Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan Update

VOLUME 2

Prepared by:

RMC
Water and Environment

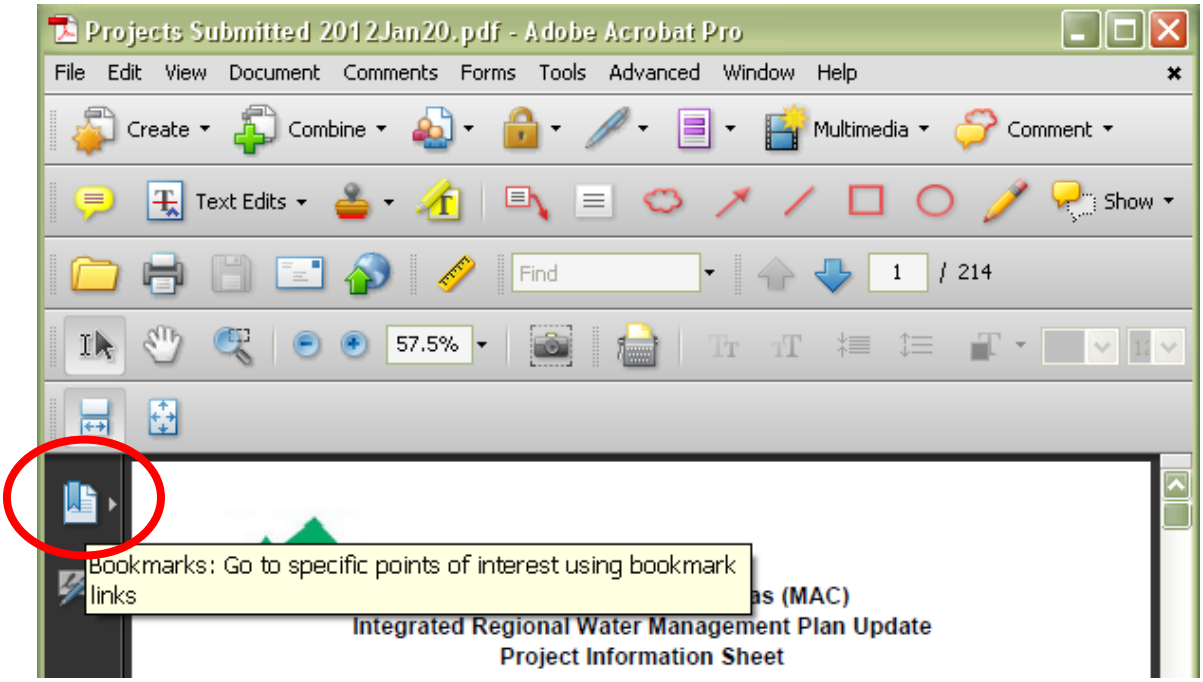
January 2013

Appendix F– Project Information Forms

This file consists of the 36 project information sheets submitted by May 30, 2012 as part of the Mokelumne/Amador/Calaveras (MAC) Integrated Regional Water Management (IRWM) Plan Update project solicitation process.

Project No.	Submitted by	Project Name
1	AWA	CAWP & AWS Intertie
2	AWA	CAWP Gravity Supply Line
3	AWA	Treated Water to Residents Using Untreated Water
4	AWA	Lake Camanche Wastewater Improvement Program
5	AWA	Small Diameter Pipeline Raw Water Canal to Pipe Conversion Project
7	AWA	AWS Regional Water Treatment Plant
8	AWA	Lower Amador Canal Project
9	AWA	Backwash Water Reuse Project
10	AWA	CAWP Fire Storage
11	AWA	Highway 88 Corridor Wastewater Treatment, Transportation, Disposal
12	AWA	Ione Treated Water Loop
13	AWA	Regional Wastewater Project
14	AWA	New York Ranch Reservoir Conservation and Management
15	AWA	AWA Low Pressure Flow Improvements
16	AWA	Lake Camanche Water Storage Tank & Transmission Main
17	AWA	Lake Camanche Water Service Replacement-Phase II
19	AWA	Wildwood Leachfield Replacement
20	AWA	Bear River Reservoir Expansion Project
21	UMRWA	Septic System Management Program
22	CCWD	Leak Testing and Repair Program
23	CCWD	New Hogan Reservoir Pumping Project
24	CCWD	New Hogan Phase II Water Distribution Loop Project
25	CCWD	Sheep Ranch WTP Compliance Project
26	AWA-CCWD-EBMUD	Camanche Area Regional Water Supply Project
27	CCWD	West Point WTP Drinking Water Compliance Project
28	Foothill Conservancy	East Panther Creek Restoration Project
29	Foothill Conservancy	Restoring the Upper Mokelumne's Anadromous Fish
30	Foothill Conservancy	Amador Household Water Efficiency Project
31	Stanislaus National Forest, Calaveras Ranger District	Hemlock Landscape Restoration
32	City of Jackson	City of Jackson Wastewater Treatment and Disposal Project
33	Calaveras County Administrative Office	Ponderosa Way Restoration Project
34	AWA	Ione Clearwell Cover Replacement
35	AWA	CAWP Tanks Replacement Project
36	AWA	Camanche Wastewater System Improvements
37	AWA	CAWP Retail Distribution Domestic and Fire Protection Improvements
38	AWA	CAWP Disinfection By-Product Reduction Project

You can navigate through the project forms using the bookmarks in Adobe Acrobat.



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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: 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 interie between the two primary water systems in Amador County provides a diverse water profolio 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.

☐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 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.

<u>Additional Assessment Criteria</u>

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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RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: CAWP Gravity Supply Line

Project Location: Buckhorn Area of Amador County

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☒*Goal:* Reduce sources of contaminants.

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

☐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 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 pipline 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, electricaf dependence and associated expenditures. Currently, AWA spends between $240,000 and $300,000 annualy in pumping water more than1,000 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 proide 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 stragegically 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 a Environmental Impact Statement (Federal).

Multi-entity Integration and Benefits

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

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 – Leedshill-Herkenhoff Study
1995 – HDR CAWP System Master Plan
2007 – AWA In-House Study

Economic Feasibility

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

Capital Cost: $ 13.4 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 killowatt-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 killowatt-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 killowatt-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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Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

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 Uppper 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 contaminents.

Policy 2: Improve Water Supply Reliability

☐ *Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒ *Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☐ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☒Agricultural Water Use Efficiency

☒Urban Water Use Efficiency

☐Conveyance – Delta

☒Conveyance – Regional/local

☐System Reoperation

☐Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☐Recycled Municipal Water

☐Surface Storage – CALFED

☐Surface Storage – Regional/local

☒Drinking Water Treatment and Distribution

☐Groundwater Remediation/Aquifer Remediation

☐Matching Quality to Use

☐Pollution Prevention

☐Salt and Salinity Management

☐Urban Runoff Management

☐Flood Risk Management

☐Agricultural Lands Stewardship

☐Economic Incentives (Loans, Grants and Water Pricing)

☐Ecosystem Restoration

☐Forest Management

☐Recharge Area Protection

☐Water-Dependent Recreation

☐Watershed Management

☐Crop Idling for Water Transfers

☐Dewvaporation or Atmospheric Pressure Desalination

☐Fog Collection

☐Irrigated Land Retirement

☐Rainfed Agriculture

☐Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: 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 exisiting 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 documention 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@rmcwater.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 suppliesduring 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 substancially 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 expensiveand 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 Feasiblity 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@rmcwater.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.

☒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 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.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: 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 acquatic 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.

☐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: 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 Ione WTP which has a capacity of 2.5 MGD and provides treated water on a retail basis in and around the Ione area.

Both plants are at or near their rated capacity. The Ione water treatment plant is located on top of a small hill and is site contrained for further expansion. The Ione 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 equipmernt. It was determined that the best long term solution is to construct a regional WTP at Tanner site which eliminate the need for the Ione 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 Ione 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, potentiall 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 Ione 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@rmcwater.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.

☒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 Lower Amador Canal in Sutter Creek, CA flows from the Tanner Water Treatement 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@rmcwater.com

Proposed Project

Project Title: Backwash Water Reuse Project

Project Location: Buckhorn, Ione & 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.

☒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.

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 requlatory 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, Ione 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 Ione – 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.

Upper Mokelumne River Watershed Authority

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:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.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

☐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.

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 (oginally 10 districts) . These individual disctricts 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 whch 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 distrtibution 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 comnnection fee for Amador County Water Agency , Improvemetn 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 is 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.

<u>Additional Assessment Criteria</u>

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.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Highway 88 Corridor Wastewater Trunkline Study

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

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☒*Goal:* Reduce sources of contaminants.

Description: Failures of leachfields will lead to contamination

☐*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: Reclaimed water can contribute to firming certain water needs

☐*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 concept would contribute to recycling and reuse of water.

☐*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: This project could lead to the restoration of lands currently used for leachfields to natural or open lands

☒*Goal:* Minimize adverse effects on biological and cultural resources.

Description: wastewater spills or contamination from leachfields can lead to adverse impacts to biological resources.

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

Description: Elimination and restoration of leachfields can lead to opportunities for open spaces, trails, or other recreational benefits for the public.

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.

There are seven small developments located along Highway 88 which have community wastewater systems operated by the Water Agency and others which have been proposed. These systems utilize community leachfields. Soils in the foothill areas are generally marginal and there are concerns with the longterm use of leachfields for these wastewater disposal systems. Future failures of these systems could result in contamination of ground water and cause environmental harm.

These communities are spread along the Highway from Fairway Pines to Jackson Pines with the upper portion located approximately 4 miles east of Pine Grove. This project concept considers the placement of a sewer trunk line along Highway 88 from the Buckhorn area to the Martell area to collect septic tank effluent wastewater from these systems and deliver it to an existing community wastewater system for further treatment and possible reuse.

This project design is at the conceptual level to investigate long term disposal viability in a proactive mode. This project proposes to study the possibility of a future trunk line and includes a review of the existing community disposal systems and their ability to provide long term wastewater disposal.

An estimate of $35,000 has been determined for this reconnaissance level study.

Project Status: Planning

Readiness to Proceed

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

Ready to proceed to study

Environmental Documentation

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

Not needed for 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.

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: $ $35,000

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.

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.

Highway 88 Corridor Wastewater Trunkline Study

Additional information

Policy #4

This project would involve a study which would investigate a potential project and identify possible issues which would be of a broad concern to many. The study in itself should not be controversial as it primarily seeks to proactively consider a potential problem and solution.

#8 Minimize Implementation Risks

Score: High. Implementation risks are minimal with a study that seeks to investigate a concern and possible solution.

#10 Best Project for the Intended Purpose

Score: High. A study is being proposed to further investigate this project and as such, the Agency believes this provides the best approach to the identified concern.

<u>Additional Assessment Criteria</u>

1. **Does the project minimize adverse effects on cultural resources?** Yes, as the study seeks to further investigate rather than push forward with a proposed construction that might have some adverse effect 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 at this time.

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.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Ione - Plymouth Treated Water Loop

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

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☒ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☒ 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.

Ione and Tanner water treatment plants are each operated individually and not connected. This project will link these two water systems and create a reliable backup supply for both areas. This will reduce disruptions in drinking water deliveries while expanding public water supply to areas west of the Ione System and east of the Tanner System. This project will provide a secure public water supply to a larger area and more communities now and in the future. This includes the Willow Springs area where no public supply is currently available. Exisiting connections and future connections would each pay their proportional fair share of the benefit of the project.
It helps to secure the water supply for Ione, Plymouth, Amador City, and Drytown. Also, the northwest area of Amador County would receive additional fire protection capabilities with fire hydrants located along the pipeline route. The Treated Water Loop is expected to run from Plymouth, along Highway E16, to Ione via Highway 124. The project would install 12 miles of 12" C900 water piping at a cost of approximately $7.2 million.

Project Status: Pre-Design

Readiness to Proceed

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

The project is in the pre-design phase and could be completed in three years.

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 will begin when funding allows and could be completed within two years.

Multi-entity Integration and Benefits

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

Click here to enter text.

Technical Feasibility

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

Click here to enter text.

Economic Feasibility

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

Capital Cost: $ 7.2 million

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

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

Estimated Project Life (Years): 50 years

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

Possible Funding Sources: Click here to enter text.

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

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

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

Click here to enter text.

Ione-Plymouth Treated Water Loop - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes.

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 provide a backup water supply to the Plymouth, Ione, Sutter Creek or Jackson service areas.
     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**
   - Medium
     4. Permitting obstacles are minimal.
     5. 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.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Regional Wastewater Project

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

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☒*Goal:* Reduce sources of contaminants.

Description: This project would improve the quality of the wastewater plant discharge by bringing it to tertiary or Title 22 levels suitable for reuse. The regional plan would increase the amount of land disposal to offset the use of treated and raw water for sites such as parks, ball fields, golf courses and various recreation facilities; reduce stream disposal frequency; and combine storage and treatment facilities where feasible.

☐*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: This project would facilitate water reuse to offset the use of treated and raw water for sites such as parks, ball fields, golf courses and various recreation facilities.

☒*Goal*: Develop appropriate drought mitigation measures.

Description: This project would reduce dependence on raw and treated water by supplementing the water supply with tertiary or Title 22 effluent. This would lessen the impacts from drought years or multiple drought years.

Policy 3: Practice Resource Stewardship

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

Description: This project would reduce dependence on raw and treated water by supplementing the water supply with tertiary or Title 22 effluent. This would result in conservation of the existing raw water sources due to offsets from the tertiary water sources.

☒*Goal:* Minimize adverse effects on biological and cultural resources.

Description: This project would reduce the amounts of raw water used and treated thereby maximizing AWA's water use efficiency and maximizing the resources available for biological resources.

☐*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

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

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

Project Description

Project Description

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

The communities of Jackson, Sutter Creek, Amador City, Ione and Martell all have independently operated wastewater treatment facilities. All of the facilities are old, in need of repair and upgrades. Due to this and the increasing regulatory requirements, it is becoming more difficult to efficiently and effectively treat wastewater to an adequate level. For this reason, communities within Amador have started to discuss implementation of a regional plan to improve wastewater treatment and promote water reuse.

This regional plan may involve facility upgrades as well as new disposal methods. These methods will rely heavily on reclamation and reuse for effluent disposal.

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

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

The regional project will reduce potable water demand by providing recycled water, improve wastewater treatment efficiency, meet regulatory requirements, and protect surface and groundwater resources.

This project is feasible with participation by all of the project partners or with participation of only a few project partners and must include benefits to both existing and future customers to ensure project viability.

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.

AWA is currently engaged in a Recycled Water Reuse Study to determine the potential water reuse customer base and associated strategic planning. This study should be completed by September 2012.

Environmental Documentation

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

Environmental not started

Multi-entity Integration and Benefits

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

Possible project participants include the Cities of Amador City, Ione, Jackson and Sutter Creek.

Technical Feasibility

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

Amador County Regional Wastewater Management Plan.

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: $ Unknown, but would likely be offset by elimination of multiple other redundant facilities.

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

Estimated Project Life (Years): 50 years

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

Possible Funding Sources: Click here to enter text.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis)of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis

has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Yes, but not yet quantified

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.

This project, when fully realized, will reduce the need for raw water by supplementing AWA's water supply with tertiary water. This maximizes the available water resources available and contributes to climate change adaptation relative to use of resources.

Regional Wastewater Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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 would consolidate treatment facilities, reduce surface water discharge and maximize water reuse. This is the most environmentally friendly option compared to continuing operation of multiple facilities with minimal water reuse.
     2. Social: This may create some controversy due to the reuse of water, however as this is becoming more commonplace through the United States, anticipated controversy is minimal.
     3. Economic: This project has higher capital costs versus maintaining the existing plants, however should those plants require replacement this then becomes the least costly alternative. Additionally, the pooling of resources between entities for a regional approach may lessen the economic impact to ratepayers.
5. **Minimize implementation risk**
   - Low
     1. Regulatory barriers would include CA DPH, SWRCB and RWQCB, but should be reasonable given the plethora of governmental agencies throughout the State that are engaging in water reuse.
     2. Environmental barriers have not yet been addressed and are unknown at this time.
     3. Permitting obstacles should be reasonable given the plethora of governmental agencies throughout the State that are engaging in water reuse.
     4. Controversy potential may exist, however as water reuse continues to become mainstream, anticipated controversy is minimal.
     5. Each of the potential partners currently run their own facilities and may be resistant to relinquish control. Further, some of the partners are pursuing independent options to meet their regulatory obligations. Although they continue to take individual approaches, this project can still complement their efforts and will continue to become more viable in the future.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: New York Ranch Reservoir Conservation and Management Cost Evaluation

Project Location: Amador County off of Ridge Road

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: On site improvements would manage stormwater flows in or around the existing reservoir site with consideration of transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Project would include improving a firm yield of water for the habitat on the site.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: The project will consdider historical on site water facilities and improvements that improves water reliability for the habitat.

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

Description: The project may consider recycled water from nearby homes to enhance the water on the site.

☒*Goal*: Develop appropriate drought mitigation measures.

Description: Use of recycled water is being considered to mitigate drought cycles.

Policy 3: Practice Resource Stewardship

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

Description: The purpose of the project is to provide the conservation and enhancement of natural, historic and cultural resources, and to promote opportunities for interpretation and education regarding resources at the New York Ranch Reservoir site.

☒*Goal:* Minimize adverse effects on biological and cultural resources.

Description: The project seeks to enhance and protect biological and cultural resources on the site.

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

Description: The project seeks to promote opportunities for interpretation and education of the natural resources on the site and include trailand access to public schools or other identified organizations.

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.

New York Ranch Reservoir is a balancing reservoir in the AWA canal system, about five miles east of Sutter Creek, just southwest of the Ridge and Climax Roads intersection. It currently serves as a holding basin for water flowing from Lake Tabeaud to the Tanner Reservoir. After the Amador Canal Pipe Project is fully implemented, changing water conveyance systems from an open earthen canal to 30-inch piping and smaller pipes for customers along the Amador Canal, the historic New York Ranch Reservoir will no longer be needed. The approximate 49 acft reservoir was constructed in 1873 as part of the Amador Canal that was constructed to support the mining activities in the vicinity and later became the primary domestic water supply for the area. Many historic facilities are still operational today and the five acre site is rich with other historic cultural history and wildlife.

In 2005, the Amador Water Agency entered into an agreement with Central Sierra Resource Conservation and Development, Inc., the Foothill Conservancy, and the California Department of Fish and Game regarding the Conservation and Mangement of the New York Ranch Reservoir . These organizations support the conservation and management of the New York Ranch Reservoir to ensure that the reservoir site is preserved for its cultural, historic, and educational value. In this way, the site will continue to be a resource for people to learn about wetlands, wildlife, plants, surrounding culture, and local history.
This project is in the pre-design phase and environmental documentation has not yet started. AWA may retain ownership of the reservoir, but grant a permanent conservation easement to the Amador Land Trust, the Foothill Conservancy, or some other yet to be identified party to ensure conservation of the site.

The estimated cost in the 2006 Integrated Regional Water Managemewnt Plan was $500,000; however, no supported documentation was found. This project proposes to evaluate completed management plans and develop specific costs for both phased initial costs as well as operation and maintenance costs. This study is estimated at $20,000.

Project Status: Planning

Readiness to Proceed

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

Several planning documents have been completed, but the actual management plan activities are not expected to begin until the Water Agency completes a small diameter canal pipeline to provide service to existing customersalong the Amador Canal which is dependent on funding. The management plan cost estimate can proceed now.

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.

No envirnmental review has been initiated at this time and would not ne necessary for the cost estimate 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.

This project is anticipated to be linked to several projects and programs to further it's intent as an educational tool and conservation project.

Technical Feasibility

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

2007- New York Ranch Reservoir Conservation and Management Plan- Edith Read, Center for Natural Lands Management & Jim Robins, Alnus Ecologic

2008- Technical Report, New York Ranch Reservoir Model, HIS Hydrologic Systems

2010- New York Ranch Reservoir Natural Resource Conservation & Management Plan- Jim Robins, Alnus Ecologic

Economic Feasibility

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

Capital Cost: $ 20,000

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: Click here to enter text.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis)of the project has been completed, please provide the

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

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: approximate 50 acft

Acre-feet Per Year of Reduced Demand: not yet known

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

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

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Drainage from this site travels to the Jackson Rancheria property owned by the Jackson Band of Miwok Indians. Reduction in the transport of sediment and contaminates will benefit the Tribal lands.

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.

It is proposed that the project might include recycled water from nearby residents which could provide a water supply and assist with climate change adaptation.

New York Ranch Reservoir Conservation and Management

Additional Information

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

P4 Goal:

1. This project is a non-controversial project and an example of a multi-organizational project

Evaluation Criteria

#8 Minimize Implementation Risk

Score: High. There are no known institutional barriers identified that create an implementation risk for this proposed project. Available funding will be the primary challenge for this project and a cost study will help to determined the phased cost of the management plan.

#10. Best Project for the Intended Purpose

Score: High. This project provides a unique opportunity to preserve a component of the historic mining period which evolved to support the community with the added biological and other cultural resources on the site and provide education for current and future generations. The conservation easement is believed to be the best alternative for this site. A cost study will determine the estimated cost to implement the plan.

<u>Additional Assessment Criteria</u>

1. **Does the project minimize adverse effects on cultural resources?** Yes, the proposed project would preserve cultural resources.

2. **Does the project maintain or improve ecosystem function?** Yes, this system would improve the ecosystem by enhancing the water supply to the project site.

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.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Central Amador Water Project - Low Pressure Flow Improvements

Project Location: Pioneer

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☒ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐ 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 water distribution system in the upcountry of Amador County is old, antiquated, undersized, and suffers from low pressures in the summer, leaving the community with minimal water supply and inadequate fire protection or suppression supply. Much of the distribution system is less than 4 inches in diameter with large segments of 2" pipe. The project will identify, prioritize and provide for the design, replacement, and modifications to the water supply system within the community to improve water supply and meet minimum fire flow requirements. Central Amador Water Purveyors and AWA will be active project participants.

Project Status: Conceptual Design

Readiness to Proceed

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

The project is in the pre-design phase and could be completed in three years.

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 will begin when funding allows and could be completed within two years.

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: $ 500,000

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

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

Estimated Project Life (Years): 50 years

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

Possible Funding Sources: Not identified

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

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Central Amador Water Project – Low Pressure Flow Improvements - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes.

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 provide inadequate water supply, substandard pressures, inadequate fire protection or suppression supply.
     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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Lake Camanche Water Storage tank & Transmission Main

Project Location: Lake Camanche, Ione , 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

☐ 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.

Lake Camanche Water Improvement District No. 7 (WID #7) is a groundwater system with a series of wells, storage tanks, hydro-pneumatic tanks and booster stations with an estimated yearly production of 100 million gallons that serves over 740 service connections.

The Camanche water system has a number of existing deficiencies that burden this small disadvantaged community. Among these are the inability to provide: the required minimum required chlorine contact time, the minimum level of water quality, and the minimum emergency and fire flow water storage.

Positive Coliform bacteria tests, in source water from Well No. 9, have been frequent and are discussed in several CDPH Notice of Violation letters. The new Well No. 14 is located approximately 1,300' from Well No. 9 and appears to draw from the same aquifer. Well No. 14 has been observed to draw down well No. 9 and is expected to have the same problems with Coliform bacteria detection. Chlorine treatment of the well water along with sufficient chlorine treatment contact time is needed.

Currently Well No. 9 and Well No. 14 source waters are pumped directly into the distribution system. The Water Agency has recently begun chlorine injection at the well sites, but due to the close proximity (3,600') of service connections to the wells, the required chlorine contact time is not currently being achieved, as required in Health and Safety Section 64426.1 of Title 22.

A dedicated disinfection pipeline has been proposed from the existing Wells No 9 & 14 to Tank 9. Chlorine contact time cannot be obtained solely with this pipeline as the existing tank is too small. It would be impractical to retrofitted Tank 9 due to the tank's age, small size and decaying condition.

WID #7 currently provides a total of 674,000 gallons of emergency and operational storage. The old redwood storage tanks often suffer from weather damage, general decay and small animal damage, usually at the high water level. In order to reduce water waste the high levels of these tanks have been operationally lowered. Several iterations of lowering the tank high levels have significantly reduced the storage capacity of the tanks below their nominal capacity, several feet in some cases. These reduced storage capacities of the tanks have reduced the emergency availability of water during power failures, fire events, and drought situations by approximately 13%.

The water system has a distribution storage of 0.674 million gallons and currently is out of

compliance with the minimum 0.959 million gallons water storage requirement under the California Code of Regulations, Chapter 16 of the Title 22 California Water Works Standards, Section 64554. The existing system shows a water storage deficiency of 373,290 gallons or 39% with the existing decaying old redwood tanks.

A. Tank 9 Disinfection Pipeline

Chlorine disinfection stations are to be added at wells No. 9 & 14. In order to provide a dedicated disinfection pipeline from these wells to Tank 9, the existing 8" C900 pipeline will be disconnected from the distribution system and used exclusively for the wells. A new distribution pipeline is needed to run from Tank 9 past Well No. 14 to replace the modified pipeline just mentioned. This pipeline must be upsized to the hydraulic equivalent of a 12" pipeline in order to solve the pressure and flow problems throughout the system. In addition the chlorine contact time can be achieved.

B. Tank 9

A new 1,000,000 gallon storage tank would be constructed on the Tank 9 site and designed to replace the existing old tank. This new tank meets the requirements of Title 22, Section 64554.

C. Tank 10 Transmission Main

A new 1.5 mile transmission mian would be constructed from the Tank 9 site to the tank 10 site.

The benefits of implementing the proposed project include the following:

- Provides the Title 22 required chlorine contact time and disinfection prior to distribution through the piped system conforming to Safe Drinking Water Standards.
- Improves water quality through chlorination and removing the old redwood storage tank, thereby reducing water contamination issues and increasing reliability to protect the health and safety of the Amador Water Agency's customers.
- Provides additional emergency water storage, fire flow storage, and drought reliability.
- Reduces reliance on portable emergency generators through increased storage.
- Reduces security risks, improving reliability and conveyance of the water supply.
- This project is required by fire code, AWWA code, the California Dept. of Public Health and others based on the current water usage and customer base without growth in the service area. Any future growth (2.9% per the approved 2010 Amador County General Plan) in the area would exacerbate the problems.

A. Alternative #3 - Camanche System Improvements (Preferred)

Alternative #3 does not consolidate any other water systems and only proposes improvements to the WID #7 Back System. The Front System would benefit from the improvements through increased emergency water storage and water supply during peak demand times. The Back System would see pressures and flows increased to adequately meet the requirements of Title 22, including improved fire flows.

This alternative includes the following:

1) A dedicated chlorine disinfection pipeline from Wells No. 9 & 14 to Tank 9 to allow for proper CT.
2) A 1.0 million gallon water storage tank to replace Tank 9, which will supply the Back System solely by gravity feed with adequate pressures and flows.
3) A transmission pipeline to bring supply water from Tank 9 to the Tank 10 site, which will supply the Front System with additional water supply and storage during peak summer demands.
4) The demolition of Sites 8 & 10 and the existing Tank 9.

The NPV of Alternative #3 - Camanche System Improvements (Preferred) is estimated at $89,410, with an initial capital cost of $4,087,696.

Table #9 - Alternative #3 Net Present Value

Camanche Improvement Options 20yr NPV - Alternative #3
Replace Tank 9, install disinfection pipeline to Tank 9 & transmission pipeline loop to Tank 10

4.3% = Discount Rate
2.9% = Inflation Rate
5.9% = Electric Inflation Rate

Year		Yearly Total	Improvements	Part. Fees	Water Sales	Admin/Debt	Electricity	O & M	Comments
0	2009	$ (4,000,266)	$ (4,087,696)	$ 149,800	$ 462,600	$ (145,455)	$ (30,000)	$ (349,515)	Install Improvements
1	2010	$ 135,207	$ -	$ 154,144	$ 487,787	$ (149,673)	$ (29,609)	$ (327,442)	Demo Sites 8, 9 & 10
2	2011	$ 151,241	$ -	$ 158,614	$ 514,047	$ (154,014)	$ (30,468)	$ (336,938)	
3	2012	$ 168,092	$ -	$ 163,214	$ 541,419	$ (158,480)	$ (31,352)	$ (346,709)	
4	2013	$ 185,793	$ -	$ 167,947	$ 569,946	$ (163,076)	$ (32,261)	$ (356,764)	
5	2014	$ 204,379	$ -	$ 172,818	$ 599,672	$ (167,805)	$ (33,196)	$ (367,110)	
6	2015	$ 223,887	$ -	$ 177,830	$ 630,644	$ (172,672)	$ (34,159)	$ (377,756)	
7	2016	$ 244,354	$ -	$ 182,987	$ 662,907	$ (177,679)	$ (35,150)	$ (388,711)	
8	2017	$ 265,820	$ -	$ 188,293	$ 696,511	$ (182,832)	$ (36,169)	$ (399,983)	
9	2018	$ 288,326	$ -	$ 193,754	$ 731,507	$ (188,134)	$ (37,218)	$ (411,583)	
10	2019	$ 311,914	$ -	$ 199,373	$ 767,947	$ (193,590)	$ (38,297)	$ (423,519)	
11	2020	$ 336,627	$ -	$ 205,154	$ 805,885	$ (199,204)	$ (39,408)	$ (435,801)	
12	2021	$ 362,511	$ -	$ 211,104	$ 845,378	$ (204,981)	$ (40,551)	$ (448,439)	
13	2022	$ 389,613	$ -	$ 217,226	$ 886,483	$ (210,925)	$ (41,727)	$ (461,444)	
14	2023	$ 417,983	$ -	$ 223,525	$ 929,262	$ (217,042)	$ (42,937)	$ (474,826)	
15	2024	$ 447,670	$ -	$ 230,008	$ 973,776	$ (223,336)	$ (44,182)	$ (488,596)	
16	2025	$ 478,727	$ -	$ 236,678	$ 1,020,091	$ (229,813)	$ (45,463)	$ (502,765)	
17	2026	$ 511,210	$ -	$ 243,542	$ 1,068,273	$ (236,478)	$ (46,782)	$ (517,345)	
18	2027	$ 545,173	$ -	$ 250,604	$ 1,118,391	$ (243,335)	$ (48,138)	$ (532,348)	
19	2028	$ 580,677	$ -	$ 257,872	$ 1,170,518	$ (250,392)	$ (49,534)	$ (547,786)	
20	2029	$ 617,782	$ -	$ 265,350	$ 1,224,728	$ (257,654)	$ (50,971)	$ (563,672)	
20 Year Net Present Value =			**$89,410**						

Assumptions
1) See Construction Cost Estimate - Alternative #3 for Improvement Value
2) Participation Fees and Water Sales to increase by 20 connections per year (2.9% Amador County General Plan)

Figure #11 - Alternative #3 Net Present Value Graph

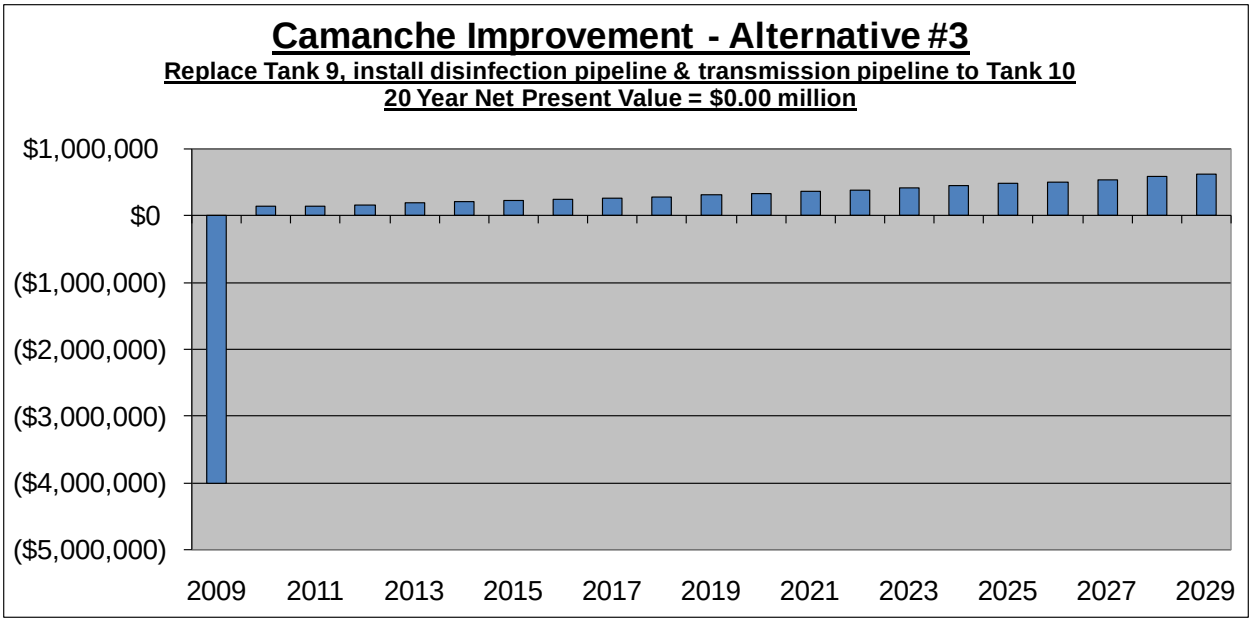

Figure #12 - Alternative #3 Construction Cost Estimate

Construction Cost Estimate - Alternative #3 for Camanche Improvements

Replace Tank 9, install disinfection pipeline to Tank 9 & transmission pipeline loop to Tank 10

Item	Description	Quantity	Units	$/unit ($)	Total Price ($)
1	1 MG Tank (40'Hx708'D)	1	LS	1,174,000	1,174,000
2	Piping, 8" C900 PC165	20	ft	60	1,200
3	Piping, 10" C900 PC165	9,300	ft	80	744,000
4	Piping, 12" C900 PC165	3,800	ft	100	380,000
5	Chlorine Station	2	LS	10,000	20,000
6	Tank Security, Fencing & Lighting	1	LS	15,000	15,000
7	4" A.B.	3,185	tons	60	191,100
8	Storm Drain Improvements	1	LS	5,000	5,000
9	CAVRV	4	ea	1,500	6,000
10	Blow-Off	4	ea	3,000	12,000
11	8" GV	7	ea	1,500	10,500
12	10" GV	15	ea	2,000	30,000
13	12" GV	5	ea	2,500	12,500
14	Grading/Landscaping/Erosion Control	1	LS	10,000	10,000
15	Abandon Existing Sites 8, 9 &10	3	ea	20,000	60,000
16	Live Intertie	2	ea	2,500	5,000
17	Private Land Acquisition	10,000	sf	0.50	5,000
18	Public Easements	81,000	sf	0.40	32,400
19	Temporary Const. Easements	131,500	sf	0.25	32,875
20	Surveying, Staking, & Legal Desc.	1	LS	15,000	15,000
21	Cleaning and Testing	1	LS	5,000	5,000
22	Safety/Shoring	1	LS	10,000	10,000
23	Blasting	1,100	cy	100	110,000
24	Environmental & Permitting	1	LS	12,500	12,500
				Sub-total	2,899,075
Subtotal					
20	Environmental & Geotechnical			3%	86,972
21	Plans & Specifications			5%	144,954
22	Mobilization/Demobilization			3%	86,972
23	Engineering, Insp & Const Mgmt			15%	434,861
24	Administration & Reporting			5%	144,954
25	Contingency			10%	289,908
				Total	**$ 4,087,696**

Project Status: Design Complete

Readiness to Proceed

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

Design Complete

Environmental Documentation

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

completed

Multi-entity Integration and Benefits

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

Click here to enter text.

Technical Feasibility

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

Click here to enter text.

Economic Feasibility

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

Capital Cost: $ 4.1 million

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

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

Estimated Project Life (Years): 50 years

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

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

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

Summary of Economic Analysis Report (including title, author, and year): 2009 Technical Information Engineering Report for the Camanche System

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

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

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Lake Camanche Water Storage Tank & Transmission Main - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. This project utilizes existing roads or easements for 90% 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. 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 inadequate water pressure, inadequate fire suppression storage and supply, and keeping operations costs higher than required.
     2. Economic: This is a disadvantaged community, verified by several low income housing surveys. 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. Permitting obstacles are minimal and many permits are already in place.
     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. AWA recently received a small grant to line several aging redwood tanks in Camanche, but lining the tanks does not increase operational storage by any significant volume or bring operational requirements up to current code requirements. It also does not provide the required fire suppression flow or storage required, and does not eliminate or reduce the need for this project.
     4. Controversy is 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. Other than the financial burden on ratepayers, the implementation risk of this project is extremely low.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Lake Camanche Water Service Replacement – Phase II

Project Location: Lake Camanche, Ione , 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: This project would replace antiquated and failing water service laterals to approximately half the customers in the Lake Camanche area.

☐*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: This project would replace antiquated and failing water service laterals to approximately half the customers in the Lake Camanche area and would reduce a known source of water loss within the system thereby providing additional supply and reducing impacts from drought.

Policy 3: Practice Resource Stewardship

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

Description: By replacing the laterals and reducing water losses, the need to pump additional water from the aquifer to offset these losses would be reduced and would therefore conserve the region's natural resources.

☐*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☒Agricultural Water Use Efficiency

☒Urban Water Use Efficiency

☐Conveyance – Delta

☒Conveyance – Regional/local

☐System Reoperation

☐Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☐Recycled Municipal Water

☐Surface Storage – CALFED

☐Surface Storage – Regional/local

☒Drinking Water Treatment and Distribution

☒Groundwater Remediation/Aquifer Remediation

☐Matching Quality to Use

☐Pollution Prevention

☐Salt and Salinity Management

☐Urban Runoff Management

☐Flood Risk Management

☐Agricultural Lands Stewardship

☐Economic Incentives (Loans, Grants and Water Pricing)

☐Ecosystem Restoration

☐Forest Management

☐Recharge Area Protection

☐Water-Dependent Recreation

☐Watershed Management

☐Crop Idling for Water Transfers

☐Dewvaporation or Atmospheric Pressure Desalination

☐Fog Collection

☐Irrigated Land Retirement

☐Rainfed Agriculture

☐Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road, Sutter Creek, CA 95685

Phone: 209-257-5245

Email: Gmancebo@amadorwater.org

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

Project Description

Project Description

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

Lake Camanche Water Improvement District No. 7 (WID #7) is a groundwater system with a series of wells, storage tanks, hydro-pneumatic tanks and booster stations with an estimated yearly production of 100 million gallons that serves over 740 service connections. Approximately 340 service laterals will have been replaced by the completion of Phase one which is currently under construction.

This project proposes to replace the remaining 400 polyethylene ("Poly-Tube") service laterals within the system. These laterals were originally installed in the late 1970s and as they continue to age, the material becomes very brittle and subject to severe longitudinal cracking. Thus they regularly leak and fail, causing significant damage to other infrastructure and substantial water losses. Agency crews, on average, repair and replace twenty laterals each year as they fail.

This project could be done in portions if complete funding is not avalaiable. Total project completion would require $1,188,000.

Project Status: Design Complete

Readiness to Proceed

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

Design Complete

Environmental Documentation

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

Categorical Exemption (Replacement)

Multi-entity Integration and Benefits

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

Click here to enter text.

Technical Feasibility

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

Click here to enter text.

Economic Feasibility

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

Capital Cost: $ 1.2 million

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

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

Estimated Project Life (Years): 50 years

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

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

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

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

<u>Water Supply Avoided Costs</u>

Avoided Pumping / Conveyance Costs: Reducing known sources of water loss reduces the pumping necessary to provide sufficient water to the system.

Avoided Water Treatment Costs: Reducing known sources of water loss reduces the treatment necessary to provide sufficient water to the system.

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: Yes, but not yet quantified.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

All of the affected service areas are areas of low income housing based on numerous 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.

Lake Camanche Water Service Replacement – Phase II - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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. No other alternatives exist to replacing leaking laterals that provide the same levels of service to the existing ratepayers.

5. **Minimize implementation risk**
   - High
     1. No other alternatives exist to replacing leaking laterals that provide the same levels of service to the existing ratepayers. Additionally, by reducing water loss, the treatment and distribution costs for the ratepayers should be reduced proportionately.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Wildwood Leachfiled Replacement Project

Project Location: Pine Grove, CA

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☒*Goal:* Reduce sources of contaminants.

Description: Reduce and mitigate known Nitrate and TKN issues at the Wildwood Community Leachfield System.

☐*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: Reduce and mitigate known Nitrate and TKN issues at the Wildwood Community Leachfield System that may have an adverse impact on groundwater quality and biological resources.

☐*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 Wildwood Estates Community Leachfield System is a gravity fed effluent disposal system operated by the Amador Water agency in Pine Grove, CA serving 37 single family residences. The disposal site is 4.2 acres with 4,300 feet of leach lines that disposes of a maximum 11,000 gallons per day. The site currently has two monitoring wells.

Historic nitrate as nitrogen concentrations have shown a continued increase at the monitoring wells since the site began operating in 2003. In 2009 nitrate as nitrogen levels exceeded the MCL and has continued to rise with possible groundwater contamination. Corrective action is warranted to address the elevated nitrate as nitrogen concentrations in ground water.

Complete replacement of the leachfield is required along with the installation of a small lift station to bring the effluent to the higher elevations of the disposal site at an estimated cost of $2.2 million. The permitting process could begin immediately with construction beginning in May 2013.

Project Status: Pre-Design

Readiness to Proceed

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

Pre- Design

Environmental Documentation

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

Categorical Exemption (Replacement)

Multi-entity Integration and Benefits

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

Click here to enter text.

Technical Feasibility

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

Click here to enter text.

Economic Feasibility

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

Capital Cost: $ 2.2 million

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

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

Estimated Project Life (Years): 50 years

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

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

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

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

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

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Wildwood Leachfield Replacement Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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 prevents further degradation of the ground water plume under the influence of the Wildwood Leachfield. The only other feasible option available would be to install pre-treatment or treatment facilities and abandon the existing leachfield. These options would require significant additional environmental work versus a Categorical Exemption for the proposed project.
     2. Social: This project is the least costly alternative, however the costs are too great to be borne by the ratepayers without assistance in the form of a grant or low-interest loan. Additionally, the "do-nothing" alternative will eventually lead to a Notice of Violation from RWQCB and associated fines which could cost significantly more than the leachfield replacement alternative. Therefore, provided that grants or loans are available to assist with implementation of this project, this should be the most socially acceptable alternative to the ratepayers.
     3. Economic: This project is the least cost alternative.

5. **Minimize implementation risk**
   - High
     1. Regulatory barriers would include RWQCB, but would be a standard procedure with which AWA is very familiar.
     2. Environmental barriers minimal as this project is a Categorical Exemption for replacement. By way of contrast, not addressing this known issue exposes AWA to significant liability, fines and litigation.
     3. Permitting obstacles are minimal and would either be an amendment to the existing WDR or a new WDR.
     4. Controversy potential is medium due to the potential fiscal impacts. Again, without outside funding assistance, this project is unlikely to proceed.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Lower Bear River Reservoir Expansion Project

Project Location: Lower Bear River Reservoir, Amador County

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Currently AWA has no on-stream or off-sttream storage and relies exclusively on PG&E for storage.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Providing on-stream/off-stream storage improves the overall infrastructure reliability.

☐ *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: Providing on-stream/off-stream storage improves the ability to mitigate excessive evapotranspiration losses from stream flow versus reservoir storage.

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: Raising Lower Bear may facilitate new recreation opportunities and updating of older, deteriorating facilities.

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.

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

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

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

Table 5-7: Bear River Alternative Analysis Considerations

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

Footnotes:
a. Assumes public district financing.
b. 72 MkWhrs @ $0.06/kWhr.
c. 18,000 AF of average yield @ $75/AF.
Source: Bear River Water Supply Alternatives for Amador Water Agency and Calaveras County Water District 2005

While the primary benefit is additional water supply for Amador and Calaveras Counties through increased storage of winter flows, other benefits include flood control, power generation, improved water

quality, and cold water releases to improve fisheries. The increased water supply storage also could be used temporarily by EBMUD during dry years for increased water supply. This project will help Calaveras by providing water to the South Shore WTP. AWA, CCWD, EBMUD, and San Joaquin could have improved water supply reliability and could use the additional water for conjunctive use and groundwater replenishment in the areas of the M/A/C region that relies primarily on groundwater. CCWD will have further dry year protection by buying into the Bear River Reservoir Project and having storage on the Mokelumne River to meet water supply needs during dry years. PG&E and EBMUD may also benefit from additional power production. This project is potentially linked to the Enlarge Pardee Reservoir Project and the Inter-Regional Conjunctive Use Project. The Bear River Reservoir Expansion Project is in the feasibility phase and construction could potentially take place in five years (2017) and is estimated to cost a total of $50 million.

Project Status: Pre-Design

Readiness to Proceed

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

Pre-Design

Environmental Documentation

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

None

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.

CCWD/EBMUD/PG&E – Various projects

Technical Feasibility

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

Click here to enter text.

Economic Feasibility

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

Capital Cost: $ 50 million

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

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

Estimated Project Life (Years): 100 years

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

Possible Funding Sources: Rates, private developers, utility cooperation, state and federal and grants/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: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: 2,600

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

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

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Lower Bear River Reservoir Expansion Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Unknown

2. **Does the project maintain or improve ecosystem function?** No

3. **Is the project expected to be completed by 2022?** No

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.
   - Medium:
     1. Environmental: This project will require the most environmental work of the three identified options.
     2. Social: This project will require the removal/relocation of existing recreational facilities, however these facilities are antiquated and some are in poor condition. It is unknown what the social reception to this idea will be at this time.
     3. Economic: This project is the least capital cost and least O&M cost of the three alternatives that provide on/off stream storage for AWA. This storage will benefit all existing and future AWA customers.
5. **Minimize implementation risk**
   - Low
     1. Regulatory barriers would include FERC, DSOD, CA DFG and DWR approval for the project.
     2. Environmental barriers would include copper leaching issues, but are less than the environmental issues raised relative to the other identified options.
     3. Permitting obstacles are many and have yet to be identified.
     4. Controversy potential is medium, with focused stakeholder surveys yet to be developed.
     5. The project's potential partners are relatively comfortable with this project but discussions are still in their infancy stage. Further, this project is predicated on the PG&E project moving forward and this project being incorporated into those improvements.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Upper Mokelumne Septic System Management Program

Project Location: Amador and Calaveras Counties (West slope)

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☒ *Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☐ *Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☐ *Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☐ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☒ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐ 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: Rob Alcott

Affiliation: UMRWA

Address: 15083 Camanche Pkwy South, Valley Spings, CA 95252

Phone: 209-772-8340

Email: robalcott@aol.com

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

Project Description

Project Description

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

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

The proposed program consists of five elements as described below.

I. Community Outreach Plan - A strong outreach program will be developed and implemented as a first step to raise awareness of the problem posed by leaking septic systems in the watershed. Effective outreach is critical to secure support and cooperation for the other elements of the Septic Management Program. The outreach plan will utilize several communication and education tools including fact sheets/flyers, workshops, media outreach and a program website. The target audiences for the outreach plan will be local residents and business owners and owners of second homes in the watershed. Many residents and owners of second homes do not realize they are on septic systems and that many of the older or smaller capacity systems may be improperly functioning. It is a particular outreach challenge in the Upper Mokelumne River watershed to reach residents who chose to live in remote areas to avoid the general public, government entities, and additional governmental regulations.

II. Program Advisory Committee – The PAC will be established to include agency representatives and residents throughout the watershed. The PAC will serve to guide the development of the Septic System Management Program. Former members of the Project Advisory Committee that guided the development of the *Upper Mokelumne River Watershed Assessment and Planning Project* will be invited to join the PAC.

III. Septic Survey – The completed *Upper Mokelumne River Watershed Assessment and Planning Project* implicates failing septic systems as the primary cause of elevated pathogen levels. Site-specific analysis is needed to supplement the documented empirical and anecdotal information to conclusively demonstrate to residents and funding agencies that investment is needed to confirm and correct the problems. A septic survey will document sources, causes, and evidence of the threat to public health. The survey will be performed in three parts.

(a) Watershed Characterization – Watershed characteristics relevant to septic system suitability, such as geologic conditions, soils and water resources, will be investigated and documented to understand what constitute acceptable conditions within the Upper Mokelumne watershed for properly functioning septic systems.

(b) Conduct Water Quality Monitoring – Water quality monitoring will be performed to conclusively demonstrate that the source of microbial contamination is leaking septic systems, and to identify the locations where contamination is most acute. This testing will also include identification of the species of origin to confirm that microbial contamination is indeed of human origin.

(c) Inventory and Assessment of Septic System Infrastructure – This task would inventory, map the locations, and evaluate the extent of leaking, poorly constructed and unpermitted systems.

IV. Sewer System Extension Feasibility – The feasibility of extending sewage collection systems to serve unsewered areas in the communities of West Point, Wilseyville and Mokelumne Hill will be evaluated. The evaluation will focus on relevant engineering, environmental and economic factors. A project description and conceptual engineering plan will be prepared for any community for which sewer service is deemed potentially feasible.

V. Homeowner Septic System Reference Guide – A reference guide designed to educate homeowners on important aspects of septic system design, use and maintenance will be produced. With the viability of a septic system oftentimes dependent on the homeowner's understanding of their system and the periodic actions needed to maintain system functionality, this reference guide will enable homeowners to take proactive roles in avoiding septic system failures.

Project Status: Planning

Readiness to Proceed

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

The program has been designed and CEQA is not applicable. No matching funds have been identified. Program implementation can be initiated upon the recruitment and engagement of a qualified consultant.

Environmental Documentation

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

This program is CEQA exempt.

Multi-entity Integration and Benefits

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

This is presently an independent program. The two most directly benefitted agencies are the Amador and Calaveras County Environmental Health Departments as implementation of the program will reduce the number of failing and failed septic systems with the two counties.

Technical Feasibility

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

The $1.27 million *Upper Mokelumne River Watershed Assessment and Planning Project*, completed in December 2007, was completed in two phases. The first phase, a thorough assessment of watershed water quality, found elevated pathogen concentrations along the Middle and South Forks and Main Stem. Elevated fecal coliform concentrations were observed in the Middle Fork Mokelumne River, with high peaks also seen in the South Fork. *E. coli* concentrations on the Main Stem, Middle Fork, and North Fork also exceeded benchmark levels. Based on an analysis of the historic and simulated microorganism data and river flows, septic systems were identified as likely significant contributors of fecal coliform loading along the Middle and South Forks of the Mokelumne River.

The assessment was followed by the development of a watershed management plan which addresses the water quality problems revealed by the assessment. Recommendations from the watershed management plan, referred to as management measures, were developed to specifically target the sources, causes, and transport of contaminants and to encourage actions to eliminate or reduce degradation of source water quality. Due to risks to human health posed by failing septic systems the highest priority management response was the development of the Septic System Management Program for the Upper Mokelumne River watershed.

Economic Feasibility

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

Capital Cost: $ 260,000

Annual O&M Costs: $ N/A

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

Estimated Project Life (Years): N/A

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

Possible Funding Sources: Grants

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

Summary of Economic Analysis Report (including title, author, and year): No economic analysis of the program has been performed.

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

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

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

Water Quality Benefits

Reduction in pollutant loading: Reductions in fecal coliform, *Cryptosporidium*, *E. coli*

Reduction in pollutant transport: N/A

Resource Stewardship Benefits

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

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

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: Improved water quality for human contact (swimmuing) and for fish and invertebrates.

Disadvantaged Communities / Environmental Justice

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

Unknown/to be determined.

Native American Tribal Communities

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

Unknown/to be determined.

Climate Change Adaptation or Mitigation

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

N/A

Upper Mokelumne River Watershed Authority

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

Proposed Project

Project Title: Leak Testing and Repair Program

Project Location: Calaveras County Water District Improvement Districts located within the MAC IRWMP boundaries: West Point/Wilseyville, Valley Springs/Rancho Calaveras, Sheep Ranch

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☒*Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☒*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 4: Areas of Common Ground

☒*Goal:* Prioritize projects that have the best likelihood of being completed in the planning horizon.

Description: A leak testing and repair program is in place on a small scale and can quickly scale up to include a larger program, thereby ensuring that the project can be completed in the planning horizon.

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 Technology

Responsible Agency Information

Contact Name: Jeffrey L. Meyer

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: (209) 754-3102

Email: jeffreym@ccwd.org

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

Project Description

Project Description

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

Various water and wastewater conveyance and collection systems within Calaveras County are old and antiquated. These water conveyance pipeline and storage tanks are inefficient and wasteful in conveying available water resources within the county. These systems are inefficient due to leakage and in turn, water loss. Wastewater collection and disposal systems also pose a public health and safety issue because of the leaks that directly contaminate surface and ground water and have potential for human contact. Through leaks in the pipes, during the wet season these same collection pipes collect stormwater (Inflow and Infiltration or I&I), doubling, tripling, and at times contributing up to 10-times dry weather flows to the treatment and disposal system.

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

Project Status: Choose from Dropdown Menu

Readiness to Proceed

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

A leak testing and repair program is in place on a small scale and can quickly scale up to include a larger program as funds come available.

Environmental Documentation

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

Not applicable for a testing program. Individual repairs will perform CEQA specific documentation.

Multi-entity Integration and Benefits

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

This program could be coordinated with other water/wastewater entities within the MAC IRWMP region.

Technical Feasibility

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

Extensive studies, such as AWWA et al, exist that detail the benefits of a comprehensive Leak Detection Testing and Repair program. Leak detection testing and repair is a California Urban Water Conservation Council BMP 1.2 Water Loss Control. This program is implemented to the extent it is locally cost effective. For CCWD, a comprehensive program is not locally cost-effective, so grant funding would help develop a more comprehensive program with the corresponding statewide benefits.

Economic Feasibility

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

Capital Cost: $ Click here to enter text.

Annual O&M Costs: $ $250,000

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): To be determined by the Leak Detection Program

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

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

Possible Funding Sources: Grant funds

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

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Minimize Implementation Risk

Please describe the level of implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partner's uncertainty.

There is minimal implementation risk associated with the testing program as leak detection can be incorporated into regular operations, thus rendering a low degree of controversy. Actually, it is anticipated that the project will be well received as it will benefit rate payers and reduce impacts on the environment. Individual repairs will perform CEQA specific documentation as required.

Best Project for the Intended Purpose

Please describe why the project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.

A leak detection program is a proactive approach to reducing water and wastewater leaks, rather than waiting for the leaks to become visible, and thus more expensive to repair. This minimizes the impact on the environment, especially with wastewater leaks. Economically, it saves money for the District, and thus our ratepayers.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Benefits the West Point DAC by increasing infrastructure operation efficiency thereby reducing / delaying the need for expensive infrastructure upgrades.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

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

CCWD is the largest power user in Calaveras County. Power is used to pump, treat, and convey potable water and wastewater throughout rapidly changing topography in Calaveras County. This project will enable CCWD to implement comprehensive leak detection and repair program to increase the efficiency of the infrastructure necessary to treat and convey potable water and wastewater throughout the county. Operational and infrastructure improvements will improve water savings and reduce energy consumption, hence lower greenhouse gas emissions.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: New Hogan Reservoir Pumping Project

Project Location: New Hogan Dam, Valley Springs, CA, 38° 9'22.67"N, 120°48'53.41"W and western Calaveras County bound on the north by Camanche and Pardee Reservoirs, the eastern extent of the Eastern San Joaquin Groundwater Sub-Basin and the western Calaveras County line.

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☒*Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 4: Areas of Common Ground

☒*Goal:* Prioritize projects that have the best likelihood of being completed in the planning horizon.

Description: The project could be linked to the Mokelumne River Forum's effort to develop an Inter-Regional Conjunctive Use Program; San Joaquin County's MORE water effort, and the South Shore Camanche Regional Water Treatment Plant, thereby ensuring that the project can be completed in the planning horizon.

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 Technology

Responsible Agency Information

Contact Name: Jeffrey L. Meyer

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: (209) 754-3102

Email: jeffreym@ccwd.org

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

Project Description

Project Description

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

One of the regions most susceptible to the effects of climate change is the New Hogan system. New Hogan is a small, rain-fed reservoir that experiences large swings from wet to dry in a short period of time because of the small carryover storage it provides. Integrating New Hogan operations into a regional conjunctive use project, such as the Inter-Regional Conjunctive Use Program being proposed for the Mokelumne River and the Mokelumne-Calaveras Intertie and Camanche-New Hogan Phase II Water Distribution Loop Project will provide opportunities for conjunctive use, groundwater overdraft mitigation, and habitat restoration.

For this effort, a pumping plant and water conveyance facilities are proposed to deliver New Hogan Reservoir water to the communities of Camanche, Valley Springs, Rancho Calaveras, Burson, Lancha Plana, and Wallace Lake Estates area (HWY 12/26 area or New Hogan/Camanche/Valley Springs area). Currently Camanche and Valley Springs rely solely on groundwater and Ranchos Calaveras relies on treated Calaveras River water from the Jenny Lind Water Treatment Plant (WTP). The pumping facility would be constructed on the north abutment of the old concrete dam, located approximately ¼ mile east of the earthen New Hogan dam. Water will be pumped over the northwest ridge of New Hogan Reservoir to a 30 acre-foot reservoir to regulate flows to three natural ephemeral streams (Bear, No Name, and Indian Creeks) that meander through the west county area. These streams would be used for gravity flow water conveyance. Portions of the streams may require lining to prevent scouring. The water delivered to the service area will be used for agriculture and conjunctive use since water from the Jenny Lind WTP and groundwater supply is insufficient for the area's existing state of groundwater overdraft and future growth needs, especially during dry years.

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

Project Status: Choose from Dropdown Menu

Readiness to Proceed

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

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

Environmental Documentation

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

It is expected a project level CEQA analysis will be completed once efforts reach the final design phase.

Multi-entity Integration and Benefits

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

This project could be linked to the Mokelumne River Forum's effort to develop an Inter-Regional Conjunctive Use Program; San Joaquin County's MORE water effort, and the South Shore Camanche Regional Water Treatment Plant.

Technical Feasibility

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

Technical Memorandum "Evaluating the Potential for Agricultural Development in Calaveras County", June 2011, "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974. "The Potential Agriculture of Calaveras County, Howard Nelson for Tudor Engineering, January 1960, "Proceedings of the Conference on the Economy of Calaveras County, March 1965.

Economic Feasibility

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

Capital Cost: $ $22,000,000

Annual O&M Costs: $ To be determined.

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

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

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

Possible Funding Sources: Click here to enter text.

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

Summary of Economic Analysis Report (including title, author, and year): "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974.

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Minimize Implementation Risk

Please describe the level of implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partner's uncertainty.

There is moderate implementation risk associated with the project as water will be pumped over the northwest ridge of New Hogan Reservoir to a 30 acre-foot reservoir to regulate flows to three natural ephemeral streams (Bear, No Name, and Indian Creeks) that meander through the

west county area. These streams would be used for gravity flow water conveyance. As portions of the streams may require lining to prevent scouring, there may be environmental issues and a moderate degree of controversy. It is expected a project level CEQA analysis will be completed once efforts reach the final design phase.

Best Project for the Intended Purpose

Please describe why the project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.

The project will allow greater water supply reliability planning, drought management protection, operationally flexibility, conjunctive use, habitat restoration, enhanced flood management opportunities, and greater capacity to meet growing water supply needs for agriculture and growth in the west county area. Via stream conveyance, it will help protect the surrounding habitat and manage flows and quality within the watershed. Utilizing surface water instead of groundwater allows water restrictions and fees which may reduce the amount of water used.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: 28,000 AF/YR average year supply

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: This project will help restore habitat losses across a 30,000 acre area of western Calaveras County associated with natural springs. This project proposes to mitigate overdraft conditions associated within the 30,000 acre portion of the Eastern San Joaquin Groundwater Basin underlying western Calaveras County. The project will provide the following direct and indirect benefits: Directly, this project will stabilize groundwater elevations, and restore the sustainable interaction between surface water and groundwater. The over-reliance on groundwater in the western Calaveras County region is upsetting the balance between a sustainable surface

water and groundwater interaction, which is negatively impacting natural springs that provide habitat to endangered species and the agricultural community. An opportunity is available by developing an integrated solution between flood management and conjunctive use that will indirectly provide ecosystem benefits to the natural spring losses in western Calaveras County, as well as to the timing and magnitude of flows that reach the Delta. Agricultural production will also benefit by implementing this integrated solution.

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

Reduction in flood-related damages: This project could be tied into a comprehensive flood management solution for Cosgrove Creek within the vicinity of New Hogan project. An ongoing $1,400,000 US Army Corps of Engineers-Calaveras County Cosgrove Creek Flood Reduction and Enhancement feasibility level project is nearing completion.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Camanche – New Hogan Phase II Water Distribution Loop Project

Project Location: New Hogan Dam, Valley Springs, CA, 38° 9'22.67"N, 120°48'53.41"W and western Calaveras County bound on the north by Camanche and Pardee Reservoirs, the eastern extent of the Eastern San Joaquin Groundwater Sub-Basin and the western Calaveras County line.

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☒*Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 4: Areas of Common Ground

☒*Goal:* Prioritize projects that have the best likelihood of being completed in the planning horizon.

Description: Integrating surface water and groundwater to ensure high quality, reliable water supply for surface and groundwater users, in addition to restoring the natural stream-aquifer interaction and springs that provide habitat, addresses the needs of multiple agencies and organizations, thereby ensuring the project can be completed in the planning horizon.

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: Jeffrey L. Meyer

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: (209) 754-3102

Email: jeffreym@ccwd.org

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

Project Description

Project Description

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

This project is intended to follow and build upon the South Shore Camanche Regional Water Treatment Plant Project. The South Shore Camanche Regional WTP project serves as Phase I and this project serves as Phase II to interconnect raw and potable water users in the western Calaveras County area. For Phase II, approximately four to six miles of water conveyance pipeline will be constructed connecting the Wallace Lake/Lancha Plana/Burson area served by raw or treated Mokelumne River. This system would be interconnected to the New Hogan system that currently serves potable water to the Valley Springs/La Contenta/Rancho Calaveras system and the New Hogan Pumping Plant Project that proposes to provide raw water to the western Calaveras County area to stabilize dropping groundwater levels and mitigate groundwater overdraft in the short-term, and in the long-term, provide ecosystem benefits by restoring disappearing springs and the habitat they provide for two primary endangered species, the red-legged frog and the tiger salamander.

The Phase II water distribution intertie loop between the Mokelumne and Calaveras systems will provide greater flexibility and reliability in delivering potable and raw water to the western Calaveras County users, mitigate groundwater overdraft in the Eastern San Joaquin Groundwater Sub-basin, and provide the opportunity to implement conjunctive. Conjunctive use will allow optimal use of surface water between the Calaveras and Mokelumne Rivers and the groundwater basin for water users and the environment. This project will therefore provide a mechanism for improved water management and land use practices that are currently over relying on groundwater and contributing to multiple groundwater overdraft impacts, such as the loss of natural springs and the habitat they provide to endangered species, stream-aquifer interaction, and deteriorating groundwater quality conditions.

The overall objective is to integrate the use of surface water sources and groundwater in the area to ensure a high quality, reliable water supply for both surface water and groundwater users and to restore the natural stream-aquifer interaction and springs in the area that provide habitat and rely on a healthy interaction with groundwater.

Project Status: Conceptual Design.

Readiness to Proceed

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

The project is in the conceptual/pre-design phase with continuing work necessary to complete the project description. Project construction is estimated to be approximately $3 million to construct the initial intertie and backbone system to Wallace Lake Estates. Additional conveyance facilities to irrigated agriculture and groundwater recharge basins may add to this cost. Funding sources include the Water Resources Development Act, water district expansion funds, local and regional agencies, and federal grant/loan funding sources, and private developers.

Environmental Documentation

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

It is expected a project level CEQA analysis will be completed once efforts reach the final design phase.

Multi-entity Integration and Benefits

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

This project could be linked to the Mokelumne River Forum's effort to develop an Inter-Regional Conjunctive Use Program, San Joaquin County's MORE water effort, and the South Shore Camanche Regional Water Treatment Plant.

Technical Feasibility

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

Technical Memorandum "Evaluating the Potential for Agricultural Development in Calaveras County", June 2011, "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974. "The Potential Agriculture of Calaveras County, Howard Nelson for Tudor Engineering, January 1960, "Proceedings of the Conference on the Economy of Calaveras County, March 1965.

Economic Feasibility

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

Capital Cost: $ $3,000,000

Annual O&M Costs: $ To be determined.

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

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

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

Possible Funding Sources: Click here to enter text.

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

Summary of Economic Analysis Report (including title, author, and year): "Western Calaveras Irrigation District Water Supply and Conveyance System Project Report and Draft EIR", Tudor Engineering, January 1974.

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Minimize Implementation Risk

Please describe the level of implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partner's uncertainty.

There is moderate implementation risk associated with the project. However, providing raw water to the western Calaveras County area will help stabilize the dropping groundwater levels and mitigate groundwater overdraft in the short-term. In the long-term the project will provide

ecosystem benefits by restoring disappearing springs and the habitat they provide for two primary endangered species, the red-legged frog and the tiger salamander. These benefits will help mitigate the potential controversy as it addresses numerous environmental issues. It is expected that a project level CEQA analysis will be completed once efforts reach the final design phase.

Best Project for the Intended Purpose

Please describe why the project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.

The Phase II water distribution intertie loop between the Mokelumne and Calaveras systems will provide greater flexibility and reliability in delivering potable and raw water to the western Calaveras County users, mitigate groundwater overdraft in the Eastern San Joaquin Groundwater Sub-basin, and provide the opportunity to implement conjunctive. It will also help stabilize dropping groundwater levels and mitigate groundwater overdraft in the short-term, and in the long-term, provide ecosystem benefits by restoring disappearing springs and the habitat they provide for two primary endangered species, the red-legged frog and the tiger salamander.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: 28,000 AF/YR average year supply

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: This project will help restore habitat losses across a 30,000 acre area of western Calaveras County associated with natural springs. This project proposes to mitigate overdraft conditions associated within the 30,000 acre portion of the Eastern San Joaquin Groundwater Basin underlying western Calaveras County. The project will provide the following direct and indirect benefits: Directly, this project will stabilize groundwater elevations, and restore the sustainable interaction between surface water and groundwater. The over-reliance on groundwater in the western Calaveras County region is upsetting the balance

between a sustainable surface water and groundwater interaction, which is negatively impacting natural springs that provide habitat to endangered species and the agricultural community. An opportunity is available by developing an integrated solution between flood management and conjunctive use that will indirectly provide ecosystem benefits to the natural spring losses in western Calaveras County, as well as to the timing and magnitude of flows that reach the Delta. Agricultural production will also benefit by implementing this integrated solution.

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

Reduction in flood-related damages: This project could be tied into a comprehensive flood management solution for Cosgrove Creek within the vicinity of New Hogan project. An ongoing $1,400,000 US Army Corps of Engineers-Calaveras County Cosgrove Creek Flood Reduction and Enhancement feasibility level project is nearing completion.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Sheep Ranch Drinking Water Compliance Project

Project Location: 11719 Armstrong Road, Sheep Ranch, CA. 38°12'39.13"N, 120°27'19.53"W

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☐ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 4: Areas of Common Ground

☒ *Goal:* Prioritize projects that have the best likelihood of being completed in the planning horizon.

Description: The Sheep Ranch Drinking Water Compliance Project involves upgrading the current small water treatment plant with a membrane filter system with sodium hypochlorite disinfection. As the California Department of Public Health (CA DPH) first notified the District in 1993 that the current system is out of compliance, and project design is complete, the project can be completed in the planning horizon.

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: Jeffrey L. Meyer

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: (209) 754-3102

Email: jeffreym@ccwd.org

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

Project Description

Project Description

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

Sheep Ranch is a rural, disadvantaged community located in the central area of Calaveras County. The Sheep Ranch Improvement District was formed on March 2, 1960 and currently serves 48 customers. CCWD diverts water from San Antonio Creek and delivers raw water through an old, mining-era Fricot Ditch, with a history of catastrophic failure due to erosion, the collapse of a hillside and its proximity to extreme fire risk.

The Sheep Ranch Drinking Water Compliance Project involves upgrading the current small water treatment plant currently out of compliance. The Sheep Ranch water treatment plant currently produces 30 gallons per minute via an out of date, non-compliant pressure filter according to the California Department of Public Health (CA DPH). CCWD was first notified in 1993 that the current system is out of compliance and not an approved technology. CA DPH recommends current technology to include a membrane filter system with sodium hypochlorite disinfection. In addition, the current WTP technology cannot treat water to drinking water standards during storm events when turbidity levels increase. At these times, the WTP must shut down. The estimated cost of the project is $200,000.

Project Status: Design Complete.

Readiness to Proceed

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

The Sheep Ranch Water Treatment Plant Compliance Project is ready to proceed. Project design is complete. CA DPH permitting will proceed with commencement of project. Project will commence once grant funds are identified.

Environmental Documentation

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

CEQA Guidelines authorize the use of a categorical exemption for projects performed on utility owned land in a previously disturbed area for infrastructure upgrades.

Multi-entity Integration and Benefits

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

Click here to enter text.

Technical Feasibility

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

Click here to enter text.

Economic Feasibility

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

Capital Cost: $ $200,000

Annual O&M Costs: $ No additional annual O&M costs above current costs as a result of the project.

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): Membrane filters have to be replaced once every 10-years at a cost of $25,000.

Estimated Project Life (Years): 40-years

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

Possible Funding Sources: Grant funding

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

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

<u>Water Supply Avoided Costs</u>

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.

Minimize Implementation Risk

Please describe the level of implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partner's uncertainty.

There is minimal implementation risk associated with upgrading the current small water treatment plant to a membrane filter system with sodium hypochlorite disinfection. According to the California Department of Public Health (CA DPH), the current system is out of compliance and does not use an approved technology. In addition, the current WTP technology cannot treat water to drinking water standards during storm events when turbidity levels increase. Upgrading the system renders a low degree of controversy. Actually, it is anticipated that the project will be well received as it will benefit rate payers and meet CA DPH requirements

Best Project for the Intended Purpose

Please describe why the project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.

The project involves upgrading the current small water treatment plant, using current technology that includes a membrane filter system with sodium hypochlorite disinfection. The estimated cost of the project is $200,000, which from an economic viewpoint, saves money for the District, and thus our ratepayers.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Mokelumne/Amador/Calaveras (MAC)
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Project Information Sheet

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Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: CCWD-AWA-EBMUD Regional Water Treatment Plant

Project Location: EBMUD property, Camanche Reservoir (South Shore). Pipelines (Transmission and Distribution) will be located within EBMUD property as well as within AWA and CCWD service areas adjacent to EBMUD's Camanche Reservoir.

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

X Goal: Reduce sources of contaminants.

Description: The possibility of negative impacts to reservoir water quality, as potentially created in future years by the continued operation (i.e., discharges from) aging existing water treatment plants, will be eliminated via construction of modern / updated facilities.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

X Goal: Ensure sufficient firm yield water supply.

Description: This project will provide a reliable water supply to communities / homes / recreational areas as served by EBMUD, CCWD and AWA (in particular, homes that rely on wells that are failing)

X Goal: Maintain and improve water infrastructure reliability.

Description: This project will replace aging water treatment plants as operated by EBMUD to serve Camanche Reservoir recreational areas. In addition, it will upgrade water service as provided to nearby customers of AWA and CCWD by providing new distribution system connections (allowing said customers to be served via the water treatment plant vs. existing wells).

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

Description: NA

X Goal: Develop appropriate drought mitigation measures.

Description: Portions of CCWD's service area face water reliability issues, particularly during times of drought. Construction of a regional water treatment plant that serves said communities will result in water supply reliability during drought times. In addition, the overtaxed groundwater basin will recover over time as over-pumping will be eliminated.

Policy 3: Practice Resource Stewardship

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

Description: Construction of a regional water treatment plant that would jointly serve a number of water agencies / service areas eliminates the need for construction of repetitive facilities that serve only one agency. Such practice is seen as more protective of the region's natural resources. Care will be taken during the environmental review process to identify suitable routes for pipelines / suitable grounds for facility construction to limit impacts to the region's natural resources.

X Goal: Minimize adverse effects on biological and cultural resources.

Description: Construction of a regional water treatment plant that would jointly serve a number of water agencies / service areas eliminates the need for construction of repetitive facilities that serve only one agency. Such practice is seen as more protective of the region's biological and cultural resources. Care will be taken during the environmental review process to identify suitable routes for pipelines / suitable grounds for facility construction to limit impacts to the region's biological and cultural resources.

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

Description: NA

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐Agricultural Water Use Efficiency

☐Urban Water Use Efficiency

☐Conveyance – Delta

☐Conveyance – Regional/local

☐System Reoperation

X Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☐Recycled Municipal Water

☐Surface Storage – CALFED

☐Surface Storage – Regional/local

X 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: Tom Francis

Affiliation: East Bay Municipal Utility District

Address: 375 11th Street, Oakland, CA 94708

Phone: 510-287-1303

Email: tfrancis@ebmud.com

Other Participating Agencies (if applicable): Calaveras County Water District, Amador Water Agency

Project Description

Three separate Small Water System purveyors; East Bay Municipal Utility District, Amador Water Agency, and Calaveras County Water District, serve three discrete service areas at and adjacent to EBMUD's Camanche Reservoir. This project proposes to construct a Regional Water Treatment Plant (RWTP) that would provide potable water to the three purveyors for distribution and use within their respective service areas (this plant would replacing an aging, smaller facility currently operated by EBMUD to address their needs in the Camanche Reservoir vicinity). In addition to the RWTP, project elements include conveyance system construction (to connect the new treatment plant to the respective services areas). Also, the project proposes to install a new pipeline connection between the proposed RWTP and EBMUD's Mokelumne Aqueduct (such that the source water for the plant is Pardee Reservoir vs. Camanche Reservoir).

The RWTP would address the following water resource concerns.

The East Bay MUD services the communities at Camanche South Shore Recreation Area (CSS-system#05-10012) and at Camanche North Shore Recreation Area (CNS-system#03-10008). The existing challenges and problems at CNS include low quality groundwater due to the presence of heavy metals and total coliform contamination as well as groundwater well production failures and reduced production at the remaining wells. The CNS WTP backwash ponds will not meet pending California Toxics Rule requirements. The CSS Water Treatment Plant is a very old direct filtration facility utilizing a surface water supply which includes body contact recreation. The plant currently meets the Department of Health Service Drinking Water Standards however the plant does not fully comply with the current Surface Water Treatment Rules for multi barrier treatment. Both CNS and CSS Areas would be serviced by the RWTP.

The Amador Water Agency services CSA No. 3 (Lake Camanche Village) a residential development consisting of approximately 2,000 parcels. The Lake Camanche village development was designed to be served by five (5) water supply wells. Presently only three (3) wells are in service because of water quality and quantity problems.

The Calaveras County Water District's (CCWD) sphere of influence includes the whole county although other agencies own and operate water systems in the county. Such is the case for Wallace where they have formed a community service District (CSD). They rely on groundwater as their only source. This source is in danger of drying up as a result of over-pumping in neighboring San Joaquin County. These wells also have iron and manganese water quality issues. They serve a small residential community of 70 lots, but a neighboring residential development of about the same size wants to share their water system.

The Burson area consists of several hundred residents on individual wells that have been drying up at an alarming rate due to the aquifer being drawn down. A recent groundwater study showed water quality issues for some of these wells: arsenic, boron, iron and/or manganese. CCWD is the agency charged with finding a way to bring public water to these residents. By partnering with EBMUD and AWA on a Regional Plant, CCWD could provide a reliable water source both in terms of quantity and quality.

A prior design for a Camanche South Shore Water Treatment Plant replacement project was completed and regulatory approvals were previously been obtained for project construction. That project includes construction of a 0.5 MGD ultra filtration water treatment plant at Camanche South Shore Recreation Area (CASS), a new raw water pipeline to provide raw water from the Mokelumne Aqueducts No. 1 & 2 to the new treatment plant, and a new cross-reservoir treated water pipeline from CASS WTP to provide treated water to the Camanche North Shore Recreation Area. This proposed project calls for constructing a slightly larger, 2 mgd facility, such that the additional capacity could be used to supply neighboring areas of Amador and Calaveras counties since the agencies responsible for serving these communities have determined that service from a new CASS water treatment plant is desired.

Project Status:

Readiness to Proceed

The project as currently detailed is in the planning stage. Designs have been prepared for various components of a smaller 0.5 mgd, EBMUD-only facility. Those designs are being revisited / expanded for a 2 MGD regional facility.

Environmental Documentation

A mitigated negative declaration was prepared in July 2001 for a 0.5 MGD treatment plant project and other associated elements consistent with an EBMUD-only facility. As this proposed project is larger / regional in scale, and as it will serve additional customers (beyond EBMUD's), new documentation will be required.

Estimated timeframe for completing environmental documentation = 12 months

Multi-entity Integration and Benefits

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

NA

Technical Feasibility

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

Predesign Report – Water Treatment Facilities Camanche South Shore Recreation Area – EBMUD and CCWD – 1994

Camanche South Shore Water Treatment Plant Feasibility Study – EBMUD - 1999

Draft Mitigated Negative Declaration – EBMUD's Camanche Water Treatment Plant Replacement Project – July 2001

Camanche South Shore and North Shore Treatment Plants Evaluation – EBMUD – May 2003

Economic Feasibility

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

Capital Cost: $ -----

Annual O&M Costs: $ ----

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

Estimated Project Life (Years): $----

Cost Basis (if not 2011 dollars): $----

Possible Funding Sources: Agency funding, loans, grants, user connection fees.

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis)of the project has been completed, please provide the

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

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: 2 MGD (= 2,240 Acre Ft / Yr)

Acre-feet Per Year of Reduced Demand: NA

Water Quality Benefits

Reduction in pollutant loading: For EBMUD: the project will address low quality groundwater due to the presence of heavy metals and total coliform contamination as well as groundwater well production failures and reduced production at the remaining wells. The CNS WTP backwash ponds will not meet pending California Toxics Rule requirements. The CSS Water Treatment Plant is a very old direct filtration facility utilizing a surface water supply which includes

body contact recreation. The plant currently meets the Department of Health Service Drinking Water Standards however the plant does not fully comply with the current Surface Water Treatment Rules for multi barrier treatment

For CCWD: This project will provide a replacement water supply such that approximately 70 homes as served by wells with iron and manganese water quality issues will now be provided an alternative water supply source. In addition, the Burson area relies on groundwater. A recent groundwater study for said area showed water quality issues for some of that community's wells: arsenic, boron, iron and/or manganese was found. CCWD is the agency charged with finding a way to bring public water to these residents.

Reduction in pollutant transport: NA

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: NA

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

Reduction in flood-related damages: NA

Reduction in greenhouse gas emissions: **** ???? ****

Other: NA

Disadvantaged Communities / Environmental Justice

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

This project will provide a reliability water services to the following disadvantaged communities as defined in the MAC IRWMP:

***** INSERT *****

Native American Tribal Communities

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

NA

Climate Change Adaptation or Mitigation

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

This project replaces two aging water treatment facilities as operated by EBMUD with a new facility that addresses not just EBMUD's treatment needs, but also the needs of CCWD and AWA (for the portions of their respective service areas adjacent to EBMUD's Camanche Reservoir). Regarding GHG reduction, the operation of a regional facility removes the need to operate individual homeownder pumps and wells. Replacing the two aging EBMUD plants is also predicted to result in the reduction of GHG generation (as more energy efficient treatment systems will be installed). Finally, some homeowners rely on water as supplied via truck (i.e., water is trucked to residents during times of drought and/or when their wells have failed). Regional treatment plant construction will minimize GHG emissions from vehicles used to facilitate said transport.

Lindsey Clark

From: Francis, Thomas [tfrancis@ebmud.com]
Sent: Thursday, May 24, 2012 10:39 AM
To: Alyson Watson; Lindsey Clark; 'Karen Johnson'; 'Rob Alcott'
Cc: 'Gene Mancebo'; 'Jeffry Meyer'; 'joonel@ccwd.org'
Subject: Implementation Risk Eval Criteria - relative to the CCWD-AWA-EBMUD Regional Water Treatment Plant

Alyson / Lindsey / Rob / Karen – this email is the second in follow-up to the RPC meeting of the 22nd. It addresses "implementation risk". I'd like to make sure the project scores as high (in that it minimizes implementation risk). If this wording is insufficient please let me know what else I can provide.
- - - - -

The CCWD-AWA-EBMUD Regional Water Treatment Plant project, from an implementation risk perspective, should be scored as a High (in other words, there is little risk associated with the project's implementation)

As noted in prior sections of this Project description, environmental studies were performed for the EBMUD component of the work effort. Those studies indicated that the work could be constructed such that no harm to the environment would be created by project construction / implementation (EBMUD's construction piece was seen as permissible via a negative declarations, for example). Mitigation can be used to offset possible issues that could come up should a regional approach be taken toward the project.

While fiscal challenges are present, all parties to the RWTP see this as a needed facility. EBMUD has prioritized the replacement of this facility. The existing treatment plant, while able to meet NPDES permitting requirements, poses significant operational challenges to staff. AWA and CCWD have a strong desire to see the treatment plant that EBMUD would construct slightly enlarged (form a 0.5 mgd facility to a 2 mgd facility) such that it could serve nearby residents of their respective service areas. A regional plant eliminates the need to construct multiple smaller plants that serve individual water agencies (offsetting some impacts as associated with multiple, redundant systems).

While there are definite cost challenges associated with paying for the required elements of a regional project (the small water agencies are acutely aware of those challenges). Some project phasing can be used to offset those challenges. Grant funding opportunities also may be available to expedite the work.

There are no known environmental groups opposed to the plan to construct as a small regional facility that would serve the combined needs of EBMUD, CCWD and AWA as proposed, nor are their any know controversies associated with the project.

- -

Tom Francis, P.E.
Sr. Civil Engineer
Water Supply Improvements Division
East Bay Municipal Utility District
375 Eleventh Street, M.S. 407

Oakland, California 94607
(510) 287-1303

Lindsey Clark

From: Francis, Thomas [tfrancis@ebmud.com]
Sent: Thursday, May 24, 2012 11:08 AM
To: Alyson Watson; Lindsey Clark; 'Karen Johnson'; 'Rob Alcott'
Cc: 'Gene Mancebo'; 'Jeffry Meyer'; 'joonel@ccwd.org'
Subject: New Criteria - relative to the CCWD-AWA-EBMUD Regional Water Treatment Plant

Alyson / Lindsey / Rob / Karen – this email is the last of several in follow-up to the RPC meeting of the 22nd (where Project Proponents were requested to supply added information such that their projects could be evaluated by a new criterion entitled "Best Project for the Intended Purpose". I'd like the project to score as high (that it is the best project for the intended purpose). If more information is needed please contact me.

- - - - -
To score High, Project should meet the stated need from a social, environmental and economic perspective (as compared with alternatives)
- - - - -

The CCWD-AWA-EBMUD Regional Water Treatment Plant project is the best alternative to address the needs of those that would be served by the facility. It is the best possible project (as compared to other alternatives) from a social, environmental and economic perspective.

Social Perspective: Residents that would be served by a regional plant have expressed continual concern that they may not be able to meet their potable water needs if something isn't done to help them / to provide them with a reliable water supply. There is an obligation that water agencies have to meet the needs of their customers. Yet also as partnering together, building a regional facility illustrates that we as "cooperating" water agencies work together to not only meet our customer needs, but also are working to help the MAC region in general continue to succeed. We want those living, working and recreating in our communities to continue to do so. Buidling a facility that is "right sized" and "regional" is seen as socially responsible. Note that a portion of the areas served by this regional plant would reach an economically challenged population, hence furthering the broader goals of the MAC IRWM of developing projects that address disadvantaged communities.

Environmental Perspective: Environmental studies were performed to evaluate the primary components of the project in the early 2000s. The treatment plant and conveyance pipelines could be built without harming the environment (ample mitigation opportunities are present). No EIR was seen as necessary (neg decs or mitigated neg decs are likely all that would be required for non EBMUD components – although that will be verified as the plans for a regional facility move forward).

As a regional facility, this particular project would eliminate the need for two (or more) additional, smaller treatment plants that would serve the needs of the individual partner water agencies. The source of water for said plants may or may not be as easily available / nearby (having EBMUD as a partner allows for the source to be Pardee Reservoir).

In the case of EBMUD, the existing treatment plant, while able to meet NPDES permitting requirements, poses significant operational challenges to staff. It must be replaced in years to come (if not, there is added risk to the environment as associated with an aging plant of which there are operational difficulties). More reliable systems and technologies are now available. Upgrades (including the possible full replacement of the treatment plant) are seen as needed within the next 5 years (sooner if possible).

There are no known environmental groups opposed to the plan to construct as a small regional facility that would serve the combined needs of EBMUD, CCWD and AWA as detailed above. The facility would be sized such that large scale growth could not be fueled by the regional facility.

Economic Perspective: It is clear that without a regional facility in place, individual agency treatment plants / conveyance systems would need to be constructed. A regional plant spreads / shares the planning, design, construction, long term operation and maintenance costs across multiple parties. Although detailed cost analyses for such individual plant options have not been performed, at a concept level the engineers view this regional operation will clearly be the best economical approach to addressing the combined needs of those that would be served by the joint facility.

Tom Francis, P.E.
Sr. Civil Engineer
Water Supply Improvements Division
East Bay Municipal Utility District
375 Eleventh Street, M.S. 407
Oakland, California 94607
(510) 287-1303

Lindsey Clark

From: Francis, Thomas [tfrancis@ebmud.com]
Sent: Thursday, May 24, 2012 10:25 AM
To: Alyson Watson; Lindsey Clark; 'Karen Johnson'; 'Rob Alcott'
Cc: Gene Mancebo; Jeffry Meyer; joonel@ccwd.org
Subject: Policy 4 Details - relative to the CCWD-AWA-EBMUD Regional Water Treatment Plant

Alyson / Lindsey / Rob / Karen – this email is the first of several in follow-up to the RPC meeting of the 22nd (where Project Proponents were requested to supply added information such that their projects could be evaluated by a new Policy 4 and/or evaluated more completely by existing policy's). I hope this is the type of documentation you are looking for (it is a bit of written words to support a high ranking)

- - - - -
Regarding the new "Policy 4": FOCUS ON AREAS OF COMMON GROUND AND AVOID PROLONGED CONFLICT

Goal: Prioritize projects that have the best likelihood of being completed in the planning horizon (e.g., next 20 years)

- - - - -

The CCWD-AWA-EBMUD Regional Water Treatment Plant project will be ready for full implementation within the planning horizon.

Existing documentation (designs for a plant upgrade, environmental initial studies / negative declarations, etc.) were developed in the early 2000s for a portion of the project that would serve EBMUD's needs. Those work products can be utilized to jump-start a revisit and expansion of said design. In addition, there is a study underway by RMC Water and Environment (as part of this IRWM Prop. 84 planning grant effort) to further the feasibility planning of a regional facility such that supporting documentation is available for a possible implementation grant application within the next 1-2 years.

EBMUD has prioritized the replacement of this facility. The existing treatment plant, while able to meet NPDES permitting requirements, poses significant operational challenges to staff. Equipment is aging and more reliable systems and technologies are now available. Upgrades (including the possible full replacement of the treatment plant) are seen as needed within the next 5 years (sooner if possible). Fiscal constraints have prevented the plant upgrade from happening to date, although grant funding would allow the work to accelerate.

AWA and CCWD have a strong desire to see the treatment plant that EBMUD would construct slightly enlarged (form a 0.5 mgd facility to a 2 mgd facility) such that it could serve nearby residents of their respective service areas. CCWD notes that residents of the Wallace Burson area are currently experiencing difficulties meeting their water supply needs via well water. Putting said residents on water as provided via the RWTP would mitigate those concerns. AWA has a desire to see the plant enlarged such that it too could meet the needs of nearby residents of the portion of their service area that lies adjacent to the proposed RWTP. Without a regional facility, each of these agencies would have to either construct their own WTP and/or consider other options for serving their nearby residents (there is a question as to whether other suitable options exist, however).

There are definite cost challenges associated with paying for the required elements of a regional project (the small water agencies are acutely aware of those challenges). Some project phasing may be needed to support construction / the completion of the regional scoped project. Even with phasing, the work could be completed within a 10 year frame most likely. If implementation grant funding is received for all or part of the project, all parties are committed to promoting this particular effort as high priority to their respective governing boards.

There are no known environmental groups opposed to the plan to construct as a small regional facility that would serve the combined needs of EBMUD, CCWD and AWA as detailed above.

This effort is seen as a project with little controversy that meets common ground solution requirements.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: West Point Water Treatment Plant Drinking Water Compliance Project

Project Location: West Point, California. Calaveras County. 38°24'26.65"N, 120°30'51.25"W

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☐*Goal:* Reduce sources of contaminants.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 2: Improve Water Supply Reliability

☒*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☒*Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☐ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Policy 4: Areas of Common Ground

☒ *Goal:* Prioritize projects that have the best likelihood of being completed in the planning horizon.

Description: A leak testing and repair program is in place on a small scale and can quickly scale up to include a larger program, thereby ensuring that the project can be completed in the planning horizon.

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: Jeffrey L. Meyer

Affiliation: Calaveras County Water District

Address: P.O. Box 846 / 423 E. St. Charles Street, San Andreas, CA 95249

Phone: (209) 754-3102

Email: jeffreym@ccwd.org

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

Project Description

Project Description

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

The West Point Drinking Water Compliance Project is a project to address a current violation with the Department of Public Health regarding a backup filter system for an economically disadvantaged community. Currently, the treatment process is an Absorption Clarifier followed by Sodium Hypochlorite disinfection. However, the West Point Water Treatment Plan does not include a backup filtration system. The DPH issued permit requires a backup system to produce potable water for a minimum period of 2-weeks. This backup treatment system does not exist. As a result, in the last 5-years, the community of West Point was out of potable water for 3-days during treatment plant outage, risking both the health and safety of the community and its ability to combat high fire risk.

The region is at risk to a large devastating fire with a probability of fire identified as 100-percent chance in any given year. According to the Tuolumne-Calaveras Unit Pre-Fire Management Plan, completed in 2005 by the Tuolumne-Calaveras Unit (TCU) of the California Department of Forestry and Fire Protection (CDF), the fire environment in Calaveras County, and more specifically in the West Point area, is conducive to these large, damaging fires. Fire history in combination with the occurrence of hazardous fuels, topography, and weather create conditions that are highly likely to result in damaging fires on a regular basis in the proposed project area. Without the quick access to fire hydrants served by the potable water supply, the risk of a catastrophic fire is extreme.

Project Status: Design Complete

Readiness to Proceed

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

Start date will commence with the availability of some form of grant funding.

Environmental Documentation

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

The compliance project will involve installing a backup filter system on CCWD owned land to existing infrastructure on previously disturbed land, which according to CEQA Guidelines is covered by a Categorical Exemption.

Multi-entity Integration and Benefits

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

No

Technical Feasibility

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

The District reviewed several options including adding an additional absorption clarifier and a membrane filtration plant. It was determined that a packaged membrane filtration plant was the most cost effective solution to the problem. Groveland Community Services District has a packaged Pall unit which has been in operation for several years and operated excellently. The District could purchase and install a pre-constructed membrane plant for approximately $600,000. The packaged plant will be located at the existing facility and provide the back-up system required by the DPH permit.

Economic Feasibility

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

Capital Cost: $ 600,000

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

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

Estimated Project Life (Years): 40-years

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

Possible Funding Sources: State and federal grants

Please describe the economic feasibility of the project. If an economic analysis (benefit:cost analysis or cost-effectiveness analysis)of the project has been completed, please provide the findings of that analysis and the reference (including author and year). If an economic analysis has not been completed for the project, please provide a detailed description of expected project benefits, including benefits to water supply, water quality, and natural resources, using

numeric values when possible (e.g., acres of habitat restored, acre-feet per year of water supply generated, etc). Suggested metrics are provided below.

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

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Minimize Implementation Risk

Please describe the level of implementation risk due to documented institutional barriers such as regulatory, environmental, or permitting obstacles, and low degree of controversy, potential legal challenge, or potential partner's uncertainty.

There is minimal implementation risk associated with the installation of a packaged membrane filtration plant that will the back-up system as required by the DPH permit. The packaged plant will be located at the existing facility, thus rendering a low degree of controversy. Actually, it is anticipated that the project will be well received as it will benefit rate payers and allow the District to meet DPH requirements.

Best Project for the Intended Purpose

Please describe why the project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.

The District reviewed several options including adding an additional absorption clarifier and a membrane filtration plant. It was determined that a packaged membrane filtration plant was the most cost effective solution to the problem. A similar packaged Pall unit has been in operation for several years without operational issues. The District could purchase and install a pre-constructed membrane plant for approximately $600,000. Economically, it saves money for the District, and thus our ratepayers.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

The West Point Water Treatment Plant Drinking Water Compliance Project will ensure CCWD can operate the water treatment plant to meet current California Department of Public Health permit regulatory requirements that mandates a backup filter to produce potable water for a minimum period of 2-weeks per year. During the last 5-years, the community of West Point has been out of potable water for 3-days because the water treatment plant does not have a backup treatment process.

The economically disadvantage community of West Point meets the State of California's criteria for a Disadvantage Community. According to an official Rural California Housing Corporation (RCHC) MHI survey conducted in 1999 the MHI was certified to be $18,500. The West Point CDP MHI was $25,417 in 1999 dollars.

Native American Tribal Communities

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

A significant Native American population exists in the West Point community, the second largest race by percentage according to the US Census Bureau.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: East Panther Creek Restoration Project

Project Location: East Panther Creek, Amador County, tributary to the North Fork Mokelumne River, 20 miles east of Jackson, CA.

Eligibility

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

MAC Plan Update Goals

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

Policy 1: Maintain and Improve Water Quality

☒*Goal:* Reduce sources of contaminants.

Description: Breaching of East Panther Creek dam has resulted in scouring of the opposite bank and sediment flow into the creek and river. The project will remediate the problem and reduce stream turbidity that is harmful to aquatic resources and undesirable for drinking water.

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

Description: See above. Project will reduce transport of sediments into East Panther Creek and the North Fork of the Mokelumne River.

Policy 2: Improve Water Supply Reliability

☐*Goal:* Ensure sufficient firm yield water supply.

Description: Click here to enter text.

☐ *Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: Click here to enter text.

☐ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☒ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Project will reduce the harmful effects of erosion on downstream biological resources and stabilize the stream bank to provide healthier riparian habitat.

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

Description: Removal of the dam and gauging weir will improve access for low-intensity stream fishing in a popular fly-fishing stream.

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: R. Winston "Pete" Bell, Jr. or Chris Wright

Affiliation: Foothill Conservancy

Address: P.O. Box 1255 Pine Grove, CA 95665

Phone: 209-296-5734 (Bell) or 209-295-4900 (Wright)

Email: pete@mokeriver.com chris@foothillconservancy.org

Other Participating Agencies (if applicable): U.S. Forest Service, CA Dept of Fish and Game, PG&E, CA. Dept of Boating and Waterways, US Fish and Wildlife Service, Friends of the River, American Whitewater, Natural Heritage Institute, Bureau of Land Management.

Project Description

Project Description

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

The goal of this project, the final phase of a more than 10-year restoration effort, is to fully remove the East Panther Creek Dam (which was notched in an earlier phase) and restore 2 miles of upper Panther Creek, 150 feet of riparian area and 2.5 acres to reduce erosion and sedimentation and stabilize the riparian zone.This will be done by removing 22.8 cubic yards of concrete that comprise the dam, removing 40 cubic yards of sediment behind the dam, restoring and replanting the dam area and the inundation site, and restoring 150 feet of stream and riparian zone harmed by erosion resulting from the current notched condition of the dam. The project will benefit downstream water purveyors which serve more than 1.4 million customers, including the Amador Water Agency and East Bay Municipal Utility District. In addition to improving water quality and instream flow, the project will benefit foothill yellow legged frog, brown trout, rainbow trout and other aquatic species.

Construction methods that will be used for this project include:

- Installing a fishwater bypass for the period of actual dam removal and removing it once the dam and all concrete and sediment have been removed
- Mechanical methods will be used to remove sediment and concrete at the dam and the weir
- Eroded stream banks will be stabilized using some of the sediment and rocks from behind the dam and native trees and grasses will be planted to provide additional stabilization
- Sediment and concrete will be removed to a site which is 6.3 miles away at Doak's Ridge, already approved as a deposition site by PG&E, which owns the site. Contractor will use mechanical methods to grade the Doaks Ridge site after sediment and concrete have been deposited.

Location: East Panther Creek, upstream of its confluence with West Panther Creek and the North Fork Mokelumne River. Twenty miles east of Jackson off Tiger Creek Road. LAT N38 29 24, LON W 120 23 51.

Project Status: Choose from Dropdown Menu Design complete.

Readiness to Proceed

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

The project is shovel ready and can be started as soon as summer 2012 after reissuance of stream alteration permits. The CA Dept of Fish and Game has issued a CEQA Notice of Exemption for the project. In-Kind project match will be provided by project partners.

Environmental Documentation

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

The CA Dept of Fish and Game has issued a Notice of Exemption for the project.

Multi-entity Integration and Benefits

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

The project is a result of the Federal Energy Regulatory Commission relicensing of PG&E's hydroelectric project on the Mokelumne River (FERC Project 137), which begins high in the watershed at Blue Lakes and reaches eastward nearly to Highway 49. This final phase of the project will provide environmental enhancement and mitigation that is part of the larger FERC license and fits the larger adaptive management program for the hydro project, which is intended to benefit public trust resources including wildlife, their habitat, and water quality. Benefiting entities include Amador Water Agency and the East Bay Municipal Utility District, who benefit from reduced sediment transport into the North Fork and Main Mokelumne River.

Technical Feasibility

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

This is a fairly simple instream construction project designed by an expert in instream construction. It did not require detailed technical study.

Economic Feasibility

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

Capital Cost: $ 200,000.00Click here to enter text.

Annual O&M Costs: $ N/AClick here to enter text.

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

Estimated Project Life (Years): Indefinite.

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

Possible Funding Sources: CA Dept of Fish and Game, PG&E FERC project environmental enhancement funds.

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

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

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: 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: Reduced cost to Amador Water Agency and East Bay MUD related to turbidity caused by streambank erosion.

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: The project will remove approximate 60 cubic yards of sediment from behind the notched dam and reduce erosion on the streambank.

Reduction in pollutant transport: See above.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: 150 linear feet of streambank and approximately 2.5 acres of instream and riparian habitat will be restored and enhanced.

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): Removal of the dam and gauging weir will improve access for low-intensity stream fishing in a popular fly-fishing stream.

Reduction in flood-related damages: NA

Reduction in greenhouse gas emissions: NA

Other: Removal of the dam and gauging weir will improve passage for brown and rainbow trout.

Disadvantaged Communities / Environmental Justice

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

The project will improve fish habitat in an economically hard-pressed area where many residents catch fish as an important protein source in their diets. It may also provide work to local contractors and those who work for them.

Native American Tribal Communities

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

Stabilizing riparian habitat may benefit local Native Americans who gather traditional materials in the surrounding national forest.

Climate Change Adaptation or Mitigation

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

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

See next page for new evaluation criteria.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes. The project should have no adverse impact on cultural resources, which are known in the area to the landowner (PG&E) and the U.S. Forest Service.

2. **Does the project maintain or improve ecosystem function?** Yes. The project helps maintain the ecosystem function of E. Panther Creek and the N. Fork of the Mokelumne River.

3. **Is the project expected to be completed by 2022?** Yes. This project can be completed within a year after it is funded.

4. **Best project for the intended purpose: High**.

   Justification for scoring:

   The project is intended to address a discrete problem on a particular creek. There is no other good alternative for remedying the erosion problems caused by the breached dam. The project will benefit the fishery and improve water quality for aquatic life and people, provide short-term construction jobs, improve the fishing access and opportunities on the creek, and help demonstrate how collaborative restoration efforts can effectively address watershed issues.

5. **Minimize implementation risk: High**

   Justification for scoring:

   There is minimal implementation risk for this project. It is called for in the PG&E Project 137 FERC license and multiparty settlement agreement, has broad support from the parties to the settlement, has no economic, environmental or social downsides, and is not the subject of controversy.

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Integrated Regional Water Management Plan Update
Project Information Sheet

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Restoring the Upper Mokelumne's Anadromous Fish

Project Location: Upper Mokelumne River from Camanche Dam east

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: n/a

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

Description: n/a

Policy 2: Improve Water Supply Reliability

Goal: Ensure sufficient firm yield water supply.

Description:

☐*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:.

Goal: Develop appropriate drought mitigation measures.

Description:

Policy 3: Practice Resource Stewardship

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

Description: Restore salmon and steelhead to their historic spawning habitat above Camanche and Pardee Dams by transporting spawning fish to the river east of Pardee Dam and young fish to the river downstream of Camanche Dam. Renew the natural transfer of nutrients to forest and river ecosystems from the bodies of fish that spawn, die and are eaten by forest carnivores or that decay in the river.

X *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Mitigates the fisheries and ecosystem impacts of the construction of Camanche and Pardee dams.

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

Description: Once fish are established, restores a historical fishery that will enhance public use and enjoyment of the Mokelumne River.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐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

X Urban Runoff Management

Flood Risk Management

☐Agricultural Lands Stewardship

☐Economic Incentives (Loans, Grants and Water Pricing)

X Ecosystem Restoration

X Forest Management

☐Recharge Area Protection

☐Water-Dependent Recreation

X 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: Pete Bell

Affiliation: Foothill Conservancy

Address: P.O. Box 1255

Phone: Pine Grove, CA

Email: Pete@mokeriver.com

Other Participating Agencies (if applicable): East Bay Municipal Utility District, California Department of Fish and Game, National Marine Fisheries Service, U.S. Fish and Wildlife

Service, nonprofit fish and conservation groups, Bureau of Land Management, U.S. Forest Service

Project Description

Project Description

The Upper Mokelumne Anadromous Fish Restoration Program is intended to benefit California's salmon and steelhead populations while restoring nutrients to the upper Mokelumne watershed's forests and streams. The program would design and implement a program to move spawning salmon and steelhead from the Mokelumne at Camanche Dam to the river above Pardee Reservoir, and back. The NOAA Recovery Plan for salmon and steelhead describe the need to return salmon and steelhead to their native spawning habitat above the rim dams, and this project would be consistent with that effort. The project will be guided by a collaborative steering committee to ensure stakeholder concerns are addressed. The program will include the following phases:

- Overall project design
- Restoration system design (fish transport)
- Spawning habitat assessment
- Environmental review (CEQA/NEPA)
- Habitat restoration (if needed)
- Implementation and monitoring

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 planning stage. Full project and systems design could proceed as soon as funds are awarded. Matching funds would come from IK services provided by volunteers from Foothill Conservancy and Trout Unlimited, the value of federal agency staff time, and funding sources such as the National Fish and Wildlife Foundation and the Mokelumne Ecosystem Benefits Program. Services provided by East Bay Municipal Utility District fisheries staff would be another source of project match.

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.

Parts of the program are a project under CEQA (and possibly NEPA). After the project is designed and a project description established, the project could proceed to full CEQA/NEPA review. Depending on the project description, the analysis would be a mitigated negative declaration or a full EIR. Review could be complete one year from its start date.

Multi-entity Integration and Benefits

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

The project is not directly linked to other proposals, but integrates with many other efforts underway to restore the ecosystem health of the upper Mokelumne River and its forested watersheds. Beneficiaries include local anglers, local communities that benefit from the direct/indirect/induced economic and revenue benefits of stream restoration activities and fishing, local contractors if needed to complete restoration projects, California commercial and sportfishing interest, water agencies who need healthy fish populations to continue Delta diversions, and forest managers who could benefit from increased forest health resulting from returning key nutrients to the watershed every year.

Technical Feasibility

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

Salmonid capture-and-transport systems are being used now throughout the Pacific Northwest.

Economic Feasibility

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

Capital Cost: $1,000,000 (estimate)

Annual O&M Costs: $ 50,000 (estimate)

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

Estimated Project Life (Years): 5 years

Cost Basis (if not 2011 dollars):

Possible Funding Sources: IRWMP planning grant, EPA grants, foundation grants, National Fish and Wildlife Foundation, Ecosystems Services programs, East Bay Municipal Utility District, volunteer labor

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.

No one has fully estimated the commodity and ecosystem services value of a fully restored salmon fishery in the Sierra, never mind in the Mokelumne River watershed alone. However, it is well accepted that forest carnivores and ecosystems in the historic spawning range of salmon and steelhead historically benefited from the addition of rich nutrients from spawning fish that were consumed by forest carnivores or decayed in streams. Returning the nutrients to the upper Mokelumne watershed would benefit wildlife and plants, and those who rely on them, by restoring a natural nutrient balance to the ecosystem. This could result in more-robust tree growth as well as larger, healthier populations of carnivorous mammals.

Summary of Economic Analysis Report (including title, author, and year): n/a

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: not applicable

Avoided Water Treatment Costs: n/a

Avoided Wastewater Treatment Costs: n/a

Avoided Costs of New Supplies: n/a

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: n/a

Avoided Wastewater Treatment Costs: n/a

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply n/a

Acre-feet Per Year of Reduced Demand: n/a

Water Quality Benefits

Reduction in pollutant loading: n/a

Reduction in pollutant transport: n/a

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: 15 miles of river.

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

Reduction in flood-related damages: n/a

Reduction in greenhouse gas emissions: n/a

Other: Restores historic nutrients to the forest and river ecosystem as spawning fish are consumed by forest carnivores and decay in the river.

Disadvantaged Communities / Environmental Justice

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

Provides an additional source of healthy protein for disadvantaged communities and the Native American community.

Native American Tribal Communities

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

Provides an additional source of healthy protein for the Native American community and restores an important part of their traditional culture, reconnecting them to their historic traditions.

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.

Helps ensure the continued survival of salmon and steelhead in California as climate change threatens river flows and habitat on other streams.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** If yes, please describe how.

Yes. The project should have no impact on cultural resources when the downstream trap system is properly located. In fact, it would restore a major component of the Mi-wuk culture to the watershed.

2. **Does the project maintain or improve ecosystem function?** If yes, please describe how.

Yes. The project restores ecosystem functioning by returning important nutrients to the ecosystem and restoring an important source of food for predators including otters, pine marten and bear.

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

4. **Best project for the intended purpose:**

High. There are no better alternatives for meeting the need from a social, environmental and social perspective. Other alternatives, especially creating new fish ladders or other stream passage around existing dams, would require massive spending, major alteration of existing projects, potential project reoperation, and potential acquisition of private land or easements. The project will benefit the local economy by restoring a healthy salmon and steelhead fishery and provide public education on the benefits of habitat restoration and the importance of fully functioning ecosystems. The project will also benefit the local economy if local workers are needed to improve spawning or rearing habitat.

5. **Minimize implementation risk: Medium**

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

Justification for scoring: While some institutional barriers do exist, the push to restore the state's salmon and steelhead are changing that. For example, while the Dept of Fish and Game has opposed this sort of transport program in the past, it is now supporting a pilot program on the Yuba River. The likelihood of controversy, potential legal challenge or partner uncertainty is relatively low, especially since the project will be guided by a collaborative steering committee to ensure that stakeholder concerns are addressed.

Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Amador Household Water Efficiency Project

Project Location: Amador Water Agency and retailers' service 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: n/a

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

Description: n/a

Policy 2: Improve Water Supply Reliability

X *Goal:* Ensure sufficient firm yield water supply.

Description: A more comprehensive water conservation and efficiency program will help ensure sufficient firm yield water supply by reducing demand.

☐ *Goal:* Maintain and improve water infrastructure reliability.

Description: Click here to enter text.

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

Description: This household water efficiency program will promote water conservation and use of rainwater for landscape irrigation.

X *Goal*: Develop appropriate drought mitigation measures.

Description: A comprehensive conservation program is key to reducing demand during droughts.

Policy 3: Practice Resource Stewardship

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

Description: Reducing local water demand helps avoid the need to construct new "hard" infrastructure that can adversely affect natural resources, including terrestrial and aquatic life and allows more water to remain in the Mokelumne River.

X *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Reducing local water demand helps avoid the need to construct new "hard" infrastructure that can adversely affect natural resources, including terrestrial and aquatic life and allows more water to remain in the Mokelumne River.

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

Description: n/a

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐Agricultural Water Use Efficiency

X 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

X 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: Katherine Evatt

Affiliation: Foothill Conservancy

Address: P.O. Box 1255

Phone: Pine Grove, CA

Email: Katherine@mokeriver.com

Other Participating Agencies (if applicable): Potential: Amador Water Agency, Amador-Tuolumne Community Action Agency

Project Description

Project Description

The Amador Household Water Efficiency Project is intended to implement and expand on the conservation program adopted by the Amador Water Agency in 2010, several elements of which were not implemented due to lack of funds. The conservation program is intended to ensure optimal use of the county's developed water supplies while saving ratepayers money on water and energy. It will include the following components:

- Residential surveys and assistance
- High-efficiency washer rebate program
- Ultra low-flush toilet replacement program
- Rainwater capture and use program
- School education programs
- Turf replacement program

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 planning stage. We need to design the full program and then implement it. There is no environmental documentation required. Required matching funds will come from: the value of the AWA's 2010 Conservation Study; non-state grants; In-Kind services from volunteers, and the IK value of office space and equipment provided for the project coordinator.

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.

N/A. This is not a "project" under CEQA or NEPA.

Multi-entity Integration and Benefits

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

The project will expand on, complement, and coordinate with the Amador Water Agency's existing conservation program. AWA will benefit from the additional system conservation at no direct cost for implementation, while ratepayers benefit from reduced bills for water and power. The project will also help AWA meet the state 20% x 2020 requirement for water conservation. In addition, the project will coordinate with and complement the energy conservation programs currently implemented by the Amador-Tuolumne Community Action Agency and benefit the agency's low-income clientele by reducing their household expenses for water and power.

Technical Feasibility

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

The project will implement common conservation measures adopted by the California Urban Water Conservation Council as well as rainwater capture projects that use very basic technology. It relies in part on information in Amador Water Agency's 2010 Water Conservation Plan, prepared by RMC.

Economic Feasibility

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

Capital Cost: $ 692,000

Annual O&M Costs: $ 35,000

Replacement Costs, Description of Equipment to be Replaced, & Frequency of Replacement (e.g., every 5 years): 25 years, outside life of project

Estimated Project Life (Years): 5 years

Cost Basis (if not 2011 dollars): 2010 dollars

Possible Funding Sources: IRWMP planning grant, EPA grants, foundation 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): n/a

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: $61,000

Avoided Wastewater Treatment Costs: Click here to enter text.

Avoided Costs of New Supplies: $143,000 (est cost of new dam @$10k per af)

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: n/a

Acre-feet Per Year of Reduced Demand: 14.37

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: Allows the water saved to remain in the Mokelumne River.

Disadvantaged Communities / Environmental Justice

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

The project will reduce the water and power rates of those who take advantage of the rebate programs, thereby providing them with additional spending money to meet other basic needs.

Native American Tribal Communities

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

n/a

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.

Reducing demand reduces pressure on water supplies that may decline over time. The project would not increase GHG.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** The project will have absolutely no impact on cultural resources and will help protect them by reducing the demand for new water storage projects.

2. **Does the project maintain or improve ecosystem function?** The project will have no impact on ecosystem function.

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

4. Best project for the intended purpose: High.

Justification for scoring:

The project is far less expensive than building new water storage projects and much less environmentally harmful. It will benefit the local economy by providing an incentive for purchasing new fixtures and appliances from local businesses, by providing work for local contractors and tradespeople, and by freeing up ratepayer funds now spent on water and power for other expenditures in the local economy. It will benefit families by reducing the amount they pay for water and adding to the value of their homes with updated, efficient fixtures, landscaping and appliances. The program has lasting community benefits in its education component, which will help instill water-saving habits over time. The program will also have indirect and induced community economic and government revenue benefits resulting from the increased local purchases of fixtures, appliances and landscaping materials. The rebates for fixtures and appliances will be limited to items purchased from locally owned businesses.

5. Minimize implementation risk: High

Justification for scoring:

There is minimal implementation risk in this program. It uses widely accepted and endorsed water conservation/efficiency measures that have proven to be effective throughout California. There are no regulatory, environmental or permitting obstacles, there's no foreseeable legal basis for challenging the program because participation is fully voluntary, and the partners have incentive to join because of their mandate to reduce overall water use.

Upper Mokelumne River Watershed Authority

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

Proposed Project

Project Title: Hemlock Landscape Restoration

Project Location: Headwaters of the Middle Fork Mokelumne River; Stanislaus National Forest, Calaveras Ranger District

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: Unpaved forest roads are a significant source of stormwater runoff and fine sediment that is transported to streams. Road treatments in the Hemlock project would reduce stormwater runoff and fine sediment that is delivered to streams by: performing routine road maintenance that has been deferred; disconnecting hydrologically connected road segments by improving and increasing the number of drainage structures (e.g., cross drain culverts, rolling dips, water bars); improving or replacing undersized and failing stream crossings; closing or decommissioning unneeded roads.

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: Treatments in the Hemlock Landscape Restoration project would be designed specially to: 1) modify fuel characteristics, 2) improve forest resiliency, 3) reduce susceptibility to insect and diseases, 4) improve watershed condition, 5) improve meadow function and water sequestration, and 6) maintain wildlife and ethno-botanical connectivity and diversity. As such, this project would direct natural resources towards this goal.

☒ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Guidelines for developing restoration treatments outlined in GTR 220 emphasize landscape heterogeneity, resilience and resistance. This approach would minimize effects on biological and cultural resources.

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

Description: Landscape restoration projects would analyze current and needed public recreation opportunities. Projects may be proposed that would allow for these activities under sustainable management.

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: Teresa McClung, District Ranger

Affiliation: Stanislaus National Forest, Calaveras Ranger District

Address: P.O. Box 500; 5519 Highway 4, Hathaway Pines CA, 95233

Phone: 209-795-1381, Ext 314

Email: tmcclung@fs.fed.us

Other Participating Agencies (if applicable): Amador Calaveras Consensus Group

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 Stanislaus National Forest, Calaveras Ranger District, is proposing to conduct landscape restoration treatments in the upper headwaters of the Middle Fork Mokelumne River (The Hemlock Landscape Restoration project). The project is located in Calaveras County, California, northeast of Arnold. Elevations in the planning area range between 5,500-7,500 feet. The project area hosts wildland urban intermix zone (WUI), California spotted owl (*Strix occidentalis occidentalis*) and northern goshawk (*Accipiter gentilis*) habitat areas, general forest, and old forest emphasis areas.

The mission of the Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The Forest Service goal for Region 5, is to retain and reestablish ecological resilience of these lands to achieve sustainable management on our wildlands and forests and provide a broad range of ecosystem services. Ecologically healthy and resilient landscapes would have greater capacity to survive natural disturbances and large scale threats to sustainability, especially under changing and uncertain future environmental conditions, such as those driven by climate change and increasing human use. In addition, ecologically healthy and resilient landscapes provide wood and fiber. These ecosystems also deliver important services that are perceived to be free or limitless such as air and water purification, flood and climate regulation, biodiversity, scenic landscapes, wildlife habitat and carbon sequestration and storage.

Strategies to improve the resilience and sustainability of forest; conserve watersheds, species, and biodiversity; reduce wildfire losses and damages; and ensure public safety, have been developed by North et al. (2009)[a]. These guidelines stress the ecological importance of forest heterogeneity. The authors offer suggestions on how to design treatment areas to meet diverse forest objectives, retain existing large trees, promote recruitment of more large structures, and provide for forest sustainability. The Hemlock Landscape Restoration treatments would be developed using guidelines offered by North et al. (2009) to: 1) modify fuel characteristics, 2) improve forest resiliency, 3) reduce susceptibility to insect and diseases, 4) improve watershed condition, 5) improve meadow function and water sequestration, and 6) maintain wildlife and ethno-botanical connectivity and diversity.

[a] North, N., P. Stine, K. O'Hara, W. Zielinski, and S. Stephens. 2009. An ecosystem management strategy for Sierran mixed-conifer forests. General Technical Report, PSW-GTR-220. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. Albany, California. 49 pp.

Project Status: Planning

Readiness to Proceed

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

The Forest Service is ready to begin field review and planning of this project. Field surveys for botany, wildlife, cultural resources, timber, fuels, hydrology, roads, and soils would be conducted during the summer 2012-2013. Restoration treatments would follow the guidelines outlined in GTR-220 (North et al. 2009). Effects of proposed actions would be analyzed in an Environmental Assessment (EA), with an expected Decision Notice in May 2014. Matching funds may be derived from Forest Service appropriations, Cornerstone Collaborative Forest Landscape Restoration (CLFR), Sierra Nevada Conservancy, or other grants.

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.

Effects of proposed actions and action alternatives would be analyzed in an Environmental Assessment (EA), with an expected Decision Notice and Finding of No Significant Impact in May 2014. In addition, the Forest Service anticipates coordinating with a State or County agency to complete CEQA analyses and requirements.

Multi-entity Integration and Benefits

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

The project is part of the Cornerstone CFLR, a landscape restoration project in close partnership with the Amador Calaveras Consensus Group (ACCG) and the Forest Service. The ACCG is a local collaborative that works to create healthy forests and watersheds, fire-safe communities, and sustainable local economies. It fosters partnerships among private, nonprofit, state, and federal entities with a common interest in the health and well-being of the landscape and communities in the Mokelumne and Calaveras watersheds.

ACCG is advancing an All-Lands strategy to create a heightened degree of environmental stewardship, local jobs, greater local economic stability, healthy forests and communities. ACCG principles reflect the group's emphasis on its triple bottom line for balancing environmental, social and economic goals. As such, this project would have environmental, social, and economic benefits.

Technical Feasibility

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

Restoration treatments would follow the guidelines outlined in GTR-220 (North et al. 2009) and would be consistent with the Stanislaus National Forest Plan Direction (USDA Forest Service 2010).

North, N., P. Stine, K. O'Hara, W. Zielinski, and S. Stephens. 2009a. An ecosystem management strategy for Sierran mixed-conifer forests. General Technical Report, PSW-GTR-220. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. Albany, California. 49 pp.

USDA, Forest Service. 2010. Stanislaus National Forest, Forest Plan Direction. April 2010. Stanislaus National Forest, Sonora, California.

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): 20-50 years

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

Possible Funding Sources: Grants, Cornerstone, and/or Forest Service Appropriated

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: 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: Unknown

Acre-feet Per Year of Reduced Demand: Unknown

Water Quality Benefits

Reduction in pollutant loading: We can estimate this once we have proposed actions

Reduction in pollutant transport: We can estimate this once we have proposed actions

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: > 4000 acres

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): Unknown – too early in the project planning stage

Reduction in flood-related damages: Unknown

Reduction in greenhouse gas emissions: Unknown

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.

Both Amador and Calaveras counties are located in the Historically Underutilized Business Zones (HUBZone). This program is administered by the U.S. Small Business Administration. "The program encourages economic development in historically underutilized business zones –"HUBZones" – through the establishment of preferences. SBA's HUBZone program is in line with the efforts of both the Administration and Congress to promote economic development and employment growth in distress areas by providing access to more federal contracting opportunities."

The project is part of the Cornerstone CFLR, a landscape restoration project in close partnership with the Amador Calaveras Consensus Group (ACCG) and the Forest Service. The ACCG is a local collaborative that works to create healthy forests and watersheds, fire-safe communities, and sustainable local economies. It fosters partnerships among private, nonprofit, state, and federal entities with a common interest in the health and well-being of the landscape and communities in the Mokelumne and Calaveras watersheds.

ACCG is advancing an All-Lands strategy to create a heightened degree of environmental stewardship, local jobs, greater local economic stability, healthy forests and communities. ACCG principles reflect the group's emphasis on its triple bottom line for balancing environmental, social and economic goals. As such, this project would have environmental, social, and economic benefits.

Native American Tribal Communities

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

The project is expected to enhance and/or restore cultural resources. Pilot restoration projects targeting vegetation overgrowth within archaeological sites were implemented in 2009 and 2010 and in partnership with California Indian Manpower Consortium (CIMC), the Calaveras Band of Miwuk and Calaveras Job Connection. These projects successfully restored important native plants while removing competing vegetation. The pilot project provided on the job training for Native Americans living within the HUBZones and will serve as a model for the proposed ACCG projects. Consultation with Native American tribal communities would occur.

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 EPA developed a "State of Knowledge" paper that outlines what is known and what is uncertain about global climate change (Environmental Protection Agency 2007). The following elements of climate change are known with near certainty:

1) Human activities are changing the composition of Earth's atmosphere. Increasing levels of greenhouse gases, like carbon dioxide (CO2) in the atmosphere since pre-industrial times, are well-documented and understood.
2) The atmospheric buildup of CO2 and other greenhouse gases is largely the result of human activities such as the burning of fossil fuels.

3) A warming trend of about 1.0° to 1.7° F occurred from 1906-2005. Warming occurred in both the Northern and Southern Hemispheres and over the oceans (IPCC 2007).
4) The major greenhouse gases emitted by human activities remain in the atmosphere for periods ranging from decades to centuries. It is therefore virtually certain that atmospheric concentrations of greenhouse gases will continue to rise over the next few decades.
5) Increasing greenhouse gas concentrations tend to warm the planet.

However, it is uncertain how much warming will occur, how fast that warming will occur, and how the warming will affect the rest of the climate system including precipitation patterns (Environmental Protection Agency 2007).

Emissions generated by fossil fuel combustion and burning are expected to contribute to the global concentration of greenhouse gases that affect climate change. If 3,500 acres were treated with an understory thin to a canopy cover target of 40%, followed by a prescribed burn, approximately 21.1 tons of carbon per acre would be released into the atmosphere (North et al. 2009). Global carbon emissions from fossil fuel combustion in the 1990s ranged from 5.5 x 1012 to 1.1 x 1013 tons per year (Houghton 2007). This is approximately 75 million times more carbon emissions in one year than could potentially be released in the project area.

Although project related carbon emissions may be negligible in terms of climate change, stands will become more fire and drought resilient. Research suggests that restoration of forested stands that lower tree density and fuel loading will result in a lower risk of uncharacteristically large, severe wildfire that can release large amounts of carbon into the atmosphere (Stephens et al. 2009, North et al. 2009). Lower stand densities also decrease crown competition and reallocate resources to more vigorous trees that are more resilient to disturbance and drought (Oliver 1995, Oliver and Larson 1996). Treatments that reduce risk of large, high-severity wildfires have a effect on the carbon cycle, and thus, greenhouse gas emissions:

1) Carbon stock reductions and carbon emissions will likely be re-sequestered by continued tree growth within about fifteen years following treatments (Hurteau and North 2010a, Hurteau and North 2010b).
2) Consolidating carbon stocks in fewer, larger trees can reduce the risk of carbon loss from wildfire by over 50% (Hurteau and North 2010a, North and Hurteau 2011)
3) Wildfire in untreated stands shifts a disproportionate amount of carbon to decomposing stocks compared to wildfire in treated stands (North and Hurteau 2011).
4) Following fire, higher survivorship of large trees will likely shorten the time needed to re-sequester carbon lost during a wildfire (Hurteau and North 2010a, North and Hurteau 2011).

As such, the project would yield positive climate change benefits and impacts.

Environmental Protection Agency. 2007. Particulate Matter. United States Environmental Protection Agency. online: http://www.EPA.gov/air/particlepollution.

Houghton, R.A. 2007. Balancing the global carbon budget. Annual Review of Earth and Planetary Sciences, 35:313-347.

Hurteau, M.D. and M. North. 2010a. Carbon recovery rates following different wildfire risk mitigation treatments. Forest Ecology and Management, 260:930-937.

Hurteau, M.D. and M. North. 2010b. Carbon Costs and Benefits of Fuels Treatments. Research Brief for Forest Managers. Northern Arizona University, Flagstaff, AZ; USDA Forest Service, Pacific Southwest Research Station, Davis, CA.

IPCC 2007. Climate Change 2007: Synthesis Report; an Assessment of the Intergovernmental Panel on Climate Change. Valencia, Spain, 12-17 November 2007.

North, M., M. Hurteau, J. Innes. 2009. Fire suppression and fuels treatment effects on mixed-conifer carbon stocks and emissions. Ecological Applications, 19:1385-1396.

North, M.P. and M.D. Hurteau. 2011. High-severity wildfire effects on carbon stocks and emissions in fuels treated and untreated forest. Forest Ecology and Management, 261:1115-1120.

Oliver, W.W. 1995. Is self-thinning in ponderosa pine ruled by Dendroctonus Bark Beetles? Pages 213-218, in National Silviculture Workshop Forest Health through Silviculture: Proceedings of the 1995 National Silviculture Workshop, Mescalero, New Mexico. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 246 pp.

Oliver, C.D. and B.C. Larson. 1996. Forest Stand Dynamics, Update Edition. John Wiley & Sons, Inc. New York, NY. 520 pp.

Stephens, S.L., J.J. Moghaddas, B.R. Hartsough, E.E.Y. Moghaddas, N.E. Clinton. 2009. Fuel treatment effects on stand-level carbon pools, treatment-related emissions, and fire risk in a Sierra Nevada mixed-conifer forest. Canadian Journal of Forest Research, 39:1538-1547.

Hemlock Landscape Restoration
Stanislaus National Forest, Calaveras Ranger District

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** If yes, please describe how.

This project will minimize adverse effects on cultural resources. All cultural resources in the project area will be identified and Historic Preservation Compliance completed. The Forest Service would complete consultation requirements under Section 106 of the National Historic Preservation Act as outlined in the First Amended Regional Programmatic Agreement among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer, and Advisory Council on Historic Preservation, and consult with Native Americans and local Tribes.

All cultural sites would be avoided or treated in accordance with the "*Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region, California State Historic Preservation Officer and Advisory Council on Historic Preservation Regarding Identification, Evaluation and Treatment of Historic Properties Managed by the National Forests of the Sierra Nevada, California"* (October 1996). Actions within cultural resource sites would be monitored by the District Archaeologist and would be limited to actions prescribed by the District Archaeologist.

2. **Does the project maintain or improve ecosystem function?** If yes, please describe how.

This project is expected to improve ecosystem function. Treatments in the Hemlock Landscape Restoration project would be designed specially to: 1) modify fuel characteristics, 2) improve forest resiliency, 3) reduce susceptibility to insect and diseases, 4) improve watershed condition, 5) improve meadow function and water sequestration, and 6) maintain wildlife and ethno-botanical connectivity and diversity. Guidelines for developing treatments outlined in GTR-220 and GTR-237 would be used to design restoration treatments. These GTR guidelines emphasize landscape heterogeneity, resilience and resistance.

3. **Is the project expected to be completed by 2022?** (yes or no)

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: 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:

This project will be designed to yield the best possible alternative to meet social, environmental, and economic perspectives. The Forest Service is working with the Amador Calaveras Consensus Group (ACCG) with the design of this project. The ACCG is a local collaborative that works to create healthy

forests and watersheds, fire-safe communities, and sustainable local economies. It fosters partnerships among private, nonprofit, state, and federal entities with a common interest in the health and well-being of the landscape and communities in the Mokelumne and Calaveras watersheds.

ACCG is advancing an All-Lands strategy to create a heightened degree of environmental stewardship, local jobs, greater local economic stability, healthy forests and communities. ACCG principles reflect the group's emphasis on its triple bottom line for balancing environmental, social and economic goals. As such, this project would have environmental, social, and economic benefits.

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.

Justification for scoring:

The project has minimal implementation risk that may result from documented institutional barriers (regulatory, environmental, or permitting obstacles), and controversy, legal challenge, or partners' uncertainty because the project will be designed in close partnership with ACCG. Barriers to the project's implementation would be identified, and mitigated, through the Forest Service's participation with ACCG and other public input. Multiple collaborative and public input check-points will be implemented throughout the planning and implementation stages of this project.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: City of Jackson Wastewater Treatment and Disposal Project

Project Location: City of Jackson

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 is proposed to improve the water quality in Jackson Creek with improvements to the wastewater treatment process and re-directing the effluent to land during low flow periods.

☐*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: Treated effluent will be used for agricultural irrigation during low flow periods in Jackson Creek which will also benefit the water quality at Lake Amador, downstream of the Jackson WWTP.

☐ *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: Reduces treated wastewater contaminants from Jackson Creek that may be harmful to biological resources.

☐ *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: Michael Daly, City Manager

Affiliation: City of Jackson

Address: 33 Broadway

Phone: 209-223-1646

Email: mdaly@ci.jackson.ca.us

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

Project Description

Project Description

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

The proposed City of Jackson Wastewater Treatment Plant Improvement Project (proposed project; project) consists of improvements to the City's Wastewater Treatment Plant (WWTP) and changes to the associated discharge practices in order to comply with new Waste Discharge Requirements (WDRs) issued by the Central Valley Regional Water Quality Control Board (CVRWQCB) in 2007.

On October 25, 2007, the Central Valley Regional Water Quality Control Board (CVRWQCB) adopted new Waste Discharge Requirements (WDRs) in Order No. R5-2007-0133 (Order) for the City's WWTP effluent discharge. These new WDRs affect:

1) The quantity of City effluent that can be discharged to Jackson Creek (relative to the accumulated percentage of effluent in Lake Amador, a downstream reservoir serving as a source of water for a public water supply); and

2) The quality of City effluent that can be discharged to Jackson Creek.

Per the new WDRs, by October 2012 the City is prohibited from discharging effluent to Jackson Creek in amounts that cause Lake Amador to contain more than 5 percent effluent on a volume basis. The WDRs also identify effluent limitations, including new effluent limitations for copper, zinc, dichlorobromomethane, and ammonia. Additionally, historical compliance problems with effluent limitations on turbidity, coliform, and nitrate will be addressed as part of this project, along with an assessment of whether the effluent discharge is in compliance with narrative policy objectives of the CVRWQCB as stated in its Basin Plan.

The City has completed various technical studies required by the CVRWQCB in order to comply with the new WDRs and identify methods to dispose of wastewater effluent. These studies include the City of Jackson Wastewater Treatment, Storage, Disposal, and Reclamation Options Report (Options Report) in August 2010 (prepared by ECO:LOGIC [now known as Stantec]). Options for wastewater treatment and disposal were narrowed to three land application options (i.e., disposal of effluent by applying it to land or beneficially using the effluent for reclamation by growing fodder crops for grazing animals) identified as options C, D, and E in the Options Report. In July 2010, the City Council formed a rate review committee that reviewed the recommendations of the draft report as well as other options identified by the public. The committee recommended that Option E be carried forward as the proposed project for evaluation in an EIR. The Draft EIR is being drafted and is scheduled for release in May 2012.

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 Environmental Impact Report is currently being drafted. The Draft EIR is expected to be available by May 2012. Pre-design of the proposed facilities is currently occurring.

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 Impact Report is being prepared for this project. The Draft EIR is expected to be available by March 2012.

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 not directly linked to another project.

Technical Feasibility

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

The main document describing the City's project options designed to bring the wastewater discharge into compliance with the City's NPDES is the "Wastewater Treatment, Storage, Disposal, and Reclamation Options Report" dated August 2010 and prepared by ECO:LOGIC (now Stantec). A copy of this report can be viewed and downloaded from the City's website at: http://www.jacksonwwtp.com/wp-content/uploads/2011/05/Jackson-WWTP_Options_Report-08-25-10.pdf

Economic Feasibility

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

Capital Cost: $ 5,747,000

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): WWTP Upgrades and construction of pumping facilities, storage and irrigation facilities necessary to apply treated effluent to agricultural property.

Estimated Project Life (Years): 40

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

Possible Funding Sources: State Water Resources Control Board, United States Department of Agriculture – Rural Development.

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): Wastewater Treatment, Storage, Disposal, and Reclamation Options Report, ECO:LOGIC (now Stantec) Engineering, 2010.

Water Supply Avoided Costs

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

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

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

Other: Click here to enter text.

Water Quality Avoided Costs

Avoided Water Treatment Costs: Click here to enter text.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

The project would not pose any apparent conflict with the CARB discrete early action strategies as none of the action strategies are applicable to wastewater treatment plants. Furthermore, emissions resulting from the proposal to pump treated effluent from the WWTP to Busi Ranch would be 34 metric tons of CO_2e annually during existing flow rate conditions (0.47 mgd) and 60 metric tons of CO_2e annually during maximum permitted capacity flow rate conditions (0.71 mgd) during the average weather year scenario. Emissions would be 57 metric tons of CO_2e annually during existing flow rate conditions (0.47 mgd) and 87 metric tons of CO_2e annually during maximum permitted capacity flow rate conditions (0.71 mgd) during a critical drought year scenario. Yet, in March 2011, Senate Bill 2X established the Renewable Portfolio Standard as law. The Renewable Portfolio Standard program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. The current renewable energy mix in the energy service area (Pacific Gas & Electric) encompassing the proposed project is 11.9 percent so a projected renewable energy mix of 33 percent by the year 2020 would equal reductions of 12.7 metric tons of CO_2e annually during maximum permitted capacity flow rate conditions (0.71 mgd) during the average rainfall year scenario (60 metric tons X [0.33 - 0.119]) and reductions of 18.4 metric tons of CO_2e annually during maximum permitted capacity flow rate conditions (0.71 mgd) during a critical drought year scenario (87 metric tons X [0.33 - 0.119]). (It is assumed that the WWTP would reach maximum permitted capacity flow rate conditions (0.71 mgd) by the year 2020.)

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Ponderosa Way Restoration Project

Project Location: 12625 Hwy 26, Glencoe, Calaveras County, CA 95345; Five miles east of Mokelumne Hill at the intersection of Hwy 26 and Ponderosa Way.

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: Provide toilets & trash receptacles at an informal recreation site on the river.

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

Description: Due to the degraded drainage system, storm water runs down the unpaved surface of Ponderosa Way and scours deep ruts and outside slides that transport eroded soil directly into the Mokelumne River and indirectly via two tributaries, Dutchman's Gulch and Alabama Gulch.

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: Reduce erosion and sedimentation by both immediate and preventive actions. The immediate actions are the restoration of Ponderosa Way, including unpaved roadway and drainage facilities. Corrective drainage measures will include re-establishing roadside ditches, repair/replacement of culverts, and installation and/or repair of energy dissipaters at the ends of the culverts and at ditch outfall locations. These immediate actions will reduce the sediment load to the Mokelumne River by establishing a stormwater conveyance system that will not only preserve the existing roadway, but also establish a drainage system that limits erosion by reducing the velocity of stormwater run off. Minimizing sediment load in the Mokelumne River supports EBMUD's efforts to maintain the capacity of Pardee Reservoir at a time when it struggles to increase water storage to meet the needs of its East Bay consumer base that is currently 1.2 million and growing.

The preventative action consists of reestablishing Ponderosa Way as a fire access road. Cal Fire considers the Mokelumne Watershed a high fire threat. A catastrophic fire in the watershed and resulting loss of ground cover and sediment load would have a negative impact on the capacity of Pardee Reservoir as well as the residents of adjoining communities. Watershed protection is given a high priority in the Glencoe/Rich Gulch Community Wildfire Protection Plan, the Calaveras County Community Wildfire Protection Plan, and the Cal Fire Tuolumne-Calaveras Pre-Fire Management Plan. These plans include the ability to use Ponderosa Way for fire suppression and long-term maintenance, including roadside brushing to assure a rapid response during fire suppression operations.

☒*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Ponderosa Road provides potential fire access in severe terrain. Without a functional Ponderosa Way access, new access points would have to be established during an emergency fire response, which would entail cutting a new access through unknown and unstudied areas. The potential for adverse biological and cultural impacts due to such an emergency operation are great, given the historic nature of the area. Reestablishing an existing

roadway for emergency fire access limits potential adverse impacts of establishing new access points.

In addition, Ponderosa Way itself is a cultural resource that was built by the CCC as a 450 mile road through the Sierra foothills from the Pitt River in the north to the Kern River in the south. It was built to transport firefighters and provide a 200' wide fuel break. The Mokelumne River segment was constructed in 1934 by the Rich Gulch CCC Camp located at the current Robinson's Ranch. Today, most of Ponderosa Way is on private property, but the Mokelumne segment remains in the public domain. It offers a glimpse into the harsh life of the Argonauts while providing solitude, beauty and striking vistas (http://www.calaverasoutside.org/CC_PonderWy-MokeTr.pdf).

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

Description: Restoring Ponderosa Way for vehicular traffic will provide the only public access to the river from Mokelumne Hill to West Point, a distance of 20 miles. The best swimming hole in Northern Calaveras is at the bottom of the road where you will also find a launch for kayaks and rafts for the 'Ponderosa Whitewater Run', 2.8-miles of Class II/III whitewater down to the Electra afterbay dam. Recommissioning the Ponderosa Run and connecting it to the popular Electra Run with a portage will create an eight mile stretch of Mokelumne whitewater down to Middle Bar, the longest run in the Central Sierras and a major attraction for commercial boaters.

This area of the Mokelumne Watershed also offers hiking on the remnants of Gold Rush trails, roads and ditches that traverse the steep canyon walls on the Calaveras side of the river from Mokelumne Hill to Glencoe. Connecting these historic routes of transportation creates a primitive trail that is ~17 miles long and crosses ~2,800 acres of remote BLM and PG&E land. This alignment is in the early stage of development as a segment of the Mokelumne Coast to Crest Trail. In recognition of its public value, the Foothill Conservancy and BLM are lobbying Congress to designate this stretch of the Mokelumne River as 'Wild and Scenic'.

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: Jeanne M. Boyce, County Administrative Officer

Affiliation: Calaveras County Administrative Office

Address: 891 Mountain Ranch Road. San Andreas, CA 95249

Phone: (209)754-6025

Email: JBoyce@co.calaveras.ca.us

Other Participating Agencies (if applicable): BLM, PG&E, Cal Fire, EBMUD, CA Dept of Fish and Game, Central Valley Regional Water Quality Control Board, Foothill Conservancy.

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.

Goals. The purpose of this project is to control soil erosion and siltation from Ponderosa Way into Alabama Gulch, Dutchman Gulch and the Mokelumne River while providing vehicular access to the watershed for wildfire suppression and public recreation.

Location. This segment of Ponderosa Way intersects Hwy 26 at Robinson's Ranch, five miles east of Mokelumne Hill (12625 Hwy 26, Glencoe, CA; 38 19' 47.59"N, 120.37' 53.6"W). It descends to the Main Stem Mokelumne River, a distance of two miles and an elevation change from 1,900' to 800'.

Road Erosion. Ponderosa Way is steep with an average grade of 11%. By design, runoff sheets to the inside ditch where it is collected by 30 culverts that drain under the road and discharge over the outside bank. While this system functioned well for 60 years, time has taken its toll on the drainage system as the roadway has rutted and culverts have been degraded, corroded, or blocked with sediment and/or debris from adjoining hillsides. Erosion is minimal on segments with a functional stormdrain system. In contrast, segments with damaged or blocked culverts force large volumes of runoff down the road surface at high velocities, causing rutting and erosion. The runoff that is eventually collected by a functional culvert is discharged over the bank through energy dissipaters, where present and functional. Where these dissipaters are not present or not functioning, drainage cuts deep channels into the hillside conveying along with stormwater. The erosion process is further accelerated by 4-WD vehicular traffic during the wet season. With each storm, the drainage system degrades a little more, the ruts deepen and the outer slides increase in size. In January 2011, a blocked culvert in Alabama Gulch caused a section of Ponderosa Way to be washed out near the Mokelumne River. Without road restoration, maintenance and traffic control, winter erosion will continue unabated.

Scope of Work. The control of soil erosion depends on the restoration of the drainage system on the road.

Before construction, Cal Fire inmate crews will brush the road and opened the existing ditches and culverts where possible with hand tools. With IRWMP support, major restoration will start in the fall of 2012 with the installation of a heavy duty gate near Hwy 26 to control traffic during winter months.

The drainage system will be repaired, reusing existing materials depending on condition. New culverts will be installed at the required locations, and energy dissipaters will be installed at the outfalls to minimize erosion. Ditches will also be constructed to minimize erosion by limiting the velocity of stormwater. The side slopes of the roadway will be stabilized to minimize erosion and slides. The roadway will be graded, providing a cross slope that will convey drainage to the ditches, not along the roadway. Turnarounds will be constructed for safety at various locations along the roadway, along with reestablishing a parking area at the base of the road along the Mokelumne River.

Material for grading and filling of ruts in the roadway will be provided from the Bureau of Land Management quarry at the top of Ponderosa Way and material generated when clearing ditches and slides. Ponderosa Way will be surfaced with 4" of Class II AB over 4" of Non-Spec base.

This work will be completed with both hand crews and heavy equipment. Construction will conform with current Best Management Practices as outlined in the current Construction Permit and County Municipal Stormwater Permit. Both construction related and permanent controls will be used and implemented.

Long-Term Maintenance. The management role for annual operations and maintenance of Ponderosa Way, a County maintained road, will be the responsibility of Calaveras County, with direction by the Board of Supervisors in consultation with the six stakeholders that share responsibilities: County Public Works, Cal Fire, PG&E, BLM, CalTrans and the Calaveras County Park and Recreation Commission.

In general, road maintenance is needed to assure that the drainage system is functional and needed repairs are made to prevent future erosion. One source for maintenance is Cal Fire, which is well suited for these tasks with its road equipment and inmate hand crews. Cal Fire can provide these resources under the authority of their Tuolumne-Calaveras Pre-Fire Management Plan as well as the Community and County Wildfire Protection Plans. Another cause of road damage is vehicular traffic during the winter, so a gate installed below the quarry will be closed for the wet season. Winter visitors can park at the quarry near Hwy 26 and hike to the river.

Expected Outcomes:

- Improve water quality in the Main Stem Mokelumne River by minimizing siltation from Ponderosa Way.
- Reduce the risk of catastrophic wildfires in the watershed and neighboring communities by providing the fire service with access to the Mokelumne Canyon.
- Provide access to the river for public recreation and support the tourist industry by creating an opportunity for commercial rafting on the Mokelumne River.
- Restore a cultural resource, Ponderosa Way, and provide the public with a vision of the harsh life of the Argonauts in the deep, steep and remote Mokelumne River Canyon.

Project Status: Choose from Dropdown Menu Design Complete

Readiness to Proceed

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

The Ponderosa project can begin immediately with funding. Matching funds, 25% of the total project cost or $55,750, will come from the following funding sources:

- BLM in-kind donation of 1,000 yds³ of decomposed granite ……... $10,400
- Cal Fire in-kind service for Inmate Crews, $200/day x 5 days ……. $ 1,000
- Calaveras County in-kind administration at 15% of project total …..… $32,411
- Calaveras County expenditures for capital improvements ……... $11,939

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 County Planning Department has indicated that the proposed project can proceed under a CEQA Exemption based on the following key facts:

- Ponderosa is a County-Maintained Road
- The project is to control soil erosion and siltation into gulches and Mokelumne River
- The project will use BMP's
- The 2002 FERC relicensing agreement dealt with the concept of river access and a parking lot at the PG&E parcel
- The project proposes traffic control (heavy duty gate) to prevent 4-WD vehicular traffic in the wet season

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.

Ponderosa Way ends at a 10 acre PG&E parcel on the Mokelumne River. The utility's activities on the river are controlled, in part, by its 2002 Federal Energy Regulatory Commission (FERC) Relicensing Agreement. Under this Agreement, PG&E is committed to the installation and maintenance of a kayak/raft put-in, portable toilet facilities, trash containers, parking lot and security fence at the entrance to the decommissioned Mokelumne River Bridge. PG&E will fulfill its commitment when the public has vehicular access to its parcel. It is likely that PG&E will partner with BLM and Calaveras County on the operation, maintenance and security of the new Pocket Park that will feature swimming, hiking, riding, fishing, camping, tubing, kayaking and rafting. Finally, the park will likely become a trailhead on the Mokelumne Coast to Crest Trail.

It is noteworthy that BLM, EBMUD and PG&E have recently agreed to permit commercial whitewater boating on this segment of the Mokelumne River. Returning the kayak/raft put-in will recommission the 'Ponderosa Way Run', 2.8-miles of Class II/III whitewater to the Electra afterbay. Construction of a portage connection around the afterbay dam by PG&E under its FERC agreement, will provide access to the popular 'Electra Run' that continues down to the Middle Bar take-out, a total distance of eight miles. These facilities benefit the local tourist economy, O.A.R.S., restaurants and hotels, as well as provide a needed source of revenue for maintenance and operations with licensing and other use-generated fees.

Regarding summer operations, PG&E will contribute $25,000 annually to BLM to provide two River Rangers during the whitewater boating season under its Agreement with FERC. The Rangers will provide an administrative presence on the four whitewater boating runs on the Mokelumne, including the Ponderosa Way Run. PG&E will also maintain its whitewater facilities including the toilet and garbage collection.

Technical Feasibility

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

The project specifications are based on the Calaveras County Code and construction oversight will be managed by the Calaveras County Department of Public Works.

Economic Feasibility

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

Capital Cost: $223,000

Annual O&M Costs: $2,000 from County Public Works, Cal Fire equipment inmate crews and volunteer support from the Calaveras County Parks and Recreation Commission.

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): Indefinite

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

Possible Funding Sources: Calaveras County, BLM, Cal Fire, CalTrans, PG&E FERC project environmental enhancement funds, Department of Boating and Waterways.

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: The control of soil erosion from Ponderosa Way will reduce the transportation of sediments via the Mokelumne River and reduce their deposition in Pardee Reservoir to the benefit of EBMUD.

Water Quality Avoided Costs

Avoided Water Treatment Costs: The reduction of turbidity from the road will help to control the cost of water treatment, another benefit to EBMUD.

Avoided Wastewater Treatment Costs: Click here to enter text.

Other: Click here to enter text.

Benefits

Quantifiable Benefits

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

Water Supply Benefits

Acre-feet Per Year of New Supply: Click here to enter text.

Acre-feet Per Year of Reduced Demand: Click here to enter text.

Water Quality Benefits

Reduction in pollutant loading: Click here to enter text.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Click here to enter text.

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

Reduction in flood-related damages: Click here to enter text.

Reduction in greenhouse gas emissions: Click here to enter text.

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

The project will provide Mokelumne River access and recreation to the nearby communities of Glencoe, Rail Road Flat, West Point, Wilseyville and other areas within Calaveras County and beyond. According to the 2010 Census, they are all disadvantaged with Median Household Incomes ranging from $31,366 - $35,329 compared to $60,992 for the State of California. The unemployment rate hovers around 17%. More than 70% of the students at Rail Road Flat and West Point Elementary Schools qualify for the school lunch program. This is an aging population with a median age of 44 compared to the State median of 34. Finally, 25% of all residents list themselves as disabled.

Residents of Calaveras County have limited access to park facilities. Recreational programs are sparse and the common cry among teens is “There’s nothing to do”. Access to the Mokelumne River and an ADA friendly park to fish, swim, picnic, hike and float would be a major contribution to the quality of life for the residents of Calaveras County and adjoining communities.

Native American Tribal Communities

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

A tribe of the Northern Sierra Miwok lives just south of West Point. According to the 2010 Census, they number 215, about 5% of the community population. The restoration of Ponderosa Way will provide access to the Mokelumne Canyon from Rich Gulch where one of the County’s last Miwok villages, Apautawilu, thrived until the early 1900’s when it was abandoned.

Climate Change Adaptation or Mitigation

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

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

Click here to enter text.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Ione Clearwell Cover Replacement

Project Location: Ione, 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 Ione Clearwell Cover has numerous pinhole leaks that are possible sources of contamination as identified in various CA DPH annual inspections. Replacement of the old cover will reduce the potential contaminant sources.

☐*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 existing Ione Clearwell Cover has numerous pinhole leaks, replacement of which would maintain and improve the water infrastructure reliability.

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

Description: Click here to enter text.

☐*Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐Agricultural Water Use Efficiency

☐Urban Water Use Efficiency

☐Conveyance – Delta

☐Conveyance – Regional/local

☐System Reoperation

☐Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☐Recycled Municipal Water

☐Surface Storage – CALFED

☐Surface Storage – Regional/local

☒Drinking Water Treatment and Distribution

☐Groundwater Remediation/Aquifer Remediation

☐Matching Quality to Use

☒Pollution Prevention

☐Salt and Salinity Management

☐Urban Runoff Management

☐Flood Risk Management

☐Agricultural Lands Stewardship

☐Economic Incentives (Loans, Grants and Water Pricing)

☐Ecosystem Restoration

☐Forest Management

☐Recharge Area Protection

☐Water-Dependent Recreation

☐Watershed Management

☐Crop Idling for Water Transfers

☐Dewvaporation or Atmospheric Pressure Desalination

☐Fog Collection

☐Irrigated Land Retirement

☐Rainfed Agriculture

☐Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: 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 existing Ione Clearwell Cover is a hypalon, floating cover that was installed nearly twenty years ago. This cover has developed numerous pinhole leaks that are possible sources of contamination as identified in various CA DPH annual inspections. This project would replace the cover with a newer, more resilient material that would protect the quality of the treated water produced by the Ione WTP.
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

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.

Categorical Exemption (Replacement)

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: $ 71,376

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): 20 years

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

Possible Funding Sources: Rates, low-interest loans or 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: Yes, but not yet quantified.

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: Yes, but not yet quantified

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.

Ione Clearwell Cover Replacement - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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: This cover is no longer repairable, replacement is the only option. Replacing the cover with other materials or expanding the clearwell volume by raising the ringwall and utilizing a geodesic dome are all more costly options and involve more environmental work.

5. **Minimize implementation risk**
   - High
     1. Regulatory barriers would include CA DPH, but past replacement projects on other covers have been very simple relative to overcoming any regulatory barriers.
     2. Environmental barriers are non-existent as this project would fall under a Categorical Exemption for replacement.
     3. There are no permits required.
     4. Controversy potential is low based on previous cover replacements elsewhere in the system.
     5. There are no potential project partners yet identified.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: CAWP Tanks Replacement Project

Project Location: Pioneer/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: The tanks proposed for replacement are deteriorating rapidly and have been identified by CA DPH for replacement due to the potential health and safety issues associated with the poor condition tanks.

☐*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: Replaces aging, deteriorating tanks that in most cases have exceeded their life expectancy.

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

Description: Click here to enter text.

☐*Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐Agricultural Water Use Efficiency

☐Urban Water Use Efficiency

☐Conveyance – Delta

☒Conveyance – Regional/local

☒System Reoperation

☐Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☐Recycled Municipal Water

☐Surface Storage – CALFED

☐Surface Storage – Regional/local

☒Drinking Water Treatment and Distribution

☐Groundwater Remediation/Aquifer Remediation

☐Matching Quality to Use

☒Pollution Prevention

☐Salt and Salinity Management

☐Urban Runoff Management

☐Flood Risk Management

☐Agricultural Lands Stewardship

☐Economic Incentives (Loans, Grants and Water Pricing)

☐Ecosystem Restoration

☐Forest Management

☐Recharge Area Protection

☐Water-Dependent Recreation

☐Watershed Management

☐Crop Idling for Water Transfers

☐Dewvaporation or Atmospheric Pressure Desalination

☐Fog Collection

☐Irrigated Land Retirement

☐Rainfed Agriculture

☐Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: 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.

On April 23, 2012 AWA receive a letter from CA DPH that stated, in part, "The condition of some of the storage tanks (CAWP Tank, McKenzie Tank, Alpine Tank No. 1 and Pine Acres Redwood Tanks) has continued to deteriorate. The AWA has ignored the Department's concerns regardin the condition of these tanks and has yet to develop any sort of realistic plan to address this problem. The AWA must invest and improve the condition of the Buckhorn system's distribution storage tanks."
The tanks identified in this letter are beyond repair and will need to be replaced in order to satisfy CA DPH's direction above. Four options were considered; to replace the tanks at the same location/same capacity, same location/ increased capacity [where possible], consolidated locations/same overall capacity, consolidated locations/increased capacity.
This project proposes to consolidate the McKenzie Tank and Alpine Tank No. 1 with a new steel tank of equivalent capacity adjacent to Alpine Tank No. 2; to consolidate the Pine Acres Redwood Tanks into one steel tank of equivalent capacity and repair CAWP Tank.

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 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.

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.

A Categorical Exemption or Negative Declaration will be required.

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: $ 305,000

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): 20 years

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

Possible Funding Sources: Click here to enter text.

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

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

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: 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: 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: 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.

CAWP Tank Replacement Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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 replaces numerous tanks and consolidates some of the tanks into one location. Both the proposed project and the same capacity/same location option will likely require a Categorical Exemption (Replacement) or Negative Declaration. The increased capacity options will likely require a Negative Declaration or Mitigated Negative Declaration.
     2. Social: This project improves operation and maintenance of the system by reducing the level of effort needed for the multiple tanks by consolidating some of them. Additionally, the project will resolve some known pressure issues for homes immediately adjacent to the Mackenzie Tank. Constructability issues associated with the same location options could inconvenience numerous ratepayers as some of these sites (consolidated in the preferred alternative) are on very small, steep lots surrounded by homes.
     3. Economic: Since replacement of these tanks has been mandated by CA DPH, the only alternatives are to replace the tanks are: same location/same capacity, same location/ increased capacity [where possible], consolidated locations/same overall capacity, consolidated locations/increased capacity. The proposed project is the least cost alternative due to the economy of scale by constructing larger and fewer tanks than currently exist.
5. **Minimize implementation risk**
   - High
     1. Regulatory barriers would be minimal.
     2. Environmental barriers would be minimal.
     3. No permitting would be required.
     4. Controversy potential is low.

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: Camanche Wastewater System Improvements

Project Location: 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: Replaces aging collection and force main infrastructure within an unnamed seasonal creek.

☐*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: Replaces aging collection and force main infrastructure within an unnamed seasonal creek.

☐*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: Replaces aging collection and force main infrastructure within an unnamed seasonal creek.

☐*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.

This project would replace Lake Camanche Village Unit 6 Lift Station C, the collection main that delivers wastewater to Lift Station C and the force main that takes wastewater from Lift Station C to the Lake Camanche Wastewater Treatment Plant.
These facilities have outlived their expected lifespan and are showing severe signs of deterioration and impending failure. The proximity of these facilities to a seasonal creek elevates the priority of this project.

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 design for replacement of Lift Station C is complete. The design for the replacement of the mains is in the pre-design phase.

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.

Categorical Exemption (Replacement)

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.

June 2001 – Lake Camanche Village Unit 6 Pump Station ‘C’ Replacement Project Report

Economic Feasibility

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

Capital Cost: $ 720,243

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): 20 years

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

Possible Funding Sources: Click here to enter text.

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

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

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: 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: 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: Yes

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

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

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

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

Camanche Wastewater System Improvements - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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 eliminates potential sources of contamination near an unnamed seasonal creek. The anticipated appropriate environmental document will be a Categorical Exemption (Replacement).
     2. Social: This project removes a potential source of contamination from an unnamed seasonal creek, but traverses between multiple homes. It is anticipated the environmental and infrastructure benefits of the project will offset the inconvenience from construction activities for the ratepayers.
     3. Economic: The proposed project had the best cost/benefit ratio.
5. **Minimize implementation risk**
   - High
     1. Regulatory barriers would be minimal.
     2. Environmental documentation would be a Categorical Exemption (Replacement).
     3. Permitting would not be required.
     4. Controversy potential is medium.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: CAWP Retail System domestic Water Supply and Fire Protection

Project Location: Pioneer, Pine Acres, Ridgewood Acres, Ranch House Estates and surrounding areas in the vicinity of Highway 88, 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: The majority of the water distribution system was constructed in the 1960's and 1970's with approximately half of the pipe 4 inch in diameter or less (42/90 miles). Near 12 miles of distribution pipe is less than 3 inches in diameter. Much of the system experiences low pressure events during the summer months and some portions of the system are not capable of providing adequate fire flow.

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

Description: Click here to enter text.

☐ *Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐ *Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☒Agricultural Water Use Efficiency

☒Urban Water Use Efficiency

☐Conveyance – Delta

☒Conveyance – Regional/local

☐System Reoperation

☐Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☐Recycled Municipal Water

☐Surface Storage – CALFED

☒Surface Storage – Regional/local

☒Drinking Water Treatment and Distribution

☐Groundwater Remediation/Aquifer Remediation

☒Matching Quality to Use

☐Pollution Prevention

☐Salt and Salinity Management

☐Urban Runoff Management

☐Flood Risk Management

☐Agricultural Lands Stewardship

☒Economic Incentives (Loans, Grants and Water Pricing)

☐Ecosystem Restoration

☐Forest Management

☐Recharge Area Protection

☒Water-Dependent Recreation

☐Watershed Management

☐Crop Idling for Water Transfers

☐Dewvaporation or Atmospheric Pressure Desalination

☐Fog Collection

☐Irrigated Land Retirement

☐Rainfed Agriculture

☐Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: 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 proposed project is intended to improve domestic water service pressure and flows as well as fire protection through water storage and distribution improvements. The project will include prioritized improvements of a 650,000 gallon treated water storage tank, 2,580 lf 12 inch pipe, 23,720 lf 8 inch pipe, 2 pressure reducing stations, 54 fire hydrants and a pump station for current cost estimate of $2,633,86.

Project Status: Planning

Readiness to Proceed

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

The project is still in the planning phase with computer analysis of the distribution system 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.

The majority of the work would be performed in the public right of way and it is anticipated that there would be minimal environmental concerns. Environmental review has not yet begun.

Multi-entity Integration and Benefits

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

N/A

Technical Feasibility

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

1995 Master Plan and Connection Fee Study- 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: $ $2,633,861

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): Pipe 75 years, pump station and Pressure Reducing Station 25 years

Cost Basis (if not 2011 dollars): Brought forward to 2011 costs based onteh ENRCCI

Possible Funding Sources: Grants, Loans, Participation Fees and rates

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 this service area qualify as disadvanged communities (including Pioneer and Pine Grove areas). This communities will continue to experience inadequate water system pressures and substandard fire hydrant flows (current standards) without this project proceeding.

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 Retail Distribution Domestic and Fire Flow Improvements

Additional Information

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

P4 Goal:

1. This remains as a priority project for the Water Agency in providing quality service and meeting minimum state requirements for domestic pressures. The improvement of pressures and fire protection for existing customers meets with no conflict. Given some of the areas are disadvantaged communities, the cost for providing these improvements is challenging. The Water Agency has taken the position that outside funding is necessary in order for these proposed projects to proceed.

Evaluation Criteria

#8 Minimize Implementation Risk

Score: High. Most of this project will be installed in the public right of way with little to no environmental impacts. The focus has been on providing improved service to existing customers; however, if development projects are approved in the vicinity of the project, it is anticipated that they would need to share in the costs of the project or even upgrade some portion of the system, as delineated in the Master Plan, to enable service to their project. In this fashion, the project would not be considered growth inducing and in general supported by the customers. There is no known concern that would place a risk on the implementation of this project other than a cost to existing customers. The Water Agency recognizes the need for outside funding to make this an affordable project for those disadvantaged areas within the project site.

#10. Best Project for the Intended Purpose

Score: High. The completed Master Plan for this project utilized computerized hydraulic programs to arrive at the proposed improvements. There are other configurations that could meet the project objectives; however, the proposed improvement list was defined as the best overall project from a social, environmental and economic perspective. The Water Agency recognizes the need for outside funding to make this an affordable project for those disadvantaged areas within the project site.

Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** Yes, given that most all infrastructure is planned to be placed in existing traveled ways.

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.

Upper Mokelumne River Watershed Authority

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

PLEASE SUBMIT COMPLETED FORMS BY JANUARY 20, 2012

Questions and completed forms should be directed to:
Alyson Watson
RMC Water and Environment
415-404-6442
awatson@rmcwater.com

Proposed Project

Project Title: CAWP Disinfection By-Product Reduction Project

Project Location: Buckhorn Water Treatment Plant

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: Reduce Disinfection By-Products (HAA5 and TTHM) which are known carcinogens within the CAWP distribution system.

☐*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: Backwash water recycling is a component of the proposed backwash management plan.

☐*Goal*: Develop appropriate drought mitigation measures.

Description: Click here to enter text.

Policy 3: Practice Resource Stewardship

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

Description: Click here to enter text.

☐*Goal:* Minimize adverse effects on biological and cultural resources.

Description: Click here to enter text.

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

Description: Click here to enter text.

Statewide Priorities

Please check all that apply.

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

Resource Management Strategies

Please select all that apply to your project.

☐Agricultural Water Use Efficiency ☐Urban Water Use Efficiency

☐Conveyance – Delta

☒Conveyance – Regional/local

☒System Reoperation

☐Water Transfers

☐Conjunctive Management & Groundwater Storage

☐Desalination

☐Precipitation Enhancement

☒Recycled Municipal Water

☐Surface Storage – CALFED

☐Surface Storage – Regional/local

☒Drinking Water Treatment and Distribution

☐Groundwater Remediation/Aquifer Remediation

☒Matching Quality to Use

☐Pollution Prevention

☐Salt and Salinity Management

☐Urban Runoff Management

☐Flood Risk Management

☐Agricultural Lands Stewardship

☐Economic Incentives (Loans, Grants and Water Pricing)

☐Ecosystem Restoration

☐Forest Management

☐Recharge Area Protection

☐Water-Dependent Recreation

☐Watershed Management

☐Crop Idling for Water Transfers

☐Dewvaporation or Atmospheric Pressure Desalination

☐Fog Collection

☐Irrigated Land Retirement

☐Rainfed Agriculture

☐Waterbag Transport/Storage Technolog

Responsible Agency Information

Contact Name: 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.

Compliance with Stage 2 DBP Rule will be required of all water purveyors by January 2013 with compliance testing to begin later that year.
In order to achieve compliance, the Buckhorn WTP and CAWP distribution system must be modified. Six alternatives were evaluated in June 2012 report for DBP removal effectiveness, capital and operating costs and complexity of installation and operation.
The recommended alternative is to:
Remove Total Organic Carbon via Aluminum Chloro-Hydrate
Reduce Chlorine Does by reducing CT
Reduce Water Aging in the CAWP Tank System
Further, due to the addition of ACH to the treatment process, new backwash handling methodology will be necessary and will be achieved via recycling and sludge drying beds.

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 DBP and BW reports should be completed by June 2012 with conceptual recommendations and phasing plans included.

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.

Negative Declaration or Mitigated Negative Declaration will be required.

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.

June 2012 DBP & BW Reports

Economic Feasibility

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

Capital Cost: $ 500,000

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): 20 years

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

Possible Funding Sources: Click here to enter text.

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

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

Water Supply Avoided Costs

Avoided Pumping / Conveyance Costs: 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: 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 DBPs.

Reduction in pollutant transport: Click here to enter text.

Resource Stewardship Benefits

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

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

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: N/A

Other: Click here to enter text.

Disadvantaged Communities / Environmental Justice

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

Click here to enter text.

Native American Tribal Communities

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

Click here to enter text.

Climate Change Adaptation or Mitigation

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

Click here to enter text.

CAWP Disinfection By-Product Reduction Project - Additional Assessment Criteria

1. **Does the project minimize adverse effects on cultural resources?** N/A

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 addresses both the Stage 2 DBP Rule as well as Backwash management for the Buckhorn WTP. Many different options were analyzed; however all had relatively the same environmental requirements and impacts. The anticipated appropriate environmental document will be either a Negative Declaration or Mitigated Negative Declaration.
     2. Social: This project removes known carcinogens from the CAWP distribution system. Many different options were analyzed; however all had relatively the same effect. However, the proposed project had the best cost/benefit ratio.
     3. Economic: The proposed project had the best cost/benefit ratio.
5. **Minimize implementation risk**
   - High
     1. Regulatory barriers would be CA DPH and RWQCB.
     2. Environmental documentation would be a Negative or Mitigated Negative Declaration.
     3. Permitting would include an amendment to the Buckhorn WTP Permit and the existing Backwash WDR.
     4. Controversy potential is low.