design complete.

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of design and environmental documentation (if applicable), and securing required matching funds.

The project is shovel ready and can be started as soon as summer 2012 after reissuance of stream alteration permits. The CA Dept of Fish and Game has issued a CEQA Notice of Exemption for the project. In-Kind project match will be provided by project partners.

Environmental Documentation

Describe the environmental documentation required (e.g. Environmental Impact Report or Negative Declaration) for the proposed project and the status of the required documentation. If environmental documentation is required but has not been started, please provide the estimated timeframe for completing the required documentation.

The CA Dept of Fish and Game has issued a Notice of Exemption for the project.

Multi-entity Integration and Benefits

Is your project linked to or combined with another project? If yes, please describe the linked / integrated projects and other possible project participants. Describe entities that benefit from the project and describe the benefits to each entity.

The project is a result of the Federal Energy Regulatory Commission relicensing of PG&E's hydroelectric project on the Mokelumne River (FERC Project 137), which begins high in the watershed at Blue Lakes and reaches eastward nearly to Highway 49. This final phase of the project will provide environmental enhancement and mitigation that is part of the larger FERC license and fits the larger adaptive management program for the hydro project, which is intended to benefit public trust resources including wildlife, their habitat, and water quality. Benefiting entities include Amador Water Agency and the East Bay Municipal Utility District, who benefit from reduced sediment transport into the North Fork and Main Mokelumne River.

Technical Feasibility

Please list background information, studies or other documentation (including author and year) that detail the technical feasibility of the project.

This is a fairly simple instream construction project designed by an expert in instream construction. It did not require detailed technical study.

Economic Feasibility

Please provide estimated project costs (capital, operations and maintenance, and replacement) and estimated project life.

Capital Cost: \$ 200,000.00 [Click here to enter text.](#)

Annual O&M Costs: \$ N/A [Click here to enter text.](#)

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): N/A [Click here to enter text.](#)

Estimated Project Life (Years): Indefinite.

Cost Basis (if not 2011 dollars): [Click here to enter text.](#)

Possible Funding Sources: CA Dept of Fish and Game, PG&E FERC project environmental enhancement funds.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis) of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

Summary of Economic Analysis Report (including title, author, and year): [Click here to enter text.](#)

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: [Click here to enter text.](#)

Avoided Water Treatment Costs:

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Avoided Costs of New Supplies: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Water Quality Avoided Costs

Avoided Water Treatment Costs: Reduced cost to Amador Water Agency and East Bay MUD related to turbidity caused by streambank erosion.

Avoided Wastewater Treatment Costs: [Click here to enter text.](#)

Other: [Click here to enter text.](#)

Benefits

Quantifiable Benefits

Please provide the quantifiable benefits for Water Supply, Water Quality, and Resource Stewardship, as appropriate.

Water Supply Benefits

Acre-feet Per Year of New Supply: [Click here to enter text.](#)

Acre-feet Per Year of Reduced Demand: [Click here to enter text.](#)

Water Quality Benefits

Reduction in pollutant loading: The project will remove approximate 60 cubic yards of sediment from behind the notched dam and reduce erosion on the streambank.

Reduction in pollutant transport: See above.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: 150 linear feet of streambank and approximately 2.5 acres of instream and riparian habitat will be restored and enhanced.

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): Removal of the dam and gauging weir will improve access for low-intensity stream fishing in a popular fly-fishing stream.

Reduction in flood-related damages: NA

Reduction in greenhouse gas emissions: NA

Other: Removal of the dam and gauging weir will improve passage for brown and rainbow trout.

Disadvantaged Communities / Environmental Justice

Please describe how the project will benefit or impact disadvantaged communities or environmental justice goals.

The project will improve fish habitat in an economically hard-pressed area where many residents catch fish as an important protein source in their diets.

Native American Tribal Communities

Please describe how the project will benefit or impact Native American tribal communities.

Stabilizing riparian habitat may benefit local Native Americans who gather traditional materials in the surrounding national forest.

Climate Change Adaptation or Mitigation

Please discuss how your project contributes to climate change adaptation and/or mitigation of greenhouse gas emissions. Please discuss potential climate change-related impacts of the

project (e.g., increased greenhouse gas emissions). Also discuss the likeliness of these climate change benefits and / or impacts.

NA