



**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: An intertie between the two primary water systems in Amador County provides a diverse water portfolio so to consider cross-storage advantages, water right utilization, and means to help level peak demand events. The two systems have separate storage reservoirs and separate water rights. The systems also have some what different usage patterns with the

up-country system (CAWP) having much less landscaping demands than the Amador Water System The systems could provide a more robust overall supply by an interie that could be used when necessary..

Goal: Maintain and improve water infrastructure reliability.

Description: Should an emergency arise in either system, treated water could be transferred to provide redunadancy and avoid water outages. Given the nature and design of the systems, the raw water supply infrastructures do not have any redundancy.

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 separate water systems. Because of unique storage facilities and water rights, the systems will likely be impacted differently from a drought and water transfers provides a means to maximize use of existing storage and water supplies during drought conditions.

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"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input checked="" type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input 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 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 checked="" 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 type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Pollution Prevention | <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 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 that system since they each supply such large areas of Amador County and neither has redundant source supply facilities.

A two mile pipeline and appurtenances that inter-tie the AWS and CAWP systems would be constructed in order to provide redundancy and emergency backup supplies. During peak periods, emergency facility failure, or drought conditions, the inter-tie will allow water transfers from the other system. 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 maximize existing water rights and storage for benefit in the County. It will also expand fire protection along the central Amador County area between the two systems. Project cost estimates are preliminary.

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. The project alignment is expected to be in or along the existing roadways with

minimal impacts to undisturbed areas. The 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.

The Water Agency provides water service on a retail basis and on a wholesale basis to the Cities of Plymouth and Jackson , as well as the Drytown County Water District, First Mace Meadows Mutual Water Company, Pine Grove CSD, and Rabb Park CSD. This project would enable the integration of water storage, raw water transmission, and treatment between these entities.

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; however, pumping facilities are expected to have a life of 20-30 years.

Estimated Project Life (Years): 50 years for the majority of the pipe infrastructure.

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: Although many of these above items have not been specifically determined, this proposed project provides redundancy and potentially eliminating the need for additional/modified water rights, storage, or water treatment capacity under certain conditions.

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.

Portions of the CAWP System and potentially the Amador Water System are thought to be disadvantaged; however, median household income surveys may be necessary to confirm.

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.

This project could maximize raw water storage which could aid in the adaptation of climate change.

CAWP and AWS Intertie

Additional information

Policy #4

This project would not be controversial as it primarily seeks to provide redundancy under emergency conditions as its primary goal.

#8 Minimize Implementation Risks

Score: High. The proposed project would provide redundancy through intertie of two systems. The alignment of the pipeline would be in or along existing roads with minimal potential environmental concerns. No legal challenge, regulatory, permitting, or partner issues are anticipated. Given the proposed project is still in the conceptual/planning stage no written documentation exists.

#10 Best Project for the Intended Purpose

Score: High. No other known potential project exists that could match the reliability for both systems that would be in the same magnitude of costs, or minimal environmental impacts, and social perspective.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes, the proposed alignment is along an existing roadway to avoid cultural resources.
2. **Does the project maintain or improve ecosystem function?** Yes, this system would maintain the ecosystem as is and you not seek to change the system.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose: SEE Above** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High: Project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.
 - Medium: Other alternatives exist that may be preferable from a social, environmental and economic perspective.

- Low: Other alternatives clearly exist that will be better to meet the intended need from a social, environmental and economic perspective.

Justification for scoring:

5. Minimize implementation risk

- High = Minimal implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.
- Medium = Moderate implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.
- Low = High implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.



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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 that from the Tiger Creek Afterbay. Sampling during storm events has shown reduced amounts of TDS and coliform in the Regulator relative to the Afterbay.

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

Description: The Tiger Creek Regulator is subject to less stormwater flow than Tiger Creek Afterbay. Specifically, Tiger Creek Regulator receives stormwater from runoff from the surrounding area and Tiger Creek. Tiger Creek Afterbay on the other hand, receives flow from the surrounding area (including areas grazed by cattle), Tiger Creek, Antelope Creek and the Mokelumne River. By diverting the diversion point to the Tiger Creek Regulator, the amount of sediment and contaminants impacting the CAWP water supply is lessened.

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 which is dependent upon electricity. The existing pump stations are subject to regular power outages in the winter and are susceptible to wildland fires. The elimination of these pump stations to be replaced by the Gravity Supply Line avoids these risks and ensures a reliable water supply.

Goal: Maintain and improve water infrastructure reliability.

Description: Replacing the existing pump system with a gravity pipeline eliminates year-round pumping and provides water reliability during significant storm events and wildfires when the power supply is interrupted to the pump stations. This raw water conveyance system is 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: In an effort to avoid environmental impacts, this project utilizes existing roads or easements to the maximum extent possible. Less than 30% of the project traverses "cross-country".

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 checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input checked="" type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input 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 type="checkbox"/> Watershed Management |
| <input type="checkbox"/> Surface Storage – CALFED | <input type="checkbox"/> Crop Idling for Water Transfers |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Dewvaporation or Atmospheric Pressure Desalination |
| <input checked="" 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 |
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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. These areas are located primarily along the Highway 88 corridor from the Mace Meadow area to Sunset Heights.

The proposed Gravity Supply Line (GSL) will divert water from the Tiger Creek Regulator via a 6 mile, 18 & 24-inch pipeline and will deliver raw water via gravity to the Buckhorn WTP. The GSL would eliminate Amador Water Agency's dependence on the existing Silver Lake Pines and Tiger Creek pump stations, electrical dependence and associated expenditures. Currently, AWA spends between \$240,000 and \$300,000 annually in pumping water more than 1,000 feet from the Tiger Creek Afterbay to the Buckhorn WTP.

The project will provide water reliability during winter storms and the summer fire season when the existing pump stations may be inoperable due to loss of power.

This will provide water security to residents along the Highway 88 corridor from Mace Meadows to Sunset Heights and Jackson Pines. Raw water fire hydrants are being placed along the GSL alignment at strategically selected locations by fire protection agencies to aid in fire protection for the community.

The new diversion location will have less aquatic impact and smaller sediment loading than the existing diversion location.

Easements for the pipeline are being acquired and the design/engineering for the project are complete.

The estimated project cost is \$13.4 million including design costs. A potential funding source includes USDA Rural Services.

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

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 an 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.

This project benefits Pine Grove CSD, Rabb Park CSD, First Mace Meadows Mutual Water Company, and Amador Water Agency CAWP Retail system.

Technical Feasibility

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

1989 – Leeds Hill-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: \$ 13.4 million

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: \$240,000 to \$300,000 annually

Avoided Water Treatment Costs: N/A

Avoided Wastewater Treatment Costs: N/A

Avoided Costs of New Supplies: N/A

Other: Avoided replacement of the existing nearly 40 year old pump stations and pipelines which are estimated to cost \$9.7 million.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Reduced turbidity allows greater duration between membrane cleanings and therefore reduces O&M. This reduced O&M has not yet been quantified, but will extend the life of the filters.

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: Reduced Turbidity and coliform loading.

Reduction in pollutant transport: Benefit not 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: Elimination of approximately 2,200,000 kilowatt-hours annually to power the existing pump stations will have an associated reduction in greenhouse gas emissions necessary for delivery of raw water to the Buckhorn WTP.

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.

By eliminating the use of pump stations for delivery of raw water from the Tiger Creek Afterbay to the Buckhorn WTP, AWA will avoid using approximately 2,200,000 kilowatt-hours annually. This reduction in power consumption will reduce the greenhouse gas emissions associated with the operations of the CAWP facilities.

These impacts and benefits shall occur should the project be constructed.

CAWP Gravity Supply Line - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. This project utilizes existing roads or easements for 70% of its alignment so as to avoid any potential impacts on cultural resources. Additionally, multiple archeological field surveys have further refined the alignment to ensure avoidance of these resources.
2. **Does the project maintain or improve ecosystem function?** No.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose:** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High:
 1. Environmental: This project avoids 2,200,000 kilowatt-hours in electricity and relies on gravity for delivery of raw water. All other options include pumping, therefore this is the most environmentally friendly option.
 2. Social: This project is the least costly alternative to rates and should therefore be the most socially acceptable to the ratepayers. Unfortunately, a determined, vocal minority are opposed to the project . Incorrect information continues to surface. For example, some opponents continue to contend that the existing pumps will require significant upgrade if used in a back-up capacity which is patently false. They also contend that the project is oversized despite numerous independent evaluations that confirm the pipeline is adequately sized to match AWA's water diversion rights. AWA believes when the ratepayers have all the facts, they will concur that this is the best project alternative.
 3. Economic: This project currently has commitments of a significant grant and low interest loan from USDA Rural Services. No other project option has such funding available, therefore this project is the least impact to rates and the best from an economic perspective.
5. **Minimize implementation risk**
 - High
 1. Regulatory barriers would include FERC approval for the project. Discussions with PG&E indicate that approval is highly likely.
 2. Environmental barriers have been adequately addressed and mitigated in the approved environmental documents therefore there is little to no likelihood of environmental barriers at this point.
 3. Permitting obstacles are minimal and many permits are already in place.
 4. Controversy potential is medium, with a determined minority actively engaged in opposing all Amador Water Agency projects. AWA believes when the ratepayers have all the facts, a majority will concur that this is the best project alternative and support it.
 5. Funding from USDA Rural Services is guaranteed through 2013 so there is great certainty associated with the project's potential partners.



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415-404-6442
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Proposed Project

Project Title: Upper Amador Canal - Treated Pipeline Conversion (SDP)

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. The Amador Water Agency's current customers off of the Upper Amador Canal receive untreated water from an uncovered earthen canal. Some of these customers run untreated water through their home plumbing.

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

Description: The remaining portions of the Upper Amador Canal contain approximately 20 miles of uncovered earthen canal, crossing many drainage pathways. In many cases the canal interrupts the normal flow of stormwater. This project will pipe the remaining portions of the canal, return to grade portions of the canal and return the drainages to their original flows, reducing the transport of sediment and contaminants.

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 type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Flood Risk Management |
| <input checked="" 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 type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input 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 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 checked="" 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 type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Pollution Prevention | <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.

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. There are water customers that receive untreated water from the uncovered earthen canal. 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. The treated water portion of Phase II, this project, consists of laying a 6" and 8" inch treated water pipeline within the Amador Canal to serve existing customers that currently receive untreated water. The customers in the project area are disadvantaged and low income homes. 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, saving over 1,120 acre feet of water per year, and improve water conveyance efficiency. It will also improve water quality and supply reliability. There will also be reduced operation and maintenance costs from not having to maintain an uncovered earthen canal. Added benefits will be mosquito abatement, reduced sediment in transported water, reduced livestock/wildlife drowning, restoring 56 acres to its natural state, and enhanced fire protection through the addition of hydrants to areas that currently have none.

The EIR process is complete for Phase II. The project pre-design is complete and cost estimates have been produced. Phase I has been completed. Phase II will take approximately two years to complete.

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 environmental documentation and pre design has been completed. The project is currently in the 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.

This project is linked with the untreated portion of the Upper Amador Canal project.

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 acre feet per year

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: 56 acres restored

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.](#)

Upper Amador Canal – Treated Pipeline Conversion - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. This project utilizes an existing canal for 99% of its alignment so as to avoid any potential impacts on cultural resources. Additionally, multiple archeological field surveys have further refined the alignment to ensure avoidance of these resources. This project proposes to permanently conserve in excess of 1,120 acre feet of water per year, allowing it to flow unhindered down the Mokelumne River.
2. **Does the project maintain or improve ecosystem function?** No.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose:** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High:
 1. Social: This project is the second least costly alternative to implement and should therefore be the most socially acceptable to the ratepayers. The least costly alternative is no project, which would mean continuing to provide untreated water to these customers homes and continuing to waste 1,120 acre feet of water per year.
 2. Economic: This project proposes to provide treated water to low income homes that are mostly without treated water service at this time. This project will not be able to proceed without significant grant funding, as the rate payers cannot bear the full financial burden of this project.
5. **Minimize implementation risk**
 - High
 1. Environmental barriers have been adequately addressed and mitigated in the approved environmental documents therefore there is little to no likelihood of environmental barriers at this point.
 2. Permitting obstacles are minimal and many permits are already in place.
 3. Controversy is potential is medium, with a determined minority actively engaged in opposing all Amador Water Agency projects. AWA believes when the ratepayers have all the facts, a majority will concur that this is the best project alternative and support it.



**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: The existing system has a history of spills and overflows contributing to surface and ground water contamination. The existing system has been under a cease and desist order from the Regional Water Quality Control Board.

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

Description: Stormwater contributes considerable added water volume to the limited storage and disposal capacity and thereby causing plant and storage reservoir overflows which carry contaminants out from the wastewater plant site to surface and groundwater.

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description: The use of recycled water provides a reliable water supply for agricultural purposes.

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: This proposed project seeks to utilize treated wastewater for agricultural purposes during the irrigation season and thereby reducing the demand on limited surface water sources.

Goal: Develop appropriate drought mitigation measures.

Description: The use of reclaimed wastewater provides a reliable water source for certain agricultural purposes and reduces impacts on limited surface water supplies during drought cycles.

Policy 3: Practice Resource Stewardship

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

Description: Recycled water reduces demands on limited water resources for the region.

Goal: Minimize adverse effects on biological and cultural resources.

Description: Water will be stored in existing ponds north of residential area on a large ranch which will enhance the existing biological environment with a reliable water supply.

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: 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. 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 for agricultural purposes. 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 BMPs. This project will enhance and protect wetlands. Finally, the agencies will achieve regulatory compliance and prevent water quality degradation. By preventing spills during storms, water quality will be protected and improved. Potential health risks will also be avoided.

The first phase has been substantially completed. Phase II will cost approximately \$14 million. Other variations are under consideration.

In addition to the existing wastewater customers an additional approximate 400 existing homes are on individual on-site systems. Amador County Environmental Health Department has urged the Water Agency to proceed with a project that could be expanded as a substantial number of these existing systems have or are expected to fail. The County requires that all new on-site wastewater systems in this area be "engineered system" which are quite expensive and can range from \$20,000 to \$60,000. There are also existing undeveloped parcels that could double the current number of homes in the area. The Water Agency is not accepting new wastewater applications until an acceptable wastewater solution can be implemented.

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.

An environmental fatal flaw analysis was completed along with a California Tiger Salamander Survey Study.

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. The project, by combining customer bases, brings an economy of scale to the ratepayers. Currently, the Water agency is taking the lead on this potential regional project.

Technical Feasibility

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

2002 Lake Camanche Village Treated Wastewater Long Term Disposal Work Plan- KASL Engineers

2003- Wastewater Treatment and Disposal Alternatives Feasibility Study for EBMUD Camanche North and South Shore Recreation Areas and Amador Water Agency CSA No.3- URS Corporation

2005- EBMUD/AWA Phase 2 Regional Wastewater Treatment and Disposal Study- Kennedy/Jenks Consultants

2005- AWA WWID # 11- Interim WWTP and Effluent Alternatives- Kennedy/Jenks Consultants

2008- California Tiger Salamander Study and other critical species analysis- PBS&J

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: \$ Up date needed

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Membrane filters are expected to have a life of 10 years with the main components of the plant having a life of 40 years.

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.- planning grant pending.

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: initially approximately 100 AF of water would become available for reuse with potentially 300 AF annually.

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: Initially 50 AC with potential to expand to 200 AC

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.

Lake Camanche Village has 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.

As water supplies and storage become more critical with climate change, the use of recycled water becomes an important resource to reduce demands on limited surface water supplies.

Camanche Wastewater System Improvements

Additional Information

Policy #4 Focus on Areas of Common Ground and Avoided Prolonged Conflict

P4 Goal:

1. This project may have controversy primarily in that it can provide wastewater capacity for a subdivision (3B) within the Lake Camanche Village which already has a final map, but needs site improvements (roads, water lines, etc.). Units 5 & 7 are also potential areas anticipated for development, but do not have active maps. This proposed project solves existing wastewater problems, provides a cost effective solution for failed and anticipated failures of on-site systems (over engineered systems), and provides capacity for approved, but unimproved lots. It is anticipated that this project structured as a phased capacity project and mitigate the concern of growth inducement by building only the capacity that is needed at that point in time. In this approach capacity increments will be able to closely match wastewater needs and only expand as needed. Project costs would be scaled accordingly to the phased approach.

Evaluation Criteria

#8 Minimize Implementation Risk

Score: High. Although a complete environmental review is needed, AWA realized that there were potential environmental issues such as California Tiger Salamander and other special status species. A California Tiger Salamander survey was completed and approved by the USFWS. A review of other special status species was also conducted which eliminated possible concerns for both special status plant and animal species in the proposed project area. This work has eliminated one of the most significant permitting risks. The concern regarding growth inducement has also been mitigated through phasing capacity improvements such that capacity can be added only as needed. The project has identified an existing property owner in need of agricultural water who has a familiarity with use of reclaimed water. This property is also within the Jackson Valley Irrigation District (JVID). By providing reclaimed water to this property, there will be a greater water supply available to other customers in the JVID service area. This is viewed in a positive light. The cost is always an issue, and the Water Agency

does not propose to move forward on this project unless adequate grant funding is available or through some other funding source such as new customer impact fees .

#10. Best Project for the Intended Purpose

Score: High. At least four different studies have reviewed alternatives to solve the existing wastewater issues in the Lake Camanche area. The Water Agency believes this alternative is the best from technical, social, and environmental perspectives. This high level treated water will then be reused reducing the impacts on existing limited surface water supplies. Phasing capacity expansion to match needs provides a socially acceptable means to avoid issues associated with growth inducement. The only remaining issue is the economic perspective. The Lake Camanche Village is a disadvantaged community and the project needs to have either grant or outside funding to make this affordable to the existing customers. The project would only proceed forward with financial support.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes, the proposed alignment would use existing roads and disturbed areas to the maximum extent possible thereby minimizing possible adverse effects to cultural resources.
2. **Does the project maintain or improve ecosystem function?** Yes, this system would enhance ecosystem conditions maintaining a stable water supply for the habitat.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose: SEE Above** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High: Project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.
 - Medium: Other alternatives exist that may be preferable from a social, environmental and economic perspective.
 - Low: Other alternatives clearly exist that will be better to meet the intended need from a social, environmental and economic perspective.



**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: 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.

The project pre-design and environmental work have been completed. The project is ready to proceed when funding allows.

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 for the project has been 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.

This Project may be linked with the Upper Amador Canal Treated Pipeline Conversion project, but can proceed on its own, without the treated portion.

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: \$ 3.5 million

Annual O&M Costs: \$ 10,000

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): 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: [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.](#)

Upper Amador Canal – Untreated Pipeline Conversion - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. This project utilizes an existing canal for 95% of its alignment so as to avoid any potential impacts on cultural resources. Additionally, multiple archeological field surveys have further refined the alignment to ensure avoidance of these resources. Also, this project proposes to conserve a large volume of water, allowing it to flow unhindered down the Mokelumne River.
2. **Does the project maintain or improve ecosystem function?** No.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose:** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High:
 1. Social: This project is the least costly alternative to implement and should therefore be the most socially acceptable to the ratepayers. The alternative is no project, which would mean continuing to use the earthen canal to provide untreated water to customers along the alignment. This project will not be able to proceed without significant grant funding.
 2. Economic: This project is the least costly alternative to remove the earthen canal from service and to replace it with an untreated water pipeline. This project will not be able to proceed without significant grant funding, as the rate payers cannot bear the full financial burden of this project.
5. **Minimize implementation risk**
 - High
 1. Environmental barriers have been adequately addressed and mitigated in the approved environmental documents therefore there is little to no likelihood of environmental barriers at this point.
 2. Permitting obstacles are minimal and many permits are already in place.
 3. Controversy is potential is medium, with a determined minority actively engaged in opposing all Amador Water Agency projects. AWA believes when the ratepayers have all the facts, a majority will concur that this is the best project alternative and support it.



**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: The individual water treatment plants lack reliable capacity, are at or near capacity, and also near the end of their useful life for components of the plants.

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

Description: The plant will reuse wash water and thereby eliminate approximately 5% of the water that is otherwise disposed of. An estimated 73 million gallons of water will be captured and retreated for reuse. This could provide enough water for about 600 families and reduce impacts on surface water supplies.

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: The recycling of filter wash water is estimated to save approximately 73 million gallons of water each year thereby reducing impacts to natural resources.

Goal: Minimize adverse effects on biological and cultural resources.

Description: Recycling filter wash water means less water is diverted from the surface supply leaving more water for aquatic life and other species.

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 checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Conveyance – Delta | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input 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 checked="" 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 type="checkbox"/> Matching Quality to Use | <input type="checkbox"/> Rainfed Agriculture |
| <input type="checkbox"/> Pollution Prevention | <input type="checkbox"/> 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, City of Plymouth, 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 has a capacity of 2.5 MGD and provides treated water on a retail basis in and around the lone area.

Both plants are at or near their rated capacity. The lone water treatment plant is located on top of a small hill and is site constrained for further expansion. The lone plant is a conventional treatment plant updated in 1986. The Tanner WTP is a refurbished plant that was reconstructed in 1992. These plants are in need of major improvements which include all control valves, computer control, and other equipment. It was determined that the best long term solution is to construct a regional WTP at Tanner site which eliminate the need for the lone WTP and reduce the cost of operating two independent WTP. Studies were completed which investigated conventional versus membrane treatment plants 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 be 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.

The regional water treatment plant will provide treated water to all cities in Amador County either on wholesale or retail basis.

Technical Feasibility

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

2004-Ione Water Treatment Plant Feasibility Study- Boyle Engineering

2008-Tanner Regional WTP Preliminary Desing Report- Stantec Engineering

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: \$ \$566,600

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Expected life of 50 years for the plant with membrane replacement not less than 10 year. Most control, pumps and other various plant equipment having a life a 10-15 years

Estimated Project Life (Years): 50 years

Cost Basis (if not 2011 dollars): August 2008

Possible Funding Sources: CFD to fund expanded capacity, rates for existing capacity, potential grants and loans.

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: The existing lone WTP operating costs would be eliminated and only a minor increase in the cost of operating the current Tanner WTP

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: This project would avoid the construction of two separate WTP.

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: Although not yet calculated, it is expected that the efficiencies of operating and maintaining one plant instead of two will have an overall reduction in greenhouse gases.

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 existing service areas are believed to be disadvantaged including areas of Plymouth and unincorporated service zones.

Native American Tribal Communities

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

This plant would provide service to the Jackson Band of Miwok Indians

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.

The reuse of filter wash water minimizes impacts on surface water supplies which aids in adapting to climate change.

AWS Regional Water Treatment Plant

Additional Information

Policy #4 Focus on Areas of Common Ground and Avoided Prolonged Conflict

P4 Goal:

1. This project would consolidate two water treatment plants into one and reduce operation and maintenance costs overall. This is not expected to be controversial project with the exception of growth inducement. This plant would be expandable and capacity would be added only as needed. This should mitigate concerns regarding growth inducement and offer a common ground solution to growth inducement.

Evaluation Criteria

#8 Minimize Implementation Risk

Score: Medium. The Water Agency owns the parcel of land anticipated for the regional water treatment plant which is adjacent to the existing Tanner WTP. The California Department of Public Health would be responsible for issuing the water treatment permit. The proposed treatment plant would use approved membrane technology and equipment. The Water Agency does not expect any regulatory or permitting barriers for this project. Consolidation of two facilities should provide and overall reduction in operation and maintenance costs which is expected to be supported. Growth inducement is a typical area of controversy and this project is designed to accommodate incremental capacity expansions so capacity would occur only as needed. This method of incremental capacity should help to minimize the concerns over growth inducement. The recent economic downturn has reduced the need for new construction. The Water Agency is first maximizing capacity of existing facilities and making interim improvements that will cover immediate treated water. As that available water capacity is exhausted, the regional plant will be needed. The Water Agency plans to utilize community facility district financing to insure fair distribution of costs and further minimize implementation risks.

#10. Best Project for the Intended Purpose

Score: High. The Water Agency believes that with consolidation of facilities, incremental capacity expansions, and reduced chemical usage with membrane technology that this is the best project to meet social and environmental perspectives once all existing or incremental

water treatment capacity is exhausted. The economic perspective is dependent on funding sources beyond existing customers. The Water Agency is considering a community facility district financing concept to fund the project.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes, the proposed project will utilize an existing parcel adjacent to the existing Tanner water treatment plant which minimizes ground disturbance and potential adverse effects on cultural resources.
2. **Does the project maintain or improve ecosystem function?** Yes, this system would maintain the ecosystem as is and you not seek to change the system.
3. **Is the project expected to be completed by 2022?** Yes; however, the timing is dependent on the economy and added demands on treated water supply. Development projects which already have been approved by land use agencies trigger the need for added capacity, but it is unknown if the interim capacity will be fully exhausted in ten years.
4. **Best project for the intended purpose: SEE Above** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High: Project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.
 - Medium: Other alternatives exist that may be preferable from a social, environmental and economic perspective.
 - Low: Other alternatives clearly exist that will be better to meet the intended need from a social, environmental and economic perspective.

Justification for scoring:

5. **Minimize implementation risk**
 - High = Minimal implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.
 - Medium = Moderate implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.

- Low = High implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.



**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 |

- | | |
|---|--|
| <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 checked="" 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 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 Lower Amador Canal in Sutter Creek, CA flows from the Tanner Water Treatment Plant to the City of Sutter Creek in an uncovered 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 should conserve over 100 acre feet of water per year.

This project plans to replace the canal in place with 12,000 feet of new 8" C900 water piping at a cost of approximately \$720,000.

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.

The project pre-design has been completed and the project is awaiting funding to proceed.

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: \$ 720,000

Annual O&M Costs: \$ \$5,000

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): 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: 100 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: [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.](#)

Lower Amador Canal Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. This project utilizes an existing canal or existing pipeline alignment for 100% of its alignment so as to avoid any potential impacts on cultural resources. Also, this project proposes to conserve a large volume of water, allowing it to flow unhindered down the Mokelumne River.
2. **Does the project maintain or improve ecosystem function?** No.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose:** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High:
 1. Social: This project is the least costly alternative to implement and should therefore be the most socially acceptable to the ratepayers. The alternative is no project, which would mean continuing to use the earthen canal to provide untreated water to customers along the alignment. This project will not be able to proceed without significant grant funding.
 2. Economic: This project is the least costly alternative to remove the earthen canal from service and to replace it with an untreated water pipeline. This project will not be able to proceed without significant grant funding, as the rate payers cannot bear the full financial burden of this project.
 3. Environmental: Environmental barriers will be adequately addressed and mitigated in the approved environmental documents therefore there is little to no likelihood of environmental barriers at this point.
5. **Minimize implementation risk**
 - High – Permitting obstacles are minimal and many permits are already in place. No know implementation risks are known at this time, although a determined minority are actively engaged in opposing all Amador Water Agency projects.



**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 further 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: 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 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): 50 years

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: 218 AFY

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.](#)

Backwash Water Reuse Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. This project proposes to conserve 218 AFY.
2. **Does the project maintain or improve ecosystem function?** No.
3. **Is the project expected to be completed by 2022?** Yes
4. **Best project for the intended purpose:** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High:
 1. Environmental: Environmental barriers will be adequately addressed and mitigated in the approved environmental documents therefore there is little to no likelihood of environmental barriers at this point.
 2. Social: This project is the least costly alternative to implement and should therefore be the most socially acceptable to the ratepayers. The alternative is no project, which would mean continuing to not recycle backwash water and dispose of it to waste. This project proposes to conserve 218 acre feet per year of water.
 3. Economic: This project is the least costly alternative. This project will not be able to proceed without significant grant funding, as the rate payers cannot bear the full financial burden of this project.
5. **Minimize implementation risk**
 - High - Controversy potential is low, with a determined minority actively engaged in opposing all Amador Water Agency projects. AWA believes when the ratepayers have all the facts, a majority will concur that this is the best project alternative and support it.



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

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Questions and completed forms should be directed to:

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awatson@mcwater.com

Proposed Project

Project Title: CAWP Fire Protection Study

Project Location: Pioneer, Mace Meadows, Pine Grove, and other areas in the vicinity along Highway 88 in Central 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.

- 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 checked="" 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.

AWA operates the Central Amador Water Project (CAWP) which was originally built 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. Also many of the existing storage tanks don't have adequate storage to meet peak hour, fire and emergency events which were also discussed in the master plan. The focus of this project is to evaluate options for improved fire protection for areas served by the CAWP System.

Portions of Central Amador County are within high potential fire zones. The existing CAWP system was developed as a wholesale operation that treats raw water and delivers that treated water to individual districts (originally 10 districts). These individual districts in turn have their own storage and distribution systems. There are 23 tanks through out the CAWP system ranging from about 39,900 gallons to 750,000 gallons. Storage for a typical 1,000 gpm for 2 hours is 120,000 gallons plus needed operational and emergency storage which are dependant on the area served by the tank. Commercial areas typically require 300,000 gallons for fire protection. Over time, 7 of the original districts have been consolidated into one district which is owned and operated by the Amador Water Agency, CAWP Retail district. Currently about half of the existing 90 miles in the CAWP Retail System is 4 inch in diameter or less. About 12 miles of piping is 2 ½ inch in diameter or less. Normally 6 or 8 inch pipe is considered the minimum pipe size for fire flows.

Given the rural setting, there are residential areas adjacent to open space. Improved fire protection through the water distribution system can prevent a structural fire from spreading to wild land and likewise protect residential and commercial properties from wildland fires. In addition, improved storage and distribution systems offers a greater ability for fire crews to replenish tanker trucks during fire fighting in areas outside of those areas with water distribution systems. The 1995 CAWP Master Plan didn't look at the specific distribution systems.

This project proposes to study the existing distribution systems and propose prioritized improvements that will enhance fire protection in the CAWP system. The focus will be within the existing distribution systems starting with treated water storage and continue to the distribution piping system and fire hydrants. It may be possible to consolidate storage in central locations and upsize certain mains to improve fire protection in residential and commercial locations. A computer model would be generated to assist with determined cost effective means of improving fire protection in all CAWP distribution systems.

Computer modeling and report is estimated at \$50,000.

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 is ready to proceed as soon as funds are 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 necessary for the study

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.

There are four different water agencies that will benefit from this study including Pine Grove CSD, Rabb Park CSD, First Mace Meadows Mutual Water Company, and Amador Water Agency.

Technical Feasibility

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

1995 CAWP Master Plan- HDR Engineering, Inc.

1995 Master Plan and connection fee for Amador County Water Agency , Improvemetrn District No. 1- Engineering alliance, Inc, Bartholomew Engineering, Inc.,

Economic Feasibility

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

Capital Cost: \$ \$50,000

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

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.

Portions of the CAWP service area are believed to be disadvantaged which can be confirmed through median household income surveys.

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.](#)

CAWP Fire Protection Improvement Study

Additional information

Policy #4

This project would not be controversial as it seeks to determine a prioritized list of needed improvements that will improve fire protection for the community.

#8 Minimize Implementation Risks

Score: High. As a study there is minimal implementation risk. The concept of improved fire protection is generally supported.

#10 Best Project for the Intended Purpose

Score: High. A study to provide the recommended provides the best way to analyze project options.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes, the study reviews potential solution in advance of proposed construction.

2. **Does the project maintain or improve ecosystem function?** Yes, this system would maintain the ecosystem as is and would not seek to change the system.

3. **Is the project expected to be completed by 2022?** Yes

4. **Best project for the intended purpose: SEE Above** Please select the score below that best reflects your project, and provide a justification of how you arrived at your score.
 - High: Project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.
 - Medium: Other alternatives exist that may be preferable from a social, environmental and economic perspective.
 - Low: Other alternatives clearly exist that will be better to meet the intended need from a social, environmental and economic perspective.

Justification for scoring:

5. Minimize implementation risk

- High = Minimal implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.
- Medium = Moderate implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.
- Low = High implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partners' uncertainty.