



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Home-Level Water Conservation for the DAC

Project Location: Entire MAC IRWM Region

Project Type: Implementation

Project Proponent Information

Contact Name: Craig Case, Energy & Water Conservation Program Director

Affiliation: Amador Tuolumne Community Action Agency

Address: 935 S. Hwy 49 Jackson, CA 95642

Phone: 209-984-3684

Email: ccase@atcaa.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

X *Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

X *Goal:* Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

X Drought Preparedness

X 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

X Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| X Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | X Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| X Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Project will conduct outreach, take applications, perform water usage assessments, develop a list of water conservation measures that can be cost-effectively installed, and install water conservation measures in the homes of disadvantaged community members who live within the Amador, Calaveras and Mokelumne watersheds in Calaveras and Amador Counties. The project will conserve water and stabilize or lower water rates to supply affordable drinking water to members of the disadvantaged community (DAC).

The project location is the entire Mokelumne-Amador-Calaveras watersheds region that is within Amador and Calaveras Counties, wherever members of the DAC reside.

Water conservation is a critical component of any project that seeks to improve water supply, water supply infrastructure or environmental conditions throughout the region. The measures that this project will install are generally beyond the financial wherewithal of the DAC and will provide the region with the means to conserve water that otherwise would not be addressed.

Project Status: Design Complete

Readiness to Proceed

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

This project requires no additional planning, design or environmental documentation. It is similar to a project that has received a grant award for the Tuolumne-Stanislaus Integrated Regional Water Management Authority and therefore requires no additional planning or design. The mechanisms for intake of applicants and the provision of the services described has already been put in place in this region by the project proponent.

Multi-Agency/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 linked to any other, but its benefits extend to all water districts in the region by reducing consumption.

Technical Feasibility

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

The project concerns home-level water conservation only and requires no further study. This project is already proven to be feasible by the project proponent, which has similar work in progress.

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ This is not a planning project. It is 100% implementation.

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$15,000 annually

Annual O&M Costs: \$ 60,000

Estimated Project Life (Years): 4

Cost Basis (if not 2015 dollars):

Possible Funding Sources: This current grant cycle.

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 in the next section, 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, year, and benefit cost ratio):

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: Acre-feet

Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other: Water Supply Benefit - Reduction of consumption. This project seeks to conserve water at the home level, in homes whose occupants are identified as DAC. The main benefit is reduced demand but this benefit is impossible to quantify prior to implementation. ATCAA would take applications from members of the DAC and apply our State-approved prioritization system in order to serve the lowest level of the DAC first. This usually means we would work on homes that are in disrepair and water leak detection and repair would be a primary goal at each home. Leaks can be very significant in some situations and the amount of water being lost is unknown and impossible to quantify until the work is completed or the client receives their next water bill. This also makes budgeting difficult because some leaks will require extensive repairs. In addition to leak detection and repair, ATCAA would replace high-consumption dishwashers and washing machines with modern, Energy Star appliances, as well as replacing high consumption toilets with modern, low-flow units. Last, ATCAA would assess the landscaping of each home to determine if there is an opportunity to save a significant amount of water by repairing or replacing sprinkler systems with drip systems and also making sure any system used for watering the landscaping is efficient and does not “overspray” the landscaping. A secondary goal of this project is to educate the members of each household in water conservation techniques in order to make sure their consumption habits are permanently changed so that conservation is always a main factor when deciding how much water to use in every situation.

Disadvantaged Communities / Environmental Justice

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

This project is exclusively for the disadvantaged community. The Amador Tuolumne Community Action Agency is an advocate for the Disadvantaged Community and strongly desires to offer help to this population in the form of water conservation measures and education. It should be considered that the members of the DAC often think of water conservation as someone else’s problem. Most water districts devise rate plans that have a low cost tier for members of the DAC, but water conservation is not their primary concern, if it is a

concern at all. The DAC is comprised of a disproportionately high incidence of renters, and most water districts make the homeowner responsible for the water bill. Therefore, it is extremely important to directly address the DAC in any effort to conserve water, to conserve supply at the district level or to reduce the need to develop new supply.

Native American Tribal Communities

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

In so far as the Native American Communities can be included in the description of the Disadvantaged Community, they will receive assistance through this project.

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.

Climate change is usually described as a result of global warming. Global warming exacerbates droughts and reduces supply. Water conservation is key to surviving climate change, particularly in California where the water supply is already overtaxed.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. Any plan that seeks to improve water supply must include a conservation element as well as projects that directly benefit the Disadvantaged Community.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Water conservation is not controversial and has no institutional barriers. There is virtually no potential for a legal challenge and this project has no partner proponents.



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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Amador County Long Term Water Needs Study

Project Location: Amador County

Project Type: Planning

Project Proponent 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): Could include The County of Amador, All Cities in Amador County and vicinities including the Cities and communities of Jackson, Sutter Creek, Lone, Lake Camanche Village, Amador City, Plymouth, Shenandoah Valley, Jackson Valley Irrigation District, Pine Grove, Pioneer, Volcano, Fiddletown, and other unincorporated 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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input checked="" type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

A comprehensive study is needed to determine the long term water needs in Amador County. This study needs to take into account current and future demands coupled with when and where additional facilities will be needed to address the anticipated water need. Development of future water sources is also needed as well as a method for providing them. Focus also needs to be on wastewater reclamation for agricultural reuse and irrigation needs, groundwater use and groundwater banking, alternative surface water sources and supplies, and conservation. Fire protection also needs to be a continuing undercurrent in the study to determine Amador County's long term water needs.

Amador County has limited water supply options. Prior review of Genral Plans concluded that Amador County would need an additional 20,000 A.F./year for municipal / industrial demands.

Agricultural demands will increase water demand. Jackson Valey Irricagtion Districthas reported that they are unable to supply water to all lands within their district.

The Amador Water Agency has adopted a 3 prong approach to meeting water supply needs: conservation, reuse, and new water supply projects.

The Amador Water Agency wishes to complete a comprehensive long term water needs study. The study will be followed by an application portfolio of targeted programs timed to meet demands.

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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 study will benefit the County of Amador and the cities and unincorporated areas it contains.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$250K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ Annual

O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: TBD

Acre-feet Per Year of Reduced Demand: TBD

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: TBD

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions: TBD

Other:

Disadvantaged Communities / Environmental Justice

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

This project will benefit the DAC's of Amador County – Jackson, Lake Camanche, Sutter Creek, Plymouth, Amador City and Drytown

Native American Tribal Communities

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

This project will benefit the Jackson Rancheria Band, The Buena Vista Band, and the Lone – Jackson Valley Band of Mi-Wuk Native Americans.

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.

TBD

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is a study. The alternative is a study is not completed and no perspective is gained.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This project is a study with no risk or project implementation.



**Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Amador Water Agency Low Pressure Fire Flow Improvements

Project Location: Amador County – Ione (38° 21' 9.688" N Lat 120° 55' 57.783" W Long)
Sutter Creek (38° 23' 34.683" N Lat 120° 48' 8.768" W Long) Pioneer (38° 25' 54.768" N Lat
120° 34' 18.738" W Long)

Project Type: Planning and Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 distribution systems for the Amador Water Agency are old, antiquated, undersized, and various locations suffer from low pressure in the summer. This leaves certain communities in the system with minimal water supply and inadequate fire protection or suppression supply. Much of the distribution system in the Pioneer area is less than 4 inches in diameter with large sections of 2 inch pipe. AWA also needs to evaluate system pressure and fire flow needs throughout its entire distribution system and how best to meet those needs. This project will identify, prioritize and provide for the design, replacement and modifications to the water supply systems within the community to improve water supply delivery and meet minimum fire flow requirements. This will be a phased project evaluating and prioritizing needed throughout The Agency's distribution system. Phase one will include improvements along Buckhorn Ridge Road and in the Tank B distribution zone. Water purveyors with the Central Amador Water

Project (CAWP) and the Amador Water Agency will be active participants. Amador County – lone (38° 21' 9.688" N Lat 120° 55' 57.783" W Long) Sutter Creek (38° 23' 34.683" N Lat 120° 48' 8.768" W Long) Pioneer (38° 25' 54.768" N Lat 120° 34' 18.738" W Long)

Project Status: Conceptual Design

Readiness to Proceed

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

Phase one of the project is ready to move to design and environmental.

Multi-Agency/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.

lone, Plymouth, Jackson, Sutter Creek, Martell, Amador City, Drytown, Pine Grove, Rabb Park Estates, and First Mace Meadows Water District would benefit from the identification of distribution system improvements and their completion.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$50K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ \$500K - \$750K

Annual O&M Costs: \$ TBD

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: Flow capacities within the system anticipated to be increased to a minimum of 1000 gallons per minute for improved fire flow and pressures for domestic purposes will be increased to greater than 20 psi for all water supply scenarios

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

The cities of Jackson, Sutter Creek, Plymouth, Martell, and the community of Drytown are disadvantaged communities as are some communities in and around Pioneer, and along Ridge Road. All would benefit from improved fire flow and distribution system improvements.

Native American Tribal Communities

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

The Amador Water System (AWS) serves the Jackson Band of Mi-Wuk Indians who would benefit from distribution system improvements.

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

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. As an aside, it is assumed most infrastructure improvements would occur in already existing pipe trenches dramatically reducing the potential environmental impact.

2 – Social: This project is the least costly alternative to implement and should therefore be the most socially acceptable to the ratepayers. Improving existing infrastructure also benefits the

ratepayer in many ways and this is seen in a positive light. The alternative is there is no project, which would mean continuing to provide inadequate water supply, substandard pressures, and 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 ratepayers cannot bear the full financial burden of this project.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Controversy potential is low. The improved distribution system piping and the multiple benefits it will provide will be seen as a positive improvement to communities. Fire protection is an important concern in Amador County and well supported by the community.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Camanche Area Regional Water Supply Project Phase II (CARWSP II)

Project Location: Lake Camanche Village (38° 17' 50.488" N Lat 120° 57' 17.725" W Long)

Project Type: Planning and Implementation

Project Proponent 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): East Bay MUD, Calaveras County Water 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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

In 2011 The Amador Water Agency (AWA) partnered with East Bay MUD (EBMUD) and Calaveras County Water District (CCWD) to prepare the Camanche Area Regional Water Supply Plan (CARWSP). CARWSP identified preferred regional projects that would correct the critical drinking water quality issues in the Camanche Area. The overall purpose of the initial phase of CARWSP was to identify water supply sources potentially available to improve the water supply reliability to meet both current and future water demand.

Through discoveries made in identifying sources of supply it was determined conjunctive use would best serve The Amador Water Agency. AWA could make use of surface water supply from East Bay MUD's new water treatment plant, which is being installed during CARWSP Phase I, to blend with its current groundwater supply in order to meet current and future demands. This project seeks to implement CARWSP Phase II.

Amador Water Agency's groundwater system in Lake Camanche consists of 4 wells, 6 tanks (0.58MG), and 4 booster pump stations. Wells 6, 9, and 12 and their associated redwood tanks were installed over 25 years ago. Well 14 is our newest well and was installed in 2007. All of these wells have exhibited sporadic reliability over the years with Wells 6 and 12 losing a dramatic amount of flow in the early 2000's. Well 12's flow rate went from 300+GPM to 100 gpm. Well 6 went from 250+ GPM down to 130 and also suffers from large drawdowns in summer, and due to storage and pressurization problems it can only run for a portion of each day. Wells 9 and 14 are the best producing wells with flows of 300 gpm and 270 gpm respectively but both wells will fail bacteriologic samples when pumped at higher flow rates and well 14 also has increasing levels of iron and iron bacteria. These well issues, greatly inhibit the Amador Water Agency's Lake Camanche system from being able to meet both near and long term peak demand requirements for approved development. A treated surface water source (CARWSP II) will allow the Amador Water Agency to reduce growing demands on groundwater.

CARWSP Phase II would connect to EBMUD's treated surface water via an intertie valve and would pump the water to a 1MG storage tank at the Tank 9 site. AWA would then be able to abandon wells 6 and 12 and reduce the output of wells 9 and 14 and blend surface water with groundwater. This project would eliminate the contamination issues associated with well over draft, allow the aquifer to recharge, manage groundwater resources, and provide an adequate supply with better quality to the ratepayers of Lake Camanche in both the short and long term.

Lake Camanche Hills Estates (38° 17' 50.488" N Lat 120° 57' 17.725" W Long)

Project Status: In Design

Readiness to Proceed

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

In design

Multi-Agency/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.

CARWSP partners include AWA, CCWD, and EBMUD. CARWSP Phase II will expand treated surface water to the Lake Camanche Village which is a disadvantaged community.

Technical Feasibility

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

2012 CARWSP Alternatives Evaluation

Tammy Quails, P.E.

Lindsey Wilcox

RMC

2013 Camanche Area Regional Water Supply Plan (CARWSP) Feasibility Study and Conceptual Design

Lindsey Wilcox – RMC

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$6.5 Million

Annual O&M Costs: \$

Estimated Project Life (Years): 50

Cost Basis (if not 2015 dollars): 2012

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio): 2012 CARWSP: Alternatives Evaluation Tammy Quails P.E., Lindsey Wilcox - RMC

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: 1,120 AFY

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

This project will provide a better quality, more reliable and safer water supply to the residents of Lake Camanche – a disadvantaged community

Native American Tribal Communities

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

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. Having the ability to connect to a treated surface water supply will be seen as a benefit to the community in terms of water quality and supply. The project will follow existing roadways whenever possible to minimize environmental impact if applicable. Economically, this project is a viable long term option designed to remove questionable water supply quality and yield from groundwater sources in the Lake Camanche area.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This is a well-studied and well thought – out solution to a long term problem in Lake Camanche and would be met with a low degree of controversy and minimum environmental concerns.



**Mokelumne/Amador/Calaveras (MAC)
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Project Information Sheet**

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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: CAWP & AWS Intertie

Project Location: Ridge Road (38° 24' 1.508" N Lat 120° 43' 57.014" W Long) New York Ranch Road (38° 23' 59.389" N Lat 120° 43' 56.937" W Long)

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 primary source for the Amador Water System (AWS) and the Central Amador Water Project (CAWP) is the Mokelumne River. The River is diverted at two different locations – Lake Tabeaud and the Tiger Creek Afterbay, respectively. If a significant failure occurred in one of these systems, it could result in a major water supply shortage for those served by the system since they each supply large areas Amador County. The Amador Water System does not have a redundant source supply facility. With the addition of the Gravity Supply Line, the CAWP system will have a back-up raw water pump station supply for the short term, however, the pump stations are not capable of providing an adequate raw water supply to the water treatment facility in an emergency and due to age, cost, and reliability will be decommissioned within the next five years.

A two-mile pipeline and appurtenances that intertie the AWS and CAWP systems would be constructed in order to provide redundancy and emergency backup supply. During peak

periods, emergency facility failure, or drought conditions, the intertie will allow water transfers from one system to the other. The CAWP system would deliver water via gravity to the AWS and the AWS would pump water to the CAWP system in times of need. This will improve water reliability, water security, and maximize existing water rights and storage between the two systems for the benefit of users of both systems. It will ensure an available water supply for Native Americans and Disadvantaged Communities and also expand fire protection along the central Amador County area between the two systems. Project cost estimates are preliminary. The location for the pipeline and intertie would be in Amador County, in the New York Ranch Road, Ridge Road, and Climax Road area. Ridge Road (38° 24' 1.508" N Lat 120° 43' 57.014" W Long) New York Ranch Road (38° 23' 59.389" N Lat 120° 43' 56.937" W Long)

Project Status: Conceptual Design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of planning, 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.

Multi-Agency/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 Amador Water Agency provides water service on a retail and on a wholesale basis. Wholesale customers include Cities of Plymouth and Jackson, and also include 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.

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$250K – predesign, environmental, and plans and specs

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$2.5 Million (preliminary)

Annual O&M Costs: \$ Unknown

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

Cost Basis (if not 2015 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 in the next section, 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, year, and benefit cost ratio):

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:

Disadvantaged Communities / Environmental Justice

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

Portions of both the CAWP system and the AWS have disadvantaged communities. The cities of Sutter Creek and Martell (Retail) are disadvantaged communities as well as Jackson, Drytown, and Plymouth (Wholesale). Providing an intertie between the systems provides a more reliable water supply for all of these communities.

Native American Tribal Communities

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

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

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 both raw and treated water storage which will aid in the adaptation to climate change.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. The proposed project would provide redundancy through the intertie of two water 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.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: CAWP Fire Protection Project

Project Location: Mace Meadows area (38° 24' 20.441" N Lat 120° 38' 46.505" W Long) down to Sunset Heights area (38° 24' 51.084" N Lat 120°41' 43.801" W Long) along HWY 88

Project Type: Planning

Project Proponent 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@amadowater.org

Other Participating Agencies (if applicable): Could include First Mace Meadows Water District, Rabb Park Estates CSD, and Pine Grove CSD

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Central Amador Water Project (CAWP) water system is located in and around 3000' elevation in the Sierra Nevada Mountains next to the El Dorado National Forest. Most of the CAWP distribution system is located in heavily forested areas and the possibility of wildfire is an ever present danger and a very real possibility. The Fire Hazard Severity Zone Map in SRA adopted by CALFire on November 7th 2007 places the entire CAWP system in the "Very High Fire Danger" severity zone. The State of California's most severe fire danger ranking.

The majority of the CAWP distribution system was constructed in the 1960's and the 1970's with approximately half of the pipe 4" diameter or less (42/92 miles). Nearly 12 miles of the distribution system piping is less than 3" 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. It is not uncommon to have a 2" water main feeding a 1.5"

standpipe. In the event of a fire, pipe and hydrants like these would not be able to provide an adequate water supply for fire protection. This project would create a hydraulic model of the entire wholesale and retail CAWP system which would then facilitate the hydraulic improvements the CAWP distribution system needs in order to achieve the best available fire protection for homes and properties. This will also provide support for fire protections agencies within the region.

Project Status: Planning

Readiness to Proceed

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

Ready to begin a study as soon as funds become available.

Multi-Agency/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 would benefit the Amador Water Agency's retail customers as well as whole sale customers First Mace Meadows Water District, Rabb Park Estates CSD, and Pine Grove CSD

Technical Feasibility

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

FRAP – Fire Hazard Severity Zones in SRA adopted November 7th 2007

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$150K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: Acre-feet

Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

Native American Tribal Communities

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

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This study, including a hydraulic model, would provide truly needed perspective in how best to improve the CAWP System for fire flow protection. Fire flow protection benefits the ratepayer, the environment and protects the economic integrity of the community.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. As this is a study designed to create a hydraulic model to better address fire protection within the communities served by the CAWP System, there is little to no risk of implementation.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: CAWP Gravity Distribution Line

Project Location: Buckhorn (38° 26' 50.272" N Lat 120° 31' 53.131" W Long) Area

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

This project will eliminate pumping costs and energy consumption by installing a gravity pipeline. In the current method of operation, the Buckhorn Water Treatment Plant pumps finished water by way of two High service pumps up to a main distribution Tank A which then feeds the immediate area via a Tank B, then approximately 20 other distribution system tanks as the water makes it's way downcountry. This method of operation is expensive, troublesome and inefficient. This project proposes to install a transmission Line from the Buckhorn Water Treatment Plant approximately 1 mile down highway 88 where it could reconnect with the CAWP transmission line fed by gravity from Tank A eliminating the need for service pump runs to Tank A from the water treatment plant and reducing system flow and pressure inefficiencies. This will save the Amador Water Agency pumping costs, and provide a more adequate and reliable water supply flow and pressure to tanks and ratepayers downcountry and will in turn eliminate the over taxing of the Tank A distribution system. Buckhorn (38° 26' 50.272" N Lat 120° 31' 53.131" W Long)

Project Status: Planning

Readiness to Proceed

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

Ready to proceed with design

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$50K – pre design study

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: prop1, federal and state 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 in the next section, 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, year, and benefit cost ratio):

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: Acre-feet

Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: This project will eliminate approximately 3.6 million kilowatt hours of energy by eliminating the need to pump water. This equates to a co2 emissions reduction of 2,482 metric tons or an elimination of 523 passenger cars from the road.

Other:

Disadvantaged Communities / Environmental Justice

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

Various tracts of communities served by the CAWP system are disadvantaged communities.

Native American Tribal Communities

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

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 will eliminate the need to pump water for an annual electrical savings of 3.6 million kWh. This is equivalent to 2,482 metric tons of co2 emissions which equates to taking 523 passenger cars off the road.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project seeks to eliminate energy demands by installing a gravity pipeline. The only alternative is we continue to pump water

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. The CAWP Gravity Distribution Line would be installed along Highway 88 which is expected to have minimal environmental concerns. This project saves energy and improves water system supply and reliability. The degree of controversy is expected to be minimal.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: CAWP Tanks Replacement and Consolidation Project

Project Location: Pioneer area (38° 25' 54.678" N Lat 120° 34' 18.738" W Long)

Project Type:

Project Proponent 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): Could Include Rabb Park CSD, First Mace Meadows Water District, and the town of Pine Grove

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 check all that apply.

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Central Amador Water Project (CAWP) is a compilation of water systems that have been consolidated over time to form the CAWP system. The distribution system for CAWP has 27 tanks totaling 4.8 MG of available storage serving AWA's retail customers and three wholesale customers, First Mace Meadows Water District, Rabb Park Estates CSD, and Pine Grove CSD. Many of these tanks within this system have reached the end of their useful life. The structural steel of some of these tanks have reached a point where their structural integrity is questionable and they have developed leaks and leaks continue to develop at an increasing rate over time. Because of these facts, CADPH has urged the Amador Water Agency to find ways to replace and eliminate tanks within the CAWP system not only to reduce the threat of potable water contamination due to Tank leakage into the tank which can introduce animal feces from birds, bats, rats and other small animals, but also tank leakage from out of the tank resulting in water losses. This project will improve fire protection and eliminate the many safety hazards associated with failing infrastructure.

To feed the distribution system, treated water is pumped up to Tank A from the Buckhorn Water Treatment Plant by way of a transmission line. Tank A then feeds the majority of the other tanks within the CAWP system, including Tank B which feeds the town of Pioneer. This transmission line also feeds other tanks. Some of them serve the homes and businesses in the Silver Lake Pines Subdivision. There are 540 active service connections and 100 stand-by connection within the subdivision fed by 4 storage tanks, 2 hydropneumatic tanks, and four PRV's.

This project proposes to remove one Tank at the Tank A site (Tank B), and build a large 2 MG tank at the site to replace Tank A. This new Tank A storage would facilitate the removal of three of the four tanks within the Silver Lake Pines Subdivision, Alpine 1, McKenzie Tank, and Madrone Tank. This would eliminate three tanks within the CAWP system that are failing and move their storage to the new 2 MG tank.

The Mt Crossman Tank site has a pump station that feeds 7 other tanks and two wholesale customers. AWA would also like to place one new larger tank fed by this pump station which would facilitate the elimination of CAWP Tank, Franks Tank, and Rabb Tank (Wholesale Customer) to comply with the Department of Public Health's recommendation to eliminate failing tanks within the CAWP system with new, reliable infrastructure thus eliminating sources of potable water contamination, and safety hazards all while greatly reducing O&M costs associated with Tank and appurtenance maintenance Pioneer area (38° 25' 54.678" N Lat 120° 34' 18.738" W Long).

Project Status: Conceptual Design

Readiness to Proceed

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

Conceptual Design

Multi-Agency/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 would also benefit the Rabb Park Estates Subdivision

Technical Feasibility

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

2005 – Alpine Water System Analysis as part of the consolidation study – Ken Zeier AWA

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$100K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$2.5 Million

Annual O&M Costs: \$

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio): The front – end cost for two new tanks would be offset quickly over time due to the reduction in O&M of 5 tanks far beyond their useful life.

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: approx.. 3 AFY

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: TBD

Other:

Disadvantaged Communities / Environmental Justice

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

Native American Tribal Communities

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

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This is the most cost-effective plan to reduce the number of old and failing tanks within the CAWP system while nominally increasing the volume of available treated water supply.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. New infrastructure to replace old infrastructure will be seen as a positive improvement to the CAWP system. Environmental concerns are understood to be minimal as this project would focus on the removal of old and failing infrastructure.



**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:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Community Leachfield Groundwater Nitrate Study

Project Location: Amador County – (Pine Grove (38° 24' 48."066 N Lat 120° 39' 32.873" W Long) and Pioneer (38° 25' 54.678" N Lat 120° 34' 18.738" W Long) areas

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Amador Water Agency operates nine small community leachfield systems. Some of these systems' monitoring wells (particularly Wildwood Estates Leachfield System) have showed continuing nitrate level increases over time. The Agency would like to complete study that analyzes nitrate level rise in all of the community leachfield systems they operate to develop a course of action for the best possible long term solution to minimize nitrate level rise in the systems which might otherwise exceed state levels. Amador County – (Pine Grove (38° 24' 48."066 N Lat 120° 39' 32.873" W Long) and Pioneer (38° 25' 54.678" N Lat 120° 34' 18.738" W Long) areas

Project Status: Planning

Readiness to Proceed

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

This study could begin as soon as funding becomes available.

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$100K

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Federal / state 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 in the next section, 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, year, and benefit cost ratio):

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: This study would direct this course of action to ensure nitrate levels do not exceed state standards.

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

Some of the 9 leachfield systems are in disadvantaged communities

Native American Tribal Communities

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

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This study will help develop a course of prevention of further degradation of groundwater plumes at the 9 community leachfield sites. This study will help direct the best course of action for leachfield remediation to prevent nitrate loading of groundwater.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Minimal implementation risk as this is a study to address nitrate level rise remediation / prevention. There are no know obstacles at this time.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Conservation Plan Implementation Project

Project Location: Amador Water Agency (38° 22' 53.673" N Lat 120° 47' 15.123" W Long)

Project Type: Implementation

Project Proponent 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): University of California Cooperative Extension, Foothill Conservancy

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

This project is seeking funds to implement various components of The Amador Water Agency's Conservation Plan to further water conservation in Amador County. California is entering its fourth year of drought and Governor Jerry Brown has declared a drought state of emergency. Amador County is located in rural central California with some of the state's oldest communities, some dating to the 1850s. There is significant potential for replacing existing non-efficient indoor appliances and fixtures as the overwhelming majority of homes and commercial buildings were constructed prior to the widespread use of water efficient plumbing fixtures. The Amador Water Agency proposes to capture water savings by providing plumbing retrofits, including free high-efficiency showerheads, and rebates for high-efficiency washing machines, toilets and commercial/industrial restroom fixtures, that meet the current water efficiency standards. The Agency would also like to utilize this program to provide incentives for turf replacement with xeriscape landscaping. Outreach about the program in the form of advertising, public

relations, community events and classroom education will additionally emphasize the value of water conservation. This project would also fulfill several goals included in the Amador Water Agency's Water Conservation Plan, mandated by the California Department of Water Resources.

The Amador Water Agency would like to give out 1,750 free showerheads, provide 315 \$75 rebates for high efficiency clothes washers, provide 135 \$50 rebates for high efficiency toilets, provide 45 \$100 rebates for commercial restroom fixtures, and finally, would offer a rebate of \$2.00 / sq. ft for 15,000 sq. ft. of turf.

Project Status: Design Complete

Readiness to Proceed

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

This project is ready to implement.

Multi-Agency/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 will benefit the communities of Jackson, Sutter Creek, Lone, Plymouth, Martell, Amador City, Drytown, Pioneer, Sunset Heights, Pine Grove, Jackson Pines, Rabb Park Estates, and First Mace Meadows Water District

Technical Feasibility

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

2010 - Amador Water Agency Conservation Plan

2003 – Residential Indoor Water Conservation Study: Evaluation of High Efficiency Indoor Plumbing Fixture Retrofits in Single – Family Homes – EBMUD and the US EPA

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$169,649

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio): Amador Water Agency Conservation Plan
2003 – Residential Indoor Water Conservation Study: Evaluation of High Efficiency Indoor Plumbing Fixture Retrofits in Single – Family Homes – EBMUD and the US EPA*

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: TBD

Acre-feet Per Year of Reduced Demand: TBD

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: approximately 10.6 metric tons of Co2, or an elimination of 2.2 passenger vehicles from County roadways

Other:

Disadvantaged Communities / Environmental Justice

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

This project will benefit the DAC's of Jackson, Sutter Creek, Martell, Amador City, Plymouth, and Drytown

Native American Tribal Communities

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

This project will benefit the Jackson Rancheria Band of Mi-Wuk Native Americans

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 is a responsible approach to water conservation. In light of the current extreme drought, it is a very timely project. The Amador Water Agency anticipates a reduction in water demand to be 38.7 AFY, which equates to a 10.6 metric ton equivalent for co2 emissions, or an elimination of 2.2 passenger vehicles from Amador County roadways. Providing incentives for turf replacement with xeriscape landscaping also ensures long-term water conservation.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project addresses conservation needs comprehensively. It provides economic incentives to the ratepayers, reduces the Amador Water Agency's impact on the environment, and provides more water to watershed users downstream. No other conservation plan exists currently that addresses all of these issues this effectively.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. There aren't any foreseen social, environmental, or permitting obstacles for this project. There are economic incentives for ratepayers within this project which greatly reduces the potential for controversy, legal challenges, and potential partners' uncertainty.



**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:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Floating Covers Replacement Project

Project Location: Lone WTP (38° 21' 2.072" N Lat 120° 55' 3.680" W Long) Tanner WTP (38° 22' 56.492" N Lat 120° 47' 17.983" W Long) Jackson Pines Tank (38° 20' 4.111" N Lat 120° 40' 0.83" W Long) Ranch House Tank (38° 24' 8.389" N Lat 120° 36' 46.32" W Long)

Project Type: Planning and Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Amador Water Agency has four floating covers over treated water storage facilities. One is at the lone Water Treatment Plant and a second is at the Tanner Water Treatment Plant. The other two act as floating covers at Jackson Pine Tank and Ranch House Tank and are actually incorporated with the wall and floor lining of the tanks. All of these covers are made of hypalon (chlorosulphonated polyethylene) and are prone to pinhole leaks on the surface and cracks in the folds where water, debris, and dead animals can collect. These issues compromise the public water supply and are possible sources of contamination as identified in various CA DPH annual inspections. The California Department of Public Health no longer allows floating covers to be installed on treated water storage supplies. To maintain these covers, it is necessary to keep small, submersible pumps on top of these covers in order to pump off rain water and reduce the potential for contaminant infiltration through these leaks. The Ranch House and

Jackson Pines covers have gutters within them that convey rain water and debris down through the tanks. These also pose a threat to the water supply as the gutters can develop leaks. Debris from trees, birds, animals, etc. can mix with the standing water on these covers which in turn creates a potent source of contamination for the water supply. This project would replace all or some of these floating covers with a structural roof or dome that will better protect the quality of the treated water. Replacing these covers will also eliminate the routine maintenance necessary to keep these covers in operational shape which also helps to reduce staff exposure to the dangers associated with climbing tanks and walking / working on buoyant, floating covers including wear and tear on the cover exacerbating cover failure, and the possibility of drowning / engulfment.

Project Status: Planning

Readiness to Proceed

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

Proceed to design subject to funding

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$100K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ TBD

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: These floating covers are a source potential contamination and are a health hazard as identified by the Department of Public Health. Reduction in pollutant loading achieved by eliminating the potential source of contamination.

Reduction in pollutant transport: Eliminating a potential source of water supply contamination in clearwells and distribution system tanks reduces possible pollutant transport.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

The Cities of Jackson, Plymouth, Sutter Creek, Martell, and the community of Drytown are all disadvantaged communities and are all served by the Tanner clearwell. Eliminating the floating covers greatly reduces a potential source of drinking water contamination for these disadvantaged communities.

Native American Tribal Communities

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

The Jackson Band of Mi-Wuk Indians are also served by the Tanner Water Treatment Plant and its floating clearwell cover.

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project looks to replace floating covers with structural roofs on critical public water supply infrastructure and eliminates potential sources of contamination for 3 different public water supplies. The Central Amador Water Project (CAWP) system, which contain the Jackson Pines and Ranch House Tanks, the Lone Water Treatment Plant (lone Clearwell floating cover), and the Amador Water System (Tanner Water Treatment Plant floating cover). There is no other alternative other than abandoning the reservoirs to avoid the continued health concerns associated with floating covers.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. All of these projects would fall under categorical exemption in terms of environmental compliance as they are a replacement of existing infrastructure on existing infrastructure without adding any increased capacity. This project is seen as a positive replacement / repair of facilities designed to protect public health and therefore should be met with minimal if any controversy.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Groundwater Banking Project (Conjunctive Use)

Project Location: Amador County

Project Type:

Project Proponent 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): Other entities could include East Bay MUD, San Joaquin County, Calaveras County Water District (CCWD), Jackson Valley Irrigation District (JVID) and other Groundwater Basin Authority (GBA) members

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 check all that apply.

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

This project is seen as a regional effort whereby one or more partner agencies could obtain a new water right and /or modify an existing water right to enable surface water to be diverted from the Mokelumne River and banked in groundwater basins for later use by one or more partners (and further to improve overdrafted groundwater conditions).

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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 benefit East Bay MUD, JVID, CCWD, and other GBA members

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$200K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: TBD

Acre-feet Per Year of Reduced Demand: TBD

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

This project could benefit the disadvantaged communities of Lake Camanche, Sutter Creek, Jackson, Amador City, Plymouth, and Drytown

Native American Tribal Communities

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

This project will benefit the Jackson Rancheria Band of Mi-Wuk Native Americans

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 mitigates the effects of climate change

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This is a study to develop alternatives

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This study will help to identify alternatives



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Highway 88 Corridor Wastewater Transmission Pipeline (study)

Project Location: Highway 88 – Buckhorn to Martell (38° 26' 48.963" N Lat 120° 31' 44.668" W Long to 38° 22' 0.686" N Lat 120° 47' 45.768" W Long) to Amador City (38° 25' 9.679" N Lat 120° 49' 26.77" W Long)

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input checked="" type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

There are seven small developments located along Highway 88 which have community wastewater systems operated by the Amador Water Agency and others which have been proposed. These systems utilize community leachfields. Soils in the foothills are generally marginal and there are concerns with the long term use of leachfields for these wastewater disposal systems. Future failures of these systems could result in contamination of ground water and cause environmental harm. There are current concerns over increasing nitrate levels in monitoring wells of some of these leachfields.

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 Martell area to collect septic tank effluent wastewater from these systems and the delivery of it to an existing

community wastewater system for further treatment and possible reuse. The 7 leachfields could then be re-purposed into open space, trails, and recreation areas for the homeowners the leachfields once served. It is estimated this would open up close to 40 acres of land for community use.

This project would also provide the ability to collect wastewater from existing home along highway 88 who's septic systems are failing and / or in disrepair.

This project design is at the conceptual level and would be to investigate the long term 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. Highway 88 – Buckhorn to Martell (38° 26' 48.963" N Lat 120° 31' 44.668" W Long to 38° 22' 0.686" N Lat 120° 47' 45.768" W Long) to Amador City (38° 25' 9.679" N Lat 120° 49' 26.77" W Long)

Project Status: Planning

Readiness to Proceed

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

Feasibility study needed

Multi-Agency/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.

Project participants could include Sutter Creek, Amador County, and others TBD

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$50K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

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 in the next section, 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, year, and benefit cost ratio):

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: Not Yet

Determined Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: would eliminate disposal to current leachfields

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: up to 60 acres in 7 recreational areas.

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: Not Yet Determined but we expect to reduce GHG's by providing an alternative source for reuse.

Other:

Disadvantaged Communities / Environmental Justice

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

Native American Tribal Communities

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

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 redirecting of wastewater from community leachfields into The Highway 88 Corridor Wastewater Transmission Pipeline could lead directly to reuse which results in a reduction in the need for water supplied by the Mokelumne River.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

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



**Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Lone Hydroelectric Project

Project Location: Lone Reservoir (38° 20' 49.228" N Lat 120° 55' 18.531" W Long)

Project Type: Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

California and National energy policies and regulations have changed significantly over the past several years, and will continue to do so. The change stems from growing concern over global climate change, public health concerns related to the continued use of fossil fuels, ongoing petroleum shortages, rising fossil fuel prices, and geopolitical and national security issues related to foreign policy dependence. Several key pieces of legislation are driving California's response to these concerns. The California Renewables portfolio Standard Program requires retail sellers of electricity to purchase at least 20% of electricity generated from eligible renewable energy resources by 2010 and 33% by 2020. In addition, AB 32, California's Clean Air Act, encourages all California stakeholders to reduce their Greenhouse Gas emissions to 1990 levels by 2020. Additionally, Governor Brown proclaimed a statewide goal of 12,000 MW of renewable, distributed generation to help meet these goals. In 2006, the State Legislature took another step to drive the transition to renewable energy resources. Because water related electricity demand accounts for nearly 20 percent of statewide electricity consumption, and

water and wastewater facilities are generally located near load centers and are interconnected to the electric transmission system, the state has mandated that electric corporations offer “above market” tariffs and simplified contract terms as incentives for water and wastewater utilities to develop renewable energy projects as part of existing water systems. These tariffs include the Feed-in Tariff and the Local Government Renewable Energy Bill Credit Transfer tariffs that allow renewable energy projects to be competitively priced in the energy markets.

The convergence of renewable energy policy and tariffs now allow municipal water agencies to actively participate in distributed energy resource markets through to address water-energy nexus issues, as well as offset rising energy costs associated with pumping, treating and conveying water.

Amador Water Agency (AWA) completed an engineering study in 2013 that identified two potential hydroelectric projects using existing conduits (pipelines) for energy recovery from existing energy dissipation facilities. One of the identified sites located at Lone Reservoir, located in Lone, CA.

Surface water from Lake Tabeaud is conveyed via pipeline into the Lone Reservoir, where an existing pressure-reducing valve reduces over 1,000 feet of head. The Lone Reservoir then feeds the Lone Water Treatment Plant, which serves potable water to the residents in and around the City of Lone.

The Lone Hydroelectric Project consists of the construction and operation of a new 300kW hydroelectric facility, located at the outfall of the raw water pipeline into the Lone Reservoir. This generation of additional electricity will supplement the power grid to serve the Agency Water System. The project has completed initial design and initial CEQA studies have been completed for the project.

This project will, almost at the outset, equate to real financial savings to the Amador Water Agency, which in turn benefits the ratepayers. This project also lessens the burden the Amador Water Agency places on the electrical grid, which improves the operational reliability of the electrical supply for the region during periods when the grid is constrained.

The Lone Hydroelectric Project’s capital cost is estimated at \$1,649,000.

Lone Reservoir

(38° 20” 49.228” N Lat 120° 55’ 18.531” W Long)

Project Status: In Design

Readiness to Proceed

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

Preliminary Analysis and 50% design complete. CEQA initial study completed. Project is ready to complete design, FERC Notice of Intent application, interconnection application, plans and specifications, as well as public bid to general contractors and equipment vendors. Expected date of commissioning is August 2016.

Multi-Agency/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.

By providing its own facilities with an additional electrical source, the Amador Water Agency reduces its demand on PG&E's resources leaving more electricity available for other users.

Technical Feasibility

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

July 2012 - Feasibility Assessment complete (NLine Energy)

January 2013 – Preliminary Analysis complete (NLine Energy) (Attached to this submission as a reference document.)

October 2014 – Administrative Draft Initial Study of Proposed Mitigated Negative Declaration (NLine Energy and EN2 Resources) (Attached to this submission as a reference document)

February 2015 - 50% Design complete (NLine Energy, Domenichelli and Associates)

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$1,649,000

Annual O&M Costs: \$ \$6,000

Estimated Project Life (Years): 70 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Federal (USDA) and state grant funding, Prop1, California's Infrastructure Bank (IBank), Local banks.

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 in the next section, 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, year, and benefit cost ratio): A Preliminary Analysis report completed by NLine Energy in January 2013 identified that the Lone Hydroelectric Project would yield between \$1,794,000 to \$4,505,000 in net savings over a 30-year period with positive Net-Present Values ranging from \$803,000 to \$1,921,000. Annual cash positive cash flow is expected under all financial scenarios that allows AWA to recognize new revenue without having to raise water rates, issue bonds or deplete critical cash stores. Detailed financial pro formas for the Lone Hydroelectric project are listed in Section 8.2.2 and 8.2.3, as well as financial assumption in the Preliminary Analysis report attached to this submission.

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: Acre-feet

Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: By reducing demand on the electrical grid through the generation of renewable energy at the Lone Hydroelectric Project, AWA will offset 1,076 metric tons of carbon dioxide equivalent annually that would have been generated by Pacific Gas & Electric's generators. This power is equivalent to powering 148 homes for one year or removing 226 passenger vehicles from the road.

Other:

Disadvantaged Communities / Environmental Justice

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

This project will benefit the Disadvantaged Communities of Jackson, Sutter Creek, Plymouth, Drytown, Martell, and Amador City

Native American Tribal Communities

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

This project will benefit the Jackson Band of Mi-Wuk Native Americans

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 reducing demand on the electrical grid through the generation of renewable energy at the Lone Hydroelectric Project, AWA will offset 1,076 metric tons of carbon dioxide equivalent annually that would have been generated by Pacific Gas & Electric's generators. This power is equivalent to powering 148 homes for one year or removing 226 passenger vehicles from the road.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is a responsible approach to reducing the Agency's impact on the state's electrical infrastructure, while reducing the overall cost of Agency operations.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. An initial interconnection review has been completed that indicates adequate electrical line capacity for interconnection. FERC Notice of Intent process has been streamlined since federal legislation was passed in August 2013 to secure the site for development. Turbine / Generator equipment packages have been identified and deemed both technically and economically feasible. The environmental review process is complete and no "fatal flaws" exist. This project and the benefits it provides for the electrical grid and the ratepayers should be met with positive feedback.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Ione Treated Water Loop

Project Location: Sutter Creek (38° 23' 34.683" N Lat 120° 48' 8.768" W Long), Plymouth (38° 28' 54.671" N Lat 120°50' 40.722" W Long) Ione (38° 21' 9.688" N Lat 120° 55' 57.783")

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 lone and Tanner water treatment plants are each operated individually and are not connected. They supply water to the communities of Jackson, Sutter Creek, lone, Martell, Plymouth, Amador City, and Drytown. This project will link these two water systems and create a reliable back up supply for both areas. This will reduce disruptions in drinking water deliveries while expanding public water supply to areas west of the lone System and East of the Tanner System. This project will provide a secure public water supply for more communities now and into the future. This includes the Willow Springs area where no public water supply is currently available. Existing connections and future connections would each pay their proportional fair share of the benefit of the project.

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 lone via Highway 124. The project would install 12 miles of

12" C-900 water piping at a cost of approximately \$7.2 million. A feasibility study would be the first course of action. Sutter Creek (38° 23' 34.683" N Lat 120° 48' 8.768" W Long), Plymouth (38° 28' 54.671" N Lat 120°50' 40.722" W Long) lone (38° 21' 9.688" N Lat 120° 55' 57.783")

Project Status: Planning

Readiness to Proceed

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

Feasibility/planning studies are needed

Multi-Agency/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.

Benefits the cities of Jackson, Sutter Creek, Martell, Plymouth, lone, Drytown, and Amador City

Technical Feasibility

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

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$50K. This project could promote cost avoidance of adding additional infrastructure for treatment at either of the facilities.

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ \$7.2 Million (preliminary)

Annual O&M Costs: \$

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio): TBD

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

This project will provide adequate, redundant supply in the form of a looped system for the disadvantage communities of Sutter Creek, Jackson, Plymouth, Drytown, and Martell.

Native American Tribal Communities

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

This project would also benefit the Jackson Band of Mi-Wuk Native Americans

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is simply a study to look into the viability of a treated water loop between two systems.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This project is a study to look into the viability of a treated water loop.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Lake Camanche Transmission Main Project

Project Location: Lake Camanche (38° 15' 55.964" N Lat 120° 59' 15.295" W Long)

Project Type: Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

This project will install a transmission pipeline from well 14 to Tank 10. This transmission line will eliminate for tanks 8, 10, and their associated pump stations, in the distribution system and will provide additional supply, fire flow protection, and storage for the Front Village during peak and summer demands. Currently, in order to allow water to flow into Tanks 8 and 10, their respective booster pump stations must be turned off which reduces domestic pressure and fire protection. This creates fluctuating system water quality and leaves the system vulnerable during firefighting events. This system will convey water by gravity and the elimination of the booster pump stations at 8 and 10 will reduce energy consumption and Greenhouse Gas Emissions. This transmission line will greatly facilitate the objective of providing a uniform water supply throughout the subdivision while eliminating aging and failing infrastructure. Tanks 8 and 10 have a history of water loss and are constructed of redwood and other materials now approaching the end of their useful life. The Amador Water Agency recently provided a short

extension of life by placing liners in the tanks. These are expected to have a life expectancy of less than 10 years. : Lake Camanche (38° 15' 55.964" N Lat 120° 59' 15.295" W Long)

Project Status: Design Complete

Readiness to Proceed

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

An in-house design is complete. Environmental is needed.

Multi-Agency/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.

Technical Feasibility

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

2009 Technical Information Engineering Report for the Camanche System

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$100K

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ approx. \$800K

Annual O&M Costs: \$ \$4000

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Prop 1, Federal and state 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 in the next section, 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, year, and benefit cost ratio): 2009 Technical Information Engineering Report for the Camanche System

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: Acre-feet

Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: This project will allow water to flow by gravity from Well 14 to customers served by Tanks 8 and 10, eliminating the need for the respective booster pump stations which equates to GHG emissions reductions equivalent to one passenger car driving 8,000 less miles a year..

Other:

Disadvantaged Communities / Environmental Justice

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

The Lake Camanche Area is a Disadvantaged Community and would benefit greatly from this project.

Native American Tribal Communities

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

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.

There will be a reduction of Greenhouse Gas emissions from eliminating booster pump stations 8 and 10 equivalent to a passenger car driving 8,000 less mile a year..

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. Without the addition of a transmission line from Well 14 to the area served by Tanks 8 and 10, the ratepayers will gain a true benefit from a reliable, improved domestic pressure and fire flow. This is the only identified project that provides that benefit. Front Village residents will remain on groundwater supplied from wells in the Front Village that are losing their capacity through an antiquated booster station. This disadvantaged community has no other alternative to this project.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Permitting obstacles are minimal and many permits are already in place. Environmental barriers have been adequately addressed and mitigated in various documents therefore environmental impediments are not anticipated. Controversy is low as this transmission line is in parts of an existing subdivision and will provide a benefit to many ratepayers.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Lake Camanche Village Wastewater Reuse Project

Project Location: Lake Camanche, CA 38° 14' 58.396" N Lat 120° 56' 59.928" W Long

Project Type: Planning

Project Proponent 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): EBMUD

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input checked="" type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Lake Camanche Village Wastewater Treatment Plant serves approximately 400 homes in the Lake Camanche Village Development. The existing storage and spray irrigation system was unable to handle the effluent loading during the spring storms of 2005 and 2006. The Amador Water Agency is currently complying with the Regional Water Quality Control Board (RWQCB) Cease and Desist Order#R5-20030126 by choosing and implementing long term improvements to the WWTP. EBMUD and AWA are considering a joint project to build a regional reclamation system with tertiary treatment for EBMUD's North Shore facilities and the AWA Lake Camanche Village system. The technology to be utilized is anticipated to be a Membrane Bio Reactor (MBR) system. Reclaimed water will be used for irrigation during the dryer months and surface water discharges during wetter months.

This project will upgrade the treatment facility to MBR or an equivalent and provide a new lift station and collection line for EBMUD's North Shore Recreation Area. The project 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 of the reclamation water. Jackson Valley Irrigation District (JVID) does not have an adequate water supply for all users in their system. This reclaimed supply will reduce their total needed demand and will provide a reliable and sustainable agricultural water supply.

Storm water impacts will be minimized through BMP's. This project will enhance and protect wetlands by avoiding spills. Finally, 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. This project will cost approximately \$14 million. Other variations are also under consideration.

In addition to the existing wastewater customers, approximately 400 additional existing homes are on individual on-site septic systems. The Amador County Environmental Health Department has urged the Amador Water Agency to proceed with a project that could be expanded as a substantial number of these existing on-site wastewater systems have or are expected to fail. The County requires that all new on-site wastewater systems in this area be an "engineered system", which are quite expensive and can range from \$20,000 to \$60,000. There are also approved parcels that are in need of wastewater service. The Water Agency is not accepting new wastewater applications until an acceptable wastewater solution can be implemented.
Lake Camanche, CA 38° 14' 58.396" N Lat 120° 56' 59.928" W Long

Project Status: Conceptual Design

Readiness to Proceed

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

This project is in the conceptual planning phase, with some fatal flaw environmental work completed and additional work is contingent upon funding.

Multi-Agency/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.

Both East Bay MUD's North Shore Recreational Facilities (EBMUD) and The Lake Camanche village subdivision (AWA) would benefit from this project. This project would provide a viable option for wastewater treatment and disposal for years to come. This project would also provide reclaimed water to property owners within the boundaries of Jackson Valley Irrigation District (JVID) and potentially water for irrigation needs in the regional vicinity. Currently AWA is taking the lead on this potential regional project.

Technical Feasibility

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

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

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

2005 – EBMUD / AWA phase 2 Regional Wastewater Treatment and Disposal Study – Kennedy / Jenks Consultants

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

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

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$450K for preliminary design, permitting, and environmental

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$ 14 Million

Annual O&M Costs: \$ Estimated at \$30K. Membrane filters also are expected to have a life expectancy of 10 years with the main components of the plant have a life of 40 years.

Estimated Project Life (Years): 40 years +

Cost Basis (if not 2015 dollars):

Possible Funding Sources: SRWQCB – Small Community Wastewater Grant Program, State Revolving Fund and Rates / Fees and Prop 1 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 in the next section, 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, year, and benefit cost ratio): Having a viable regional wastewater treatment facility with tertiary treatment provides comprehensive economic benefits for those who live, work, and play within the Lake Camanche area. AWA, JVID, and EBMUD will benefit economically in that both will reduce risks of violations and fines via the SRWQCB by providing a high quality reclaimed wastewater. This provides an agricultural economic benefit to the farmers and ranchers within the boundaries of Jackson Valley Irrigation District (JVID), who can utilize the water and to the property owner who will now not be required to install an expensive engineered septic system. The area will also benefit economically in that the reduction of potential wastewater spills into the streams and creeks that feed Lake Camanche enhances the area environmentally which can equate to greater public use.

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 100AF per year of water would become available for reuse with potentially 300 AF available annually over time

Acre-feet Per Year of Reduced Demand: Initially approximately 100 AFY of water would become available for downstream users with potentially 300 AFY available.

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 acres with the potential to expand to 200 acres.

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:

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.

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 new water supply provides a reliable sustainable agriculture / irrigation water supply that reduces demands on surface water supply.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. At least four different studies have reviewed alternatives to solve the existing wastewater issues in the Lake Camanche area. The Amador Water Agency Believes this alternative is the best from a technical, social, and environmental perspective. This water will be treated to a very high level and will then be reused reducing 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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Although a complete environmental review is needed, AWA realized that there were potential environmental issues such as the California Tiger Salamander and other special status species. A California Tier 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 familiarity with the use of reclaimed water. This property is also within the Jackson Valley Irrigation District (JVID) boundary. 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 unless adequate grant funding is available or through some other funding source such as new customer impact fees.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Lake Camanche Water Service Replacement – Phase III

Project Location: Lake Camanche (38° 15' 55.964" N Lat 120° 59' 15.295" W Long)

Project Type: Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

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 540 service connections will have been replaced with the completion of phases one and two. Phase 1 is complete and has reduced system losses by approximately 2.4 million gallons this past year. Phase two is currently under construction and is anticipated to reduce system losses an additional 3 MG. Increasing the water supply by an additional 1.8 AFY. Phase three is anticipated to increase annual water savings by an additional 3 MG for a total annual water savings of 2.75 AF.

This project proposes to replace the remaining 200 polyethylene (“poly-tube”) service laterals within the system. These laterals were originally installed in the late 1970’s and as they continue to age, the material becomes very brittle and subject to severe longitudinal cracking.

Thus, they regularly leak and fail, causing significant damage to other infrastructure and substantial water losses. Agency crews, on average, repair and replace twenty laterals each year as they fail.

This project could be done in portions if complete funding is not available. Total project completion would require \$594,000.

Project Status: Design Complete

Readiness to Proceed

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

Design Complete

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ \$594,000

Annual O&M Costs: \$

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio): It is anticipated this project will save an additional 978,000 gallons of water per year reducing raw water pumping and conveyance costs.

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: .97 AFY

Acre-feet Per Year of Reduced Demand: .97 AFY

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: By replacing these leaking service laterals 0.97 Acre Feet per Year is saved offsetting the need to pump the equivalent volume of well water from the aquifer.

Other:

Disadvantaged Communities / Environmental Justice

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

The Lake Camanche area is a disadvantaged community.

Native American Tribal Communities

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

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 will reduce water loss due to system leaks by .97 AFY thereby reducing the amount of water and pumping necessary to meet system demands.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. No other alternative exists to replacing leaking service laterals that provide the same level of service to the ratepayers.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. 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 proportionally.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Leak Detection / Master Metering Project

Project Location: Lake Camanche (38° 14' 23.939" N Lat 120° 56' 49.666" W Long) Lone (38° 21' 9.688" N Lat 120° 55' 57.783" W Long) and Central Amador Water Project (CAWP) Areas - Sunset Heights (38° 24'47.694" N Lat 120°41' 37.312" W Long) to Mace Meadows (38° 27' 55.178" 120° 32' 27.206 " W Long)

Project Type: Planning and Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

This Leak Detection and Master Metering Project will install meters on key pipelines in areas within Amador Water Agency Distribution Systems (namely lone, Lake Camanche, and the CAWP system) to determine locations of leakage (and thus need for repair or replacement), and which helps to prioritize leak detection efforts. This project will happen in phases. The first phase will be to install the meters and monitor the flows and identify locations of water losses. The second phase will be to implement a repair program.

This project has been implemented in the Sutter Creek area.

Project Status: Pre-Design

Readiness to Proceed

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

This project could proceed rather quickly as meters would be installed on existing pipelines a categorical exemption is anticipated.

Multi-Agency/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.

Technical Feasibility

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

Amador Water System Leak Detection and Repair Project - 2013

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$50K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$600K

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Prop 84, Prop 1, federal and state 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 in the next section, 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, year, and benefit cost ratio):

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: TBD

Acre-feet Per Year of Reduced Demand: TBD

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: This project will identify and eliminate system leakage thereby reducing overall demand on the raw water supply which in turn reduces energy consumption and greenhouse gas emissions.

Other:

Disadvantaged Communities / Environmental Justice

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

Native American Tribal Communities

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

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.

Once again, by finding and eliminating system leaks, the Amador Water Agency reduces its demand on the raw water supply, and makes full use of the water treated and sent into the distribution system.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is the most effective and proactive way to reduce systems leaks and was implemented in the Amador Water System successfully.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Meter installations will occur on existing pipelines in existing roadways virtually eliminating any institutional barriers. In light of climate change, this project will be seen as a proactive way to counter act its effects.



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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Lower Amador Canal Project

Project Location: Amador County within the Vicinity of Sutter Creek (38° 22' 50.329" N Lat 120° 47' 11.709" W Long) and continuing down toward Lone (N 38 22.463 W 120 49.762)

Project Type: Planning

Project Proponent Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road Sutter Creek, CA 95685

Phone: 209-257-5284

Email: gmancebo@amadorwater.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Lower Amador Canal, in Sutter Creek, CA flows from the Tanner Water Treatment Plant provides raw water to residents in within the community of Sutter Creek and extends west of Sutter Creek. The water flows both in an uncovered earthen canal and a 120 year old riveted pipe. This untreated water system has extensive leaks and is a tremendous waste of water. A conservative estimate is piping the Lower Amador Canal would save approx. 100 A.F. / year. This annual raw water savings equates to conservation in that the water that is not lost through leaks and evaporation is available to make its way down the watershed providing a need elsewhere. Unmitigated leaks along the canal also have the potential to erode embankments above waterways and is subject to contamination simply because parts of the Lower Amador Canal are exposed to the environment. The alignment of this raw water system parallels the Sutter Creek waterway. Two alternatives have been considered for the project. One is placing approximately five miles of pipe within the canal and the second alternative is to provide treated water from nearby pipelines to existing customers while abandoning the majority of the canal.

Amador County within the Vicinity of Sutter Creek (38° 22' 50.329" N Lat 120° 47' 11.709" W Long) and continuing down toward Lone (N 38 22.463 W 120 49.762)

Project Status: Planning

Readiness to Proceed

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

This project is in the planning phase

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$200K – Predesign and Environmental

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$ Estimated

Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Prop 1, federal and state 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 in the next section, 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, year, and benefit cost ratio): Piping the Lower Amador Canal or converting it to a treated water line will have dramatic economic benefit because it will save an estimated 100 acre feet of water per year. That water saved reduces energy, ghg emissions and avoids the cost associated with water supply transmission. The more water AWA can save through this conservation effort, the more cost effective its operation becomes. Water saved through this project will remain in the river which in turn enhances the watershed and the environment.

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:

Acre-feet Per Year of Reduced Demand: 100AFY

Water Quality Benefits

Reduction in pollutant loading: Releases from wastegates add pollutants into Sutter Cree and this will be avoided with this project

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages: Wastegate releases add to flood conditions and potential failures of the canal may cause localized flooding

Reduction in greenhouse gas emissions: Not Yet Calculated

Other:

Disadvantaged Communities / Environmental Justice

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

The City of Sutter Creek is a disadvantaged community

Native American Tribal Communities

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

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.

Piping the Lower Amador Canal is a responsible counter-measure to climate change as it dramatically reduces and / or eliminates the water lost due to evaporation and leakage it currently experiences. Reduced energy demand and thus a reduction in greenhouse gases is anticipated because less water will now be pumped out of the river to meet demand.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. 1- Social: Piping the Lower Amador Canal 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 – Environmental: Environmental barriers will be adequately addressed and mitigated in the approved environmental documents therefore there is little to no likelihood of an environmental barrier at this point.

3 – 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 ratepayers cannot bear the full financial burden of this project.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Permitting obstacles are minimal and many permits are already in place. No implementation risks are known at this time.



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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Lower Bear River Reservoir Expansion Project

Project Location: Lower Bear River Reservoir, Amador County (38° 32' 29.988" N Lat 120° 14' 28.233" W Long)

Project Type: Planning

Project Proponent 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): Could potentially include, Calaveras County Water District (CCWD), East Bay MUD (EBMUD), San Joaquin County, Jackson Valley Irrigation District (JVID) and other GBA participants

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 check all that apply.

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input checked="" type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

This feasibility study will evaluate enlarging Lower Bear Reservoir by raising the existing dam (embankment) 32 feet to increase surface water storage capacity within the upper Mokelumne River watershed. This study would be a continuation of previous studies and serve to address previously unanswered questions and unresolved issues, including operational parameters. Previous studies performed on behalf of Amador Water Agency suggest that Lower Bear Reservoir would provide 18,300 feet of additional yield (Willard 2005). In addition to modifications to the dam itself, other facilities that would need to be constructed include an updated intake structure and spillway. Also note that the project would require the relocation of adjacent roads and existing operational facilities. An operational scheme for an enlarged reservoir would need to be prepared to determine how much yield could be realized for the partners that elect to take part in the project. East Bay MUD could benefit from the added

supply in dry years. Calaveras County Water District benefit with a water source for northern county residents currently relying on groundwater, Jackson Valley Irrigation District will benefit with additional water to meet needs within its district and San Joaquin County benefits by now having water to use for groundwater recharge and remediation.

While the primary benefit is additional supply for participating entities through increased storage of winter flows, other benefits include flood control, power generation, improved water quality, and cold water releases to improve fisheries.

Project Status: Pre-Design

Readiness to Proceed

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

Pre-Design

Multi-Agency/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, JVID, CPUD, San Joaquin County (& other GBA participants)

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$200K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$50 Million (preliminary)

Annual O&M Costs: \$

Estimated Project Life (Years): 100 years

Cost Basis (if not 2015 dollars): 2012

Possible Funding Sources: Rates, private developers, utility cooperation, state and federal 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 in the next section, 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, year, and benefit cost ratio):

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 (based on AWA's water right)

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: 72 million kWh of clean energy will power 6,600 homes and conversely saves 49,648 metric tons of CO₂ emissions created by generating power with other sources. That is equal to taking 10,452 passenger cars off the road.

Other:

Disadvantaged Communities / Environmental Justice

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

All utilities involved have various disadvantaged communities within their jurisdiction and those communities would benefit from this increase in water supply.

Native American Tribal Communities

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

There are Native American Communities within the jurisdictions of agencies involved in this project that would benefit from this project including the Jackson Rancheria Band of Mi-Wuk Native Americans.

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 will provide 72 million kilowatt hours of clean energy. Enough to power to provide electricity to 6,600 homes for one year thereby reducing the equivalent need for energy from other sources.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This is project will further the feasibility analysis of raising Lower Bear Reservoir.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Regulatory barriers would include FERC, DSOD, CA DFG, and DWR approval for the project. Permitting obstacles have not yet been identified. Controversy is medium, with focused stakeholder surveys yet to be developed. The projects potential partners are relatively comfortable with this project but discussions are still in the beginning stages. Further, this project is predicated on the PG&E's willingness to expand their existing facility.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Martell Wastewater Lift Station Reduction Project

Project Location: Martell (38° 22' 0.686" N Lat 120° 47' 45.768" W Long)

Project Type: Planning

Project Proponent 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): could include business entities within the 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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

Martell's wastewater collection system consists of 6 lift stations that convey the wastewater collected from the homes and businesses in Martell to Sutter Creek for treatment and disposal. At least 2 of the lift stations in Martell are at least 30 years old and require an ever increasing amount of maintenance and repair to keep operational. Wastewater in parts of Martell is also pumped twice – from lift station to lift station before being sent to Sutter Creek for treatment and disposal.

This project seeks to eliminate double pumping of wastewater by reduce the number of lift stations within the Martell area and expanding the ones that would remain. This would save pumping costs, improve infrastructure reliability and in the end save The Amador Water Agency and its customers money.

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$50K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ \$500K

Annual O&M Costs: \$

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions: TBD – energy reductions expected.

Other:

Disadvantaged Communities / Environmental Justice

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

This project will benefit the area of Martell – a DAC.

Native American Tribal Communities

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

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 would reduce pumping of wastewater and related energy demands in the Martell area mitigating the Amador Water Agency's contribution to climate change

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This is a cost effective, beneficial project. No alternative has been developed.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This project would decommission and retrofit existing agency infrastructure. Which is anticipated to be met with positive feedback from all angles.



**Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Mokelumne Water Quality, Soil Erosion, and Sedimentation Restoration Project

Project Location: Upper Mokelumne River Watershed

Project Type: Planning

Project Proponent 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): Amador County, Calaveras County, and the US Forest Service

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

This project would be to eliminate man-caused water pollution and adverse impacts on aquatic resources from sediment by eliminating point sources of gully erosion. The concept would develop a three-phase program in the Mokelumne River Watershed upstream of Pardee Reservoir. Gullies from road and trail drainage (open and closed for use) and any other “unnatural” eroding surfaces that deliver significant amounts of sediment to streams will be the primary targets for this program because they can be the biggest contributors to water quality degradation and adverse impacts on river aquatic resources. The program would consist of three phases: 1) inventory areas of soil erosion in coordination with land owners, 2) set priorities and develop an action plan, and 3) seek partners and funding for projects. The USFS Amador District Ranger is currently developing a study and restoration project in the 2004 Power Fire burn area, which affected 17,000 acres within the upper Mokelumne watershed. This concept would be coordinated with that and similar efforts.

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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 would coordinate with Amador County, Calaveras County, and the US Forest Service.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$150K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ Annual

O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: TBD

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

This project would benefit the disadvantaged communities within the upper Mokelumne River watershed. Jackson, Sutter Creek, Amador City, and Drytown.

Native American Tribal Communities

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

This project will benefit the Jackson Rancheria Band of Mi-Wuk Native Americans

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 is a wildfire area restoration project that will mitigate the negative effects of soil erosion on the regions surface water supply

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This is a study which will help create project alternatives and determine the best ones.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This study will help determine future direction in watershed soil erosion mitigation and it is not anticipated to face obstacles for its implementation



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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Mount Crossman Pump Storage Project

Project Location: Mount Crossman (38° 27' 54.675" N Lat 120° 31' 58.733" W Long)

Project Type: Planning

Project Proponent Information

Contact Name: Amador Water Agency

Affiliation: Gene Mancebo, General Manager

Address: 12800 Ridge Road Sutter Creek CA 95685

Phone: 209-257-5245

Email: gmancebo@amadorwater.org

Other Participating Agencies (if applicable): could include First Mace Meadows Water District, Rabb Park Estates, and the City of Pine Grove

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 check all that apply.

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

This project looks to place a large, (could be up to 5 Million Gallons) storage tank on the top of Mount Crossman (the highest point of elevation within the Central Amador Water Project, or CAWP area) where treated water would be pumped up to the tank from the Buckhorn Water Treatment Plant and then allowed to flow by gravity to the 27 tanks within the CAWP distribution system. Power could be generated both by pumping up to the tank on Mount Crossman, and then by flowing by gravity out into the distribution system or through a pumped storage option. Wholesale customers within the CAWP system would also have an opportunity place some of their storage within the Mount Crossman Tank, and old and aging tanks would be able to be eliminated and their available supply transferred to the Mount Crossman Tank. New supply would not be created with this project.

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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 will benefit Pine Grove, First Mace Meadows Water District, and Rabb Park Estates

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$100K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ \$3Million (preliminary)

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: To be determined. Hydroelectric power generation off the drinking water supply is a responsible way to reduce GHG emissions from other power generation such as fossil fuels.

Other:

Disadvantaged Communities / Environmental Justice

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

The power generated from this project will benefit the City of Jackson, Sutter Creek, Lake Camanche, Amador City, Drytown and Plymouth. All are DAC's

Native American Tribal Communities

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

This project will benefit the Jackson Rancheria band of Mi-Wuk Native Americans as potential clean energy generated from this project will benefit all of the Amador Water Agency's customers.

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.

Hydroelectric power generation off the drinking water supply is a responsible approach to reducing The Agency's impact on climate change.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. The alternative is the water agency is still pumping water, without the benefit of hydroelectric power generation, or the ability to remove aging and failing tanks. A study would confirm this is the best possible alternative.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. The positive attributes of this project – clean energy, new infrastructure, and the removal of old and failing tanks will be seen as positive additions to the community.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: New York Ranch Reservoir Conservation and Management

Project Location: Amador County off Ridge Road (38° 23' 58.905" N Lat 120° 43' 12.957" W Long)

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input checked="" type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input checked="" type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

New York Ranch Reservoir is a balancing reservoir in the AWA canal system. New York Ranch Reservoir is five miles east of Sutter Creek, just south 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, which will change 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 approximately 49 acre foot reservoir was constructed in 1873 as part of the Amador Canal that was constructed to support 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 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 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 Management Plan was \$500,000; however, no supported documentation was found. This project proposes to evaluate completed management plans and develop specific costs for both phases, initial costs as well as operation and maintenance costs. This study was estimated at \$35,000. Amador County off Ridge Road (38° 23' 58.905" N Lat 120° 43' 12.957" W Long)

Project Status: Planning

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of planning, 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 customers along the Amador Canal. The management plan cost estimate can proceed now.

Multi-Agency/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 its intent as an educational tool and conservation area. Participating Entities include the California Dept. of Fish and Wildlife, Central Sierra Resource and Development, Inc., Foothill Conservancy, and the Amador Land Trust.

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

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$35K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ Annual

O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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:

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

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

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

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): Approximately 19 Acres

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

This area will serve not only residents of local Disadvantaged Communities but will also serve members of Disadvantaged Communities throughout Northern California.

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 Mi-Wuk Indians. Reduction in the transport of sediment and contaminants 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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project provides a unique opportunity to preserve a component of the historic mining period which evolved to support the community with 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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

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 determine the phased cost of the management plan.



**Mokelumne/Amador/Calaveras (MAC)
Integrated Regional Water Management Plan Update
Project Information Sheet.0**

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Regional Wastewater Reuse Project

Project Location: Jackson (38° 20' 55.688" N Lat 120° 26' 26.766" W Long) Martell (38° 22' 0.686" N Lat 120° 47' 45.767" W Long) Sutter Creek (38° 23' 34.683" N Lat 120°48' 8.768" W Long) Amador City (38° 25' 9.679" N Lat 120° 49' 26.77" W Long)

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Regional Wastewater Reuse Project

Affiliation: Amador Water Agency

Address: 12800 Ridge Road Sutter Creek, CA 95685

Phone: 209-257-4245

Email: gmancebo@amadorwater.org

Other Participating Agencies (if applicable): The cities of Sutter Creek, Jackson, Martell, and Amador City. Could also include Jackson Valley Irrigation 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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input checked="" type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 communities of Jackson, Martell, Sutter Creek, and Amador City all have independently operated wastewater facilities. All of the facilities are old, and in need of repair and upgrades. With this in mind, coupled with the understanding that reclaimed wastewater has become a reliable, sustainable, and currently untapped water resource in Amador County, The Amador Water Agency (AWA) developed this Regional Wastewater Reuse Project. Given the size, location, and number of cities in Amador County, a regional approach to reclamation facilities is the best method take advantage of the potentially available reclaimed water. Ultimately Amador County will need additional water supplies and reclaimed water needs to become a part of the portfolio for meeting those water needs. In 2013 AWA accepted the “*Regional Approach for Reuse*” study and wishes to seek funding to provide environmental review and critical implementation steps. Overall, the project will reduce potable water demand by providing

recycled water for land disposal on parks, schools, shopping centers, medians, ball fields, golf courses, and various other recreational facilities. This project will further define pipeline alignments, storage sites, pump station layouts, and required upgrades to existing WWTP's. It will also provide engineering cost estimates, and enough information for an environmental review. Providing recycled water improves wastewater treatment efficiency, meets regulatory requirements, and protects surface /ground water resources. This regional plan may involve facility upgrades and will also utilize existing facilities for each existing community. The project will rely heavily on reclamation and reuse for effluent disposal. Jackson (38° 20' 55.688" N Lat 120° 26' 26.766" W Long) Martell (38° 22' 0.686" N Lat 120° 47' 45.767" W Long) Sutter Creek (38° 23' 34.683" N Lat 120°48' 8.768" W Long) Amador City (38° 25' 9.679" N Lat 120° 49' 26.77" W Long)

Project Status: Conceptual Design

Readiness to Proceed

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

Planning study complete. Environmental review and critical implementation steps needed.

Multi-Agency/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 participants include JVID and the Cities of Sutter Creek, Amador City, and Lone

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

2013 - A Regional Approach for Reuse – Aegis Engineering

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$100K to provide environmental review and critical implementation steps

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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 – could be up to 227 AFY

Acre-feet Per Year of Reduced Demand: equivalent on the surface water supply

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: By utilizing reclaimed wastewater to irrigate public spaces, shopping centers and recreational areas you reduce the need for potable water irrigation which translates directly to less water pumped from out of the watershed and through the water treatment plant lessening the use of associated equipment which translates to less GHG emissions.

Other:

Disadvantaged Communities / Environmental Justice

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

The communities of Jackson, Sutter Creek and Martell are disadvantaged communities. All would benefit from a regional wastewater facility.

Native American Tribal Communities

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

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 project maximizes the available water resources available and makes complete use of the raw water taken out of the watershed. All of these are direct adaptations to climate change and reflect resource stewardship relative to it.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High.

1. Environmental: This project would consolidate treatment facilities, reduce surface water discharge and maximize water reuse. This is the most environmentally friendly and responsible option when compared to continually operating multiple facilities with minimal water reuse.
2. Social: In light of the current drought, and with water reuse gaining traction statewide, this project would be met with positive feedback.
3. Economic: This project has higher capital costs versus maintaining the existing plants, however, as 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 the ratepayers.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. Regulatory barriers would include CADPH, SWRCB, and RWQCB, but should be reasonable given the plethora of entities throughout the state engaging in reuse. Environmental barriers have not been addressed and are unknown at this time. Permitting obstacles should be minimal as the facilities will represent the recommendations of state agencies at the outset. Once again, in light of the current drought and California's water situation overall this project should be met with minimal social controversy. Each of the potential partners currently run their own facilities and may be resistant to relinquish control. Furthermore, the partners are pursuing independent solutions 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 FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Shenandoah Valley Water Supply Analysis

Project Location: Shenandoah Valley (38° 32' 5.581" N Lat 120° 47' 32.848" W Long)

Project Type: Planning

Project Proponent 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): Could include the Amador Business Council, The Amador Economic Development Partnership, and other local entities

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

A concern has been raised regarding the adequacy of groundwater and surface water supplies within the Shenandoah Valley for agricultural use. This study would analyze the current and future water needs of the Shenandoah Valley and options to insure adequate water supplies.

This study will give consideration to all the possibilities for meeting supply needs and reliability, including groundwater, surface water, reclaimed wastewater and conservation measures. Shenandoah Valley (38° 32' 5.581" N Lat 120° 47' 32.848" W Long)

Project Status:

Readiness to Proceed

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

Multi-Agency/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 a number of entities that could integrate together to benefit from this project

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ Feasibility Study - \$75K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

Benefits

Quantifiable Benefits – Until the Study is complete, we are unable to quantify the 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: TBD

Acre-feet Per Year of Reduced Demand: TBD

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: TBD

Other:

Disadvantaged Communities / Environmental Justice

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

Native American Tribal Communities

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

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 study is intended to mitigate the effects of climate change and how they may be reducing the available water supply for the Shenandoah Valley. This study will investigate opportunities to adapt to climate change.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is a study and is the first step in developing perspective.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This project is a study and is the first step in developing perspective.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Small Diameter Pipe Treated Water Conversion

Project Location: Amador County in the vicinity of Pine Grove (38° 23' 58.299" N Lat 120° 40' 4.46" W Long) Lake Tabeaud (38° 20' 57.71" N Lat 120° 39' 29.12" W Long), and Jackson (38° 23' 4.115" N Lat 120° 42' 31.401" W Long.)

Project Type: Planning and Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

Historically, some residents of Amador County along the Amador Canal have utilized untreated (raw) water in their homes for domestic use. They have no access to a potable water supply. This project would convert the Amador Water Agency's Canal / Small Diameter Raw Water Pipeline into a treated water pipeline and in turn provide treated water to those residents. Supplying treated water will eliminate the potential health hazards / concerns that arise from using untreated (raw) water for domestic use. This project encompasses areas within the vicinity of Jackson, Lake Tabeaud, and Pine Grove in Amador County. Amador County in the vicinity of Pine Grove (38° 23' 58.299" N Lat 120° 40' 4.46" W Long) Lake Tabeaud (38° 20' 57.71" N Lat 120° 39' 29.12" W Long), and Jackson (38° 23' 4.115" N Lat 120° 42' 31.401" W Long.)

Project Status: In Design

Readiness to Proceed

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

A pre design has been completed. This would be a conversion of an existing canal / pipeline from raw to treated. It is anticipated the environmental documentation will initiate in 2015.

Multi-Agency/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.

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

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ Environmental = \$100K, Plans and Specs = \$150K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$3 Million(preliminary)

Annual O&M Costs: \$ \$3,060

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Prop84, Prop1

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 in the next section, 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, year, and benefit cost ratio): Converting a raw water supply to treated water benefits the residents, who are part of a disadvantaged community, that would now have access to treated water (which they never previously) had in innumerable ways. For instance, these property owners would now actually be able to drink the water provided to them and would save money, time, and energy by eliminating the need to purchase bottled water, keep receipts, and await reimbursement from the Amador Water Agency. This is a public health concern. Residents would experience a dramatic change in water quality. The water would no longer be subject to weather related upsets nor contain contaminants and constituents that are removed in the filtration process. The water quality would transform from suspect and variable to uniform and safe. All of these aspects provide a true economic benefit to the residents who would receive treated water with the implementation of this project.

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: TBD

Water Quality Benefits

Reduction in pollutant loading: dramatic reduction / elimination of most pollutants found in raw water. Raw water supply would convert to treated.

Reduction in pollutant transport: By converting the supply from raw water to treated, pollutant transport will be eliminated and / or dramatically reduced.

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: TBD. Currently water must be pumped into the conveyance system, This project will provide safe, clean water by gravity to residents and eliminate the need to purchase bottled water.

Other:

Disadvantaged Communities / Environmental Justice

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

An income survey confirmed that the project serves a disadvantaged community in need of safe drinking water.

Native American Tribal Communities

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

The Jackson Band of Mi-Wuk Native Americans will be served by this project.

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.

Current pumping energy will be eliminated as water will flow by gravity to property owners reducing greenhouse gases. Currently bottled water must be trucked or purchased which creates greenhouse gas emissions. Portions of this raw water system includes a canal system which leaks. This project will conserve this water.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. There currently is no known alternative option in terms of accessibility or supply availability of treated water for this project.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

Medium. This project would convert an existing raw canal / pipeline to provide safe, clean, treated water to a disadvantaged community.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Surface Storage Feasibility Study

Project Location: Amador Water Agency (38°27' 54.675" N Lat 120° 31' 58.733" W Long)

Project Type: Planning

Project Proponent 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): Could include Calaveras County, Calaveras County Water District (CCWD), Calaveras Public Utilities District (CPUD), Jackson Valley Irrigation District (JVID), and the County of Amador

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input checked="" type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

This project would conduct a regional assessment to evaluate the feasibility of constructing additional surface storage – including both on-stream and off-stream storage opportunities- in Amador and Calaveras Counties. The study would include discussions on location, technical feasibility, economic feasibility, and legal feasibility.

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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.

Could benefit Amador County, Calaveras County, CCWD, JVID, CPUD, and AWA.

Technical Feasibility

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

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$200K

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: TBD

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: TBD

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions: TBD

Other:

Disadvantaged Communities / Environmental Justice

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

This project would benefit the DAC's of Jackson, Plymouth, Lake Camanche, Sutter Creek, Amador City and Drytown, West Point, and other potential disadvantaged communities in Calaveras County.

Native American Tribal Communities

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

This project would benefit the Jackson Rancheria Band, the Jackson Valley Band, and the Buena Vista Band of Mi-Wuk Native Americans as well as Native Americans in Calaveras County.

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.

TBD

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is a study – the alternative is the study does not proceed.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This project is a study with no risk of regulatory, environmental, or social implementation risks.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Tanner Backwash Water Recycling / Reuse Project

Project Location: Tanner Water Treatment Plant, Sutter Creek CA (38°22' 55.89" N Lat
120°47' 18.59" W Long)

Project Type: Planning and Implementation

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

Currently the Tanner Water Treatment Plant's backwash water is pumped into the Lower Amador Canal for limited agricultural use. The canal is primarily earthen, unlined with some piped sections, and is known to leak water. During high rain events water may be discharged through waste gates into Sutter Creek. This project would recycle the backwash water through to the headworks of the plant reducing water losses while dramatically increasing the water treatment plant's efficiency. Currently the Tanner Water Treatment Plant is approximately 80 % efficient. This project would make it closer to 90 – 99% efficient. Backwash water could be stored on-site and recycled through the water treatment plant as needed which will reduce contaminant loading within the Lower Amador Canal, meet regulatory requirements, prevent contamination, potential discharges into Sutter Creek and reduce potable water supply demands which effectively leaves more water in the Mokelumne River watershed. A pre-design study is complete but CEQA and design have yet to be completed. **(38°22' 55.89" N Lat 120°47' 18.59" W Long)**

Project Status: Planning

Readiness to Proceed

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

Pre-design complete

Multi-Agency/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 with AWA's Lower 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.

Stantec Regional Water Treatment Plant Design - 2008

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$100K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ TBD

Annual O&M Costs: \$ \$8K

Estimated Project Life (Years): 50 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Prop1, Federal and State 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 in the next section, 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, year, and benefit cost ratio): Specific economic savings haven't been determined to date however, it is estimated that 161AFY will be reused, avoiding the cost for new supply and transmission facilities. Recycling the backwash water makes full use of all of the raw water brought into the facility for treatment which, once again, reduces source water demands thereby decreases the water needed by the Agency and increases the regional water supply.

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: 161 AFY

Acre-feet Per Year of Reduced Demand: 161 AFY

Water Quality Benefits

Reduction in pollutant loading: Backwash water would no long flow into the Lower Amador Canal reducing the possibility for spills into Sutter Creek

Reduction in pollutant transport: Backwash Water Discharge would be eliminated reducing the possibility for spills into Sutter Creek.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages: Each year waste gates are utilized to discharge excessive water from the canal adding to the potential for flood related damages. Catastrophic failure could also have devastating effect.

Reduction in greenhouse gas emissions: Not Yet Determined

Other:

Disadvantaged Communities / Environmental Justice

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

The Cities of Sutter Creek, Plymouth, Jackson, and Martell as well as the community of Drytown are all disadvantaged communities and all are served by the Tanner Water Treatment Plant and would benefit from this project by having a more reliable supply of water to meet their needs and help offset the impact of drought and climate change

Native American Tribal Communities

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

The Jackson Band of Mi-Wuk Indians are served by the Tanner Water Treatment Plant and would also benefit from this project by having a more reliable supply of water to meet their needs and help offset the impact of drought and climate change.

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.

Recycling backwash water at a water treatment plant is an effective way to mitigate the effects of climate change through a reduction of energy demands and greenhouse gas emissions as well as a reduction in water use needed to meet system demands.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. 1 – Environmental: by recycling 161 AFY the Amador Water Agency will reduce its impact on the available water supply thereby reducing its overall impact on the environment. Environmental barriers will be adequately addressed and mitigated in the approved environmental documents. This project would occur at a pre-existing Water Treatment Plant so the anticipation is the environmental impact would be minimal.

2 – Social: This process is the least costly to implement and therefore should be the most socially acceptable to the ratepayers. It also speaks to conservation, efficiency, and is a judicious use of a natural resource all of which are socially relevant. The alternative is no project which would mean continuing to dispose of water that could be recycled.

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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. It is in the best interest of all parties involved and has only positive benefits in terms of the regulatory, environmental, and permitting aspects. The Amador Water Agency feels strongly that the majority of ratepayers will see this project as beneficial.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Tanner Regional Water Treatment Plant

Project Location: Martell area (38° 22' 56.785" N Lat 120°47' 19.056" W Long)

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Gene Mancebo, General Manager

Affiliation: Amador Water Agency

Address: 12800 Ridge Road

Phone: 209-257-5245

Email: gmancebo@amadorwater.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Agency Water System is owned and operated by the Amador Water Agency and includes of a gravity diversion from the Mokelumne River at PG&E's Lake Tabeaud to a newly constructed 9 mile, 30" CMLC Steel pipeline to the Tanner WTP. The existing WTP is a conventional plant with an ultimate treatment capacity of 5 MGD and provides treated water on a wholesale basis to the City of Jackson, City of Plymouth, and Drytown County Services District. The Tanner WTP also provides water for retail sale to the cities of Sutter Creek, Amador City and the Martell area. Raw water is also delivered from the Tanner WTP to the lone WTP which has a 3 MGD capacity and provides treated water on a retail basis in and around the lone area.

Both plants are at or near their rated capacity. The lone Water Treatment Plant is located on top of a small hill and is site constrained for further expansion. The lone plant is a conventional treatment plant updated in 1986. The Tanner WTP is a refurbished plant that was reconstructed

in 1992. These plants are in need of major improvements which include all control valves, computer control, and other equipment. It was determined that the best long term solution is to construct a regional WTP at the Tanner site and convert the raw water pipeline feeding the lone WTP to a treated water transmission line eliminating the lone WTP. This would reduce the cost of operating two independent water treatment plants. Studies were completed which investigated conventional versus membrane treatment plants in August of 2007. Based on those findings, Staff was directed to proceed with design of a Pall membrane WTP. The New MF WTP will initially be built to 8 MGD, expandable to 20 MGD (plus necessary redundant capacity), such that ultimately it will replace both the existing Tanner and lone WTP's. Martell area (38° 22' 56.785" N Lat 120°47' 19.056" W Long)

Project Status: In Design

Readiness to Proceed

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

Project predesign is completed construction plans initiated, environmental review has not yet started

Multi-Agency/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 would also benefit the Cities of Jackson and Plymouth

Technical Feasibility

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

2004 – Lone Water Treatment Plant Feasibility Study – Boyle Engineering

2008 – Tanner Regional WTP Preliminary Design Report – Stantec Engineering

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$ 100K for environmental and the completion of plans and specs

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$20 Million

Annual O&M Costs: \$ \$566,600

Estimated Project Life (Years): Expected life of 50 years for the plant with membrane modules having a life expectancy of 10 years and most pumps and other various plant equipment (metering pumps, etc.) having a life of 10-15 years.

Cost Basis (if not 2015 dollars): August 2008

Possible Funding Sources: prop 1, potential federal and state 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 in the next section, 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, year, and benefit cost ratio): The existing costs of operating the lone WTP would be eliminated and there would be only a minor increase in the cost of operating the Tanner WTP. Over time AWA would realize compound operational, preventative maintenance based, and infrastructure improvement savings by completing the Tanner Regional Water Treatment Plant Project.

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: Less chemicals anticipated for use in a membrane treatment facility equates to less chemicals in the backwash return water hence a reduction in pollutant loading

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions: Not Yet Determined, however, the plant is expected to be much more efficient than the current plant and will use less energy than the current water treatment plants. A reduction is anticipated

Other:

Disadvantaged Communities / Environmental Justice

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

The Cities of Sutter Creek, Jackson, Plymouth, Martell, and Drytown Community Services District are all disadvantaged communities and are all served by the Tanner WTP.

Native American Tribal Communities

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

The Tanner Water Treatment Facility serves the Jackson Band of Mi-Wuk Indians who will realize the benefit of a new regional WTP.

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 plant is expected to be much more efficient than the two water treatment plants it will replace which will equate to a direct reduction in GHG emissions. The recycling of backwash water minimizes the impacts on surface water supplies which aids in adapting to climate change.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

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 finance a portion of the project.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

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 under the jurisdiction of DWR would be responsible for issuing the water permit. The proposed treatment plant would use approved membrane technology and equipment. The Water Agency does not expect any permitting barriers for this project. Consolidation of two facilities should provide an overall reduction in the 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 of growth inducement. The recent economic downturn has reduced the need for new construction. The Amador Water Agency is first maximizing capacity of existing facilities and making interim improvements that

will cover immediate treated water needs. The Water Agency plans to utilize community facility district financing to insure fair distribution of costs and further minimize implementation risk.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Wastewater Collection System Improvement Study

Project Location: Amador Water Agency (38° 23' 29.255" N Lat 120° 46' 7.793" W Long)

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

Drought Preparedness

Use and Reuse Water More Efficiently

Climate Change Response Actions

Expand Environmental Stewardship

Practice Integrated Flood Management

Protect Surface Water and Groundwater Quality

Improve Tribal Water and Natural Resources

Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Amador Water Agency's wastewater lift stations, collection systems and appurtenances are old and failing. This project seeks to develop a plan to improve, repair, and replace these systems. Plan objectives are to provide ways to cost effectively minimize inflow and infiltration, provide adequate sewer capacity to accommodate stormwater flows, and minimize the potential for sanitary sewer overflows. This project also seeks to create hydraulic models of the Amador Water Agency's collection systems.

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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 will benefit the communities of Martell, Lake Camanche, Sutter Creek, and the Central Amador Water Project (CAWP) area.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ \$200K

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

This project will benefit the DAC's of Lake Camanche, Sutter Creek, and Martell

Native American Tribal Communities

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

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This project is designed to better evaluate AWA's collection system. The alternative is no evaluation of the system.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This is a study to help gain a better understanding of the collection system's condition.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Water System Replacement Master Plan

Project Location: Amador Water Agency (38° 23' 29.255" N Lat 120° 46' 7.793" W Long)

Project Type: Planning

Project Proponent 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):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input checked="" type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

Much of the Amador Water Agency's infrastructure is old. It has been recognized by the California Dept of Public Health that many tanks are beyond their useful life and the Amador Water Agency needs to develop a plan of replacement for all facilities. Large tracts of distribution system piping and appurtenances were installed in the 1930's and into the present. They are suffering the effects of age as well as the stress applied by water pressure and disposition. These factors are contributing to greater system losses, decreased water quality, reduced fire flow, and increase the potential for catastrophic failures.

This project would develop a comprehensive study to delineate where the critical areas are within the Amador Water Agency's system and provide a course of action to replace and improve those areas. Amador Water Agency (38° 23' 29.255" N Lat 120° 46' 7.793" W Long

Project Status: Planning

Readiness to Proceed

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

Multi-Agency/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 would also benefit the Cities of Jackson, Plymouth, Pine Grove, First Mace Meadows Water District, Rabb Park Estates, and Drytown.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ \$200K

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ Annual

O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: TBD

Acre-feet Per Year of Reduced Demand: TBD

Water Quality Benefits

Reduction in pollutant loading: TBD

Reduction in pollutant transport: TBD

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages: TBD

Reduction in greenhouse gas emissions: Improvements will reduce GHG emissions – quantity TBD.

Other:

Disadvantaged Communities / Environmental Justice

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

This project would benefit the Disadvantaged Communities of Jackson, Sutter Creek, Martell, Amador City, Plymouth and Drytown.

Native American Tribal Communities

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

This project would benefit the Jackson Band of Mi-Wuk Native Americans

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. Improvements will reduce energy demands and will reduce greenhouses gases. Quantity TBD.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High. This is a study that seeks to understand more completely the Amador Water Agency's water system needs.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High. This is a study that seeks to understand more completely the Amador Water Agency's water system needs.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@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

Project Type: Implementation

Project Proponent Information

Contact Name: Jeff Myers

Affiliation: Calaveras County Water District

Address: 120 Toma Court, San Andreas 95249

Phone: 209-754-3102

Email: jeffreym@ccwd.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

38 12 39.13N, 120 27 19.53 W

Sheep Ranch is a rural, severely 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 due to blocky rock, and its proximity to extreme fire risk.

The Sheep Ranch Drinking Water Compliance Project involves upgrading the small water treatment plant which currently out of compliance. The Sheep Ranch Water Treatment Plant (WTP) 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. CADPH recommends current technology to include a membrane filter system with sodium hypochlorite disinfection. Additionally the current WTP technology cannot treat water to drinking water standards during storm events when turbidity levels increase. During these times, the WTP must shut down. The estimated cost of the project is \$300,000.

Project Status: Design Complete

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of planning, 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.

Multi-Agency/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.

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ 300,000

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

Estimated Project Life (Years): 40 years

Cost Basis (if not 2015 dollars):

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 in the next section, 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, year, and benefit cost ratio): An economic analysis has not been completed. The project is designed to address a deficient water treatment process identified by the CA Department Public Health (CA DPH) regarding the use of a non-compliant pressure filter system. The District 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. Additionally the current water treatment plant technology cannot treat water to drinking water standards during storm events when turbidity levels increase. During these times, the water treatment plant must shut down, thus creating a risk to both the health and safety of the community and its ability to combat fires in a rural area.

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

The Sheep Ranch community is a disadvantaged community.

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.

N/A

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

This project meets a High score. The project involves upgrading the existing small water treatment plant, utilizing current technology that includes a membrane filter system with sodium hypochlorite disinfection. The project will be able to produce safe reliable drinking water on a consistent basis. The estimated cost of the project is \$300,000.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' 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. Additionally the current water treatment plant technology cannot treat water to drinking water standards during storm events when turbidity levels increase. During these events the plant actually has to shut down and taken out of service. Upgrading the system renders a low degree of controversy. It is anticipated that the project will be received as it will benefit rate payers and meet CA DPH requirements. The water treatment plant will be able to produce reliable drinking water consistently.



**Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

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

Project Location: Smitty Lane West Point, California

Project Type: Implementation

Project Proponent Information

Contact Name: Jeffrey Meyer

Affiliation: Calaveras County Water District

Address: 120 Toma Court , San Andreas, Ca 95249

Phone: 209-754-3102

Email: jeffreym@ccwd.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

38 24 26.65 N , 120 30 51.25 W

The West Point Drinking Water Compliance Project is designed to address a current violation with the CA Department Public Health (CA DPH) regarding the lack of a backup filter system for an economically disadvantaged community. Currently, the water treatment process is an Adsorption Clarifier followed by Sodium Hypochlorite disinfection. However, the West Point Water Treatment Plant does not include a backup water filtration system as required by CA DPH. The West Point backup filtration system is required to produce potable water for a period of at least two weeks per year. Since there is no backup system the District is unable to produce potable water if the water plant is taken offline. As a result the community of West Point was out of potable water for 3 days during a treatment plant outage thru the Fourth of July weekend in 2008, risking both the health and safety of the community and its ability to combat a high fire risk.

The region is a densely wooded area 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 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 planning, design and environmental documentation (if applicable), and securing required matching funds.

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

Multi-Agency/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.

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ N/A

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ 825,000

Annual O&M Costs: \$ 10,000

Estimated Project Life (Years): 40 - years

Cost Basis (if not 2015 dollars):

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 in the next section, 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, year, and benefit cost ratio): An economic analysis has not been completed. The project is designed to address a current violation with the CA Department Public Health regarding the lack of a backup filter system for the West Point Water Treatment Plant. A backup filtration system is required to produce potable water for a period of at least two weeks per year, which the plant cannot currently meet. The lack of a backup system is a risk to both the health and safety of the community and its ability to combat fires in a high fire risk area.

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: Acre-feet

Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

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 CA DPH permit regulatory requirements that mandates a back-up filter to produce potable water for a minimum of 2 weeks per year. The West Point Community was out of water for a period of 3 days during the Fourth of July weekend in 2008 because the water treatment plant does not have a backup treatment process.

The economically disadvantaged community of West Point meets the State of California's criteria for a Disadvantage Community. According to the State Water Resource Control Board (SWRCB) the current median household income in West Point is \$35,375, which meets their definition of severely disadvantaged communities.

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. This will ensure that they have available safe reliable potable water.

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

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

The project has a high score. The District reviewed several options including adding an additional adsorption clarifier and a membrane filtration plant. It was determined that a packaged membrane filtration plant was the most 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 \$825,000. As the most economical option, it saves money for the District, and thus our ratepayers.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

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



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: CPUD Water Distribution System Improvements

Project Location: San Andreas, Mokelumne Hill, Glencoe and Paloma CA

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Donna Leatherman

Affiliation: Calaveras Public Utility District (CPUD)

Address : 506 W. St. Charles Street, PO Box 666

Phone: 209-754-9442

Email: dleatherman@cpud.org

Other Participating Agencies (if applicable): 37T

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

This concept will conduct a study to determine the benefits of replacing all or a portion of the transmission main that conveys treated water from the Jeff Davis Water Treatment Plant (WTP) to Mokelumne Hill, Paloma, and San Andreas (and possibly portions of the raw water transmission line). Approximately 18 miles of transmission main carry treated water from the Jeff Davis WTP to Mokelumne Hill, Paloma, and San Andreas. Much of the transmission main consists of 16, 18, 20, and 27-inch diameter cement mortar lined and coated steel pipe. The transmission main was installed in the 1970's and has had one large repair since that time. Much of the distribution system consists of 2-inch diameter to 12-inch diameter pipelines. The distribution system pipes consist of steel, PVC, HDPE, and some transite (AC) or galvanized iron. There are over 20 miles of pipelines in the CPUD water system, ranging in age from 50 plus years to new installations. The study would include assessment of areas that are reaching life expectancy, areas of water loss through leak detection, and recommendations for rehabilitation. Upon completion of the study, the project would include replacing or lining the

recommended areas of the current transmission main. Replacing or lining the transmission main will increase the life expectancy, and likely improve efficiencies and reduce unnecessary water loss. The study would prioritize the pipeline replacements according to benefit to increased fire flow, ageing infrastructure, and coordination with other improvements. Numerous areas of the system are dead-end lines. These require periodic flushing to purge the line of stale water as a result of customer taste and odor complaints. Looping of specific dead-end lines would lessen the need for flushing and increase system circulation. Main replacement coupled with system looping offers great potential for water savings and conservation. The magnitude of these savings in terms of volume and cost would be identified in the study.

Project Status: Planning

Readiness to Proceed

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

Evaluation of the distribution system can start as soon as funding is available. Design of the pipeline replacements would begin in a phased manner according to priority.

Multi-Agency/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.

Evaluation of the distribution system can start as soon as funding is available to determine the technical feasibility of the project and what approach would be taken for implementation of the system improvements.

Economic Feasibility

***Is your project a planning project?** If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$30,000 +/-

***Is your project an implementation project?** If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$ \$1,000,000 +/- (this represents the immediate goal of treating critical sections. The cost for rehabilitation of the entire distribution system is much greater in magnitude and will be approached in a phased manner)

Annual O&M Costs: \$ will be reduced, as less water pumped – amount TBD

Estimated Project Life (Years): 40 years

Cost Basis (if not 2015 dollars): 37T

Possible Funding Sources: unspecified grant/loan 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 in the next section, 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, year, and benefit cost ratio):

The study would include assessment of areas reaching life expectancy, areas of water loss through leak detection, and recommendations for rehabilitation. The 2008 Master Plan and 2012 Master Plan Analysis by Forsgren will be reviewed at the onset of the study. Raw water pumping data will be compared to water delivery data so that the level of unaccounted water can be established. This will determine the extent of any losses in the system and/or possible metering inaccuracies. A leak detection effort will then narrow those sections with excess leakage. These areas will be prioritized for replacement. The level of grant and/or loan funding support will determine how many phases and how many years the system improvements will span. An economic analysis would also be performed to determine what portion of the cost could be supported by the District's rate structure.

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: For example, if 10% of the total system demands are being lost through distribution system leakage, this would equate to 336 AF/year (this is based upon 3MGD of usage)

Acre-feet Per Year of Reduced Demand: For example, if 10% of the total system demands are being lost through distribution system leakage, this would equate to 336 AF/year (this is based upon 3MGD of usage)

Water Quality Benefits

Reduction in pollutant loading: NA

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: undetermined – less pumping

Other: 37T

Disadvantaged Communities / Environmental Justice

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

State of California's Disadvantaged Communities (DAC) Mapping Tool available at <http://www.water.ca.gov/irwm/grants/resourceslinks.cfm> shows that certain communities in CPUD's service area such as San Andreas, Mokelumne Hill, Glencoe, Rail Road Flat and Paloma are DACs. The proposed project will directly benefit these communities

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.

Replacement of aging distribution infrastructure has the opportunity to reduce water leakage in the system which has a direct correlation to the amount of water pumped. Reducing the amount of water pumped then has a direct correlation to the amount of electricity used, which in turn reduces greenhouse gases. The level of this reduction has not yet been determined.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High – This project is the best possible alternative to meet the stated need from a social, environmental and economic perspective. Replacement of aging distribution infrastructure is a common approach for public water systems and should be planned in a phased manner. The proposed changes increase the performance of the existing system and reduce water loss – it is anticipated this goal will be welcomed by the community. Should there be a break due to aging infrastructure, the distribution system could be exposed to sources of contamination (especially if negative pressure on the system exists which could draw in contaminated water). Maintaining the integrity of the system allows the District to maintain their level of service.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High – This project has minimal implementation risk as replacement of water lines reduces the likelihood of system contamination. Should there be a break due to aging infrastructure, the distribution system could be exposed to sources of contamination (especially if negative pressure on the system exists which could draw in contaminated water). Replacement of aging distribution infrastructure is a common approach for public water system and should be planned for in a phased manner. Disruption and inconvenience to the residents can be minimized through proper planning and coordination. The level of disruption will vary depending on what type of replacement is planned (ie. open trench replacement, pipe bursting, or direction bore). The proposed improvements increase the performance of the existing system and reduce water loss – it is anticipated this goal will be welcomed by the community. Plans, specifications, and procedures identified by the American Water Works Association (AWWA) outline proper procedures for line replacement. The Contractors are required to follow specified criteria.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Jeff Davis Treatment Plant Improvements

Project Location: Rail Road Flat, CA

Project Type: Implementation

Project Proponent Information

Contact Name: Donna Leatherman

Affiliation: Calaveras Public Utility District (CPUD)

Address : 506 W. St. Charles Street, PO Box 666

Phone: 209-754-9442

Email: dleatherman@cpud.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input checked="" type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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.

Calaveras Public Utility District's (CPUD) service area includes the communities of San Andreas and Mokelumne Hill, and unincorporated areas of Paloma, Golden Hills, and Railroad Flat with a population of approximately 4500. CPUD's sole source of raw water at this time consists of a surface water diversion on the South Fork of the Mokelumne River, just below the confluence of the Licking Fork. The direct filtration treatment plant (WTP) is located northeast of Mokelumne Hill, near Railroad Flat (Lat 38°20'36.52"N, Long 120°32'34.86"W). The treatment plant is in need of numerous upgrades including:

- Pressure filter media replacement and repairs
- Numerous automated valve controls to improve operations

- Construction of vault equipped with pumping equipment for capturing and recycling backwash water to the Jeff Davis Reservoir
- Chlorination/Disinfection Improvements
- Controls/Automation Improvements (SCADA)

Improvements to the facility will improve dependability of supply by optimizing the treatment process and streamlining operations. The project also has a significant water conservation component related to recycling of the facility's backwash water.

Project Status: Planning

Readiness to Proceed

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

An engineering consultant has been commissioned by CPUD to perform an evaluation of the treatment facility. The results of the study will be presented in a February 2015 report, to include an outline of the needed improvements, associated costs, and resulting benefits. Design and implementation of the treatment improvements would begin as soon as grant/loan funding is available.

Multi-Agency/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.

An engineering consultant has been commissioned by CPUD to perform an evaluation of the treatment facility. The results of the study will be presented in a February 2015 report, to include an outline of the needed improvements, associated costs, and resulting benefits. This will also address any technical difficulty in implementing these improvements. However, no major obstacles are anticipated.

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ NA

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ 800,000 +/-

Annual O&M Costs: \$ TBD

Estimated Project Life (Years): 30 years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: unspecified grant/loan 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 in the next section, 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, year, and benefit cost ratio): An engineering consultant has been commissioned by CPUD to perform an evaluation of the treatment facility. The results of the study will be presented in a February 2015 report, to include an outline of the needed improvements, associated costs, and resulting benefits.

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: For example, if the District recycles 30 gpm of backwash water on average, this would equate to 50 AF/year.

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: NA

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: TBD

Other:

Disadvantaged Communities / Environmental Justice

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

State of California's Disadvantaged Communities (DAC) Mapping Tool available at <http://www.water.ca.gov/irwm/grants/resourceslinks.cfm> shows that certain communities in CPUD's service area such as San Andreas, Mokelumne Hill and Rail Road Flat are DACs. The proposed project will directly benefit these communities

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.

Recycling of backwash water reduces the amount of water that needs to be pumped from the main raw water pump station at the South Fork. Reducing the amount of water pumped has a

direct correlation to the amount of electricity used, which in turn reduces greenhouse gases. Although the proposed backwash recycle includes an element of pumping, the energy required to do so is less than that required to pump from the South Fork. Improving screening upstream of the filters decreases the chances of media fouling, which results in less backwash water. Replacing the media and improving efficiency of backwash operations also offers a reduction in backwash water required. This in turn reduces the pumping requirement. Improving the chlorination equipment would allow the District to maximize withdrawal from the vessels before change-out, which reduces the chlorine delivery requirement. The overall reduction in greenhouse gases has not yet been quantified.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High - Direct filtration is a well suited treatment type for CPUD's water quality. Long term maintenance of this system is essential to maintain treatment capability. Recycle of backwash water to the reservoir appears to be an acceptable option to the CA Department of Health based on a very preliminary conversation with the department. The details of the approval have not yet been pursued.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High – This project has minimal implementation risk due to the regulatory review required by the CA Department of Health. Any change in treatment process (ie. backwash recycle) requires review by the State health jurisdiction, and subsequent approval. The treatment process itself will not change and thus controversy is not anticipated. The proposed changes only increase the performance of the existing facility and conserves water use.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Middle Fork Ditch Pipeline and Hydroelectric Power Project

Project Location: Middle Fork and South Fork Mokelumne River, Schaads Reservoir to South Fork Pump Station

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Donna Leatherman, District Manager

Affiliation: Calaveras Public Utility District

Address: P.O. Box 666, 506 W. St. Charles St., San Andreas, CA 95249

Phone: (209) 754-9442

Email: dleatherman@cpud.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input checked="" type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 scope of the Middle Fork Ditch Pipeline and Hydroelectric Power Project includes the construction of a pipeline connecting the existing penstock at Schaads Reservoir (GPS Coordinates; N 2327164.14, E 6577642.28), located on the Middle Fork of the Mokelumne River with an existing pipeline which delivers water to Jeff Davis Reservoir from the South Fork Mokelumne River Pump Station (GPS Coordinates N 2318708.47, E 6559567.93). (continued on attached page.)

Project Status: Conceptual Design

Readiness to Proceed

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

Pipeline alignment alternatives and technical feasibility analysis were previously evaluated by the District in 1988 and again, in 2001. These previous planning documents have recently been updated. In the 2001 document the District evaluated the feasibility and constructability of 8 different alignment options, selected the preferred alignment and estimated project costs. The estimated revenues generated by the proposed hydroelectric facility together with the reduced costs of operating the South Fork Pump Station were compared to annual costs. Without grant funding, annual debt service from construction loans exceeded hydroelectric power revenues and reduced pumping costs. With grant funding the Middle Fork Ditch Pipeline and Hydroelectric Power Project would be economically feasible.

With receipt of a planning level grant the District would proceed with the preparation of detailed designs (Final Pipeline Alignment, Surveys, Pipeline Plan and Profile, Pipeline Appurtenances, Hydroelectric Facility Structural, Mechanical and Electrical Improvements), the acquisition of necessary easements and environmental documentation. It is estimated that these planning and design tasks could be completed in 24 to 30 months. Assuming that planning funds were available by July 1, 2015, it is estimated that the Project would be ready for Construction Bids on or about January 1, 2018. A two year construction schedule is projected. Implementation grant funding and/or low interest loans would be required to initiate construction.

Multi-Agency/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.

Currently the Middle Fork Ditch Pipeline and Hydroelectric Power Project is not linked to or combined with another project. The proposed project may qualify for funding under a number of IRWMP grant proposals including the current Water-Energy Grant Program. The goal of the Water-Energy Program is to find residential, commercial and institutional water efficiency programs or projects that reduce greenhouse gas (GHG) emissions and also reduce water and energy use. Eligible applicants include local agencies such as CPUD and joint powers authorities, such as UMRWA. With the benefits of the water conservation, energy savings, hydroelectric power generation and GHG emission reduction the Middle Fork Ditch project is a good candidate for the Water-Energy Grant Program. It is intended that up to half of the grant money available from this grant program be awarded to projects that show benefits to disadvantaged communities (DAC). A significant portion of CPUD's service area includes disadvantaged communities.

Technical Feasibility

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

- **Middle Fork Ditch Pipeline Feasibility Study, Weber Associates. 1988.**
- **Middle Fork Ditch Pipeline and Hydroelectric Power Feasibility Study, KASL Consulting Engineers. September 2001.**

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ Estimated Plan of Study and Engineering Design Costs are \$605,000.

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

**Capital Cost: \$ Estimated Construction Costs = \$8.221 Million,
Estimated Total Capital Cost = \$10.78 Million**

Annual O&M Costs: \$

**Estimated Project Life (Years): Minimum Estimated Pipeline Life = 75 years.
Minimum Estimated Hydroelectric Power Equipment Life = 20 years; Power facility life extension would be provided by periodic replacement of hydroelectric power components. Minimum Hydroelectric Power Structure Life = 75 years.**

Cost Basis (if not 2015 dollars): **ENRCC = 9800, Projected for Mid-2015.**

Possible Funding Sources: • **IRWMP Water - Energy Grant Program,**
• **Clean Water State Revolving Fund**
• **USDA, Rural Utility Services (RUS) Grant / Loan Programs**
• **State Community Development Blocks (CDBG) Grant Programs**
• **Efficiency Service Loan Programs for Water Treatment and Alternative Pumping Operations, California Energy Commission**

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 in the next section, 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, year, and benefit cost ratio): An economic analysis of the Middle Fork Ditch Pipeline and Hydroelectric Power Project was conducted in 2001 (KASL Consulting Engineers, September 2001). (continued in attached page).

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: Under average year conditions up to 2410 acre feet of Middle Fork Mokelumne River water could be supplied to the Jeff Davis Reservoir with the Middle Fork Ditch Pipeline Project. Middle Fork water would typically be delivered from October through July. The amount of Middle Fork water actually supplied would be managed by CPUD based on treated water demands. Currently, annual treated water demands are approximately 1542 acre feet (502.4 Million gallons). The projected year 2039 treated water demands are 2204 ac-feet (718.2 Million gallons) based on a 1.5% per year increase in demands.

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

Water Quality Benefits

Reduction in pollutant loading: Delivery of raw water supplied to Jeff Davis Reservoir via piped systems as proposed with the Middle Fork Ditch Project will significantly reduce the total dissolved solids and total suspended solids loading at the District's water treatment facilities.

Reduction in pollutant transport: A significant reduction in total solids transported to Jeff Davis Reservoir will occur with the Middle Fork Ditch Pipeline Project.

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: **(See Attachment)**

Other:

Disadvantaged Communities / Environmental Justice

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

From CPUD’s Water Treatment Plant at Jeff Davis Reservoir, treated water is supplied to District customers in Railroad Flat, Mokelumne Hill, Glencoe and San Andreas. These disadvantaged communities will benefit from the alternative, high quality, water that would be supplied to Jeff Davis Reservoir from the Middle Fork Ditch Project.

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.

The Middle Fork Ditch Project will reduce greenhouse gas emissions and will not have adverse climate change –related impacts.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

Middle Fork Ditch Pipeline Alternatives have been evaluated in three separate engineering feasibility studies from 1988 to present. The present pipeline size, capacity and alignment will meet the current and projected treated water demands at Jeff Davis Reservoir without pumping. The current delivery of water to a new hydroelectric facility will be adequate to feed a 1 MW power generating facility. Clean hydroelectric power will be generated, on average, 8 months a year from the proposed South Fork Hydroelectric Plant. The power generating at this facility would be able to feed existing power lines which now deliver power to the South Fork Pump Station.

The currently proposed pipeline route follows the existing Middle Fork Ditch, paved roadways, unpaved roadways and CPUD driveways with minimal environmental impact. Only about 20% of the ± 28,870 foot long pipeline is proposed within new pipeline easements. Proposed easement locations are aligned along property lines and private driveways.

The current pipeline route has been selected to avoid environmentally sensitive (e.g. wetland riparian or river bank) locations. An environmental document will be prepared for the Project and the final pipeline alignment will be refined to mitigate, to the maximum extent possible, significant adverse impacts.

As currently proposed, project hydroelectric revenues and the economic benefits from reduced pumping costs exceed estimated annual project costs.

The Middle Fork Ditch Project will provide CPUD customers with a reliable, high quality, alternative supply of raw water that will serve the district's water treatment facilities. The ability to supply District customers with an alternative source of water supply is critical under current and projected drought conditions.

The Middle Fork Ditch Project will reduce greenhouse gas emissions. Operation of the existing pumps at the South Fork Pump Station will be significantly reduced or eliminated.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- ***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.
Implementation of the Middle Fork Ditch Pipeline Project as currently proposed will require the acquisition of easements from an estimated 9 properties. Easement areas will need to be appraised and fair market easement acquisition cost determined for each property. The District's right to use the existing Ditch alignment for a pipeline will also need to be confirmed by the District's legal, administrative and right of way staff.



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

ATTACHMENT

Project Description (continued from page 3)

Schaads Reservoir, the South Fork Pump Station and Jeff Davis Reservoir are all owned and operated by the Calaveras Public Utility District (CPUD or “District”). With completion of the Middle Fork Ditch Pipeline water would be supplied to Jeff Davis Reservoir by gravity pipelines for several months each year significantly reducing the need to pump water from the South Fork Pump Station. In addition to the benefits of reduced energy costs, the Project would take advantage of nearly 700 feet of hydraulic head available between Schaads and the South Fork Pump Station with the construction of a hydroelectric power generating facility adjacent to the existing South Fork Pump Station.

Water stored in Jeff Davis reservoir supplies the District’s Water Treatment Plant and serves CPUD customers located in San Andreas, Railroad Flat, Glencoe, Mokelumne Hill and other Calaveras County locations. Proposed improvements would efficiently convey Mokelumne River water to Jeff Davis Reservoir, improve the quality of water supplied to the District’s existing water treatment facilities, reduce energy demands and greenhouse gas emissions and sustain Mokelumne River resources. The Middle Fork Ditch pipeline project would provide Jeff Davis Reservoir and CPUD customers with an alternate source of water supply. Improvements which enhance water supply reliability and provide high quality raw water supply options are extremely beneficial to water districts such as CPUD who continue to provide the best, most reliable sources of supply under current and projected drought conditions.

Approximately one half of the new pipeline would utilize the existing Middle Fork Mokelumne River Ditch alignment. Historically the Middle Fork Ditch, operated by CPUD, was used to convey untreated Middle Fork water to District customers. CPUD has not diverted water into the Middle Fork Ditch for the past 13 years, however, and the Ditch has not been regularly maintained during this period. Confirmation of the District’s right to convey water, by pipeline, along the Ditch alignment is a potential obstacle to Project implementation. Remaining portions of the pipeline are proposed along existing District access roads, along existing public road right of ways and private driveways and, with acquisition of new pipeline easements, along property lines. The District has previously conducted Project Feasibility Studies and has verified the engineering feasibility of conveying Middle Fork Water, by pipeline, from a low water level at Schaads (elevation 2900) to the existing South Fork Pump Station discharge pipeline (elevation 2156) and then, via the existing South Fork Pump Station pipeline to Jeff Davis Reservoir (normal operating level approximately 2800).

Copies of previous Feasibility Studies and recent updates are attached.



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

ATTACHMENT

Economic Feasibility (continued from page 6)

In the 2001 Study, annual revenues from the South Fork Hydroelectric Facility were estimated in the range of \$169,000 to \$197,000 (sale of power estimated at \$0.06/Kw hr. to \$0.07 /Kw hr.) for average year flow diversions through the Middle Fork Ditch Pipeline. Annual power savings, from not operating the South Fork Pump Station, were estimated at \$159,000 to \$162,500. In the 2001 Study, it was determined that a limited amount of pumping would still be required from South Fork Pump Station to the Jeff Davis Reservoir. A net annual hydroelectric power revenue plus power cost savings ranging from \$275,000 to \$321,000 was determined for the Project as proposed at that time. In 2001 it was determined that only a limited amount of grant money was likely available for this project (estimated at \$300,000) and that low interest loans, at 3%, could be secured for only about \$1.0 Million of the Project costs). The remainder of the capital costs would be funded conventionally at 7% to 8%. With these assumptions annual debt service costs were determined to be in the range of \$579,000 to \$622,000. Based on these findings it was suggested, in 2001, that the Project was not financially feasible. Additional grant funding and / or low interest financing was needed.

In 2014-2015 the 2001 Initial Study was updated. A 30 inch diameter Middle Fork Ditch pipeline is now proposed. This conduit would be capable of delivering 20 cfs to a South Fork Hydroelectric Facility plus 5 cfs to the Jeff Davis Reservoir. Under average conditions \$233,000 to \$271,500 annual revenues can be reasonably expected from a 1MW South Fork Hydroelectric Facility. The average annual savings in pumping costs by not having to operate the twin 400 hp South Fork pumps is estimated at \$152,000 to \$165,500. With the new proposed conveyance capacity of the proposed Middle Fork Ditch Pipeline and efficient operation of the Jeff Davis Reservoir it can reasonably be expected that, on average, no supplemental pumping from the South Fork Pump /Station to Jeff Davis would be required.

The Middle Fork Ditch Project is a good candidate to receive grant funding from a number of Regional, State and Federal sources. Assuming that at least \$1.0 Million would be available from grant funds and that Project Legal and Administrative Fees would be paid by the District, approximately \$9.5 Million in Project Capital Costs would be funded through low interest loans. For the purpose of the updated economic analysis, a 1%, 30 year loan similar to loans available from the Clean Water State Revolving Fund (CWSRF) is assumed. Based on this financing, the annual debt service on the Project loan would be approximately \$369,000. Annual operating costs of the 1 MW South Fork Hydroelectric Facility are expected to be less than the annual maintenance required on the existing (constructed 1972) South Fork Pump Station. Annual operating costs associated with the pipeline are expected to be small when compared to other project benefits and costs. In summary, the current Project with existing available grant and loan programs, annual hydroelectric power revenues plus power cost savings are estimated at \$375,000 to \$437,000 and would exceed estimated annual project costs.



**Mokelumne/Amador/Calaveras (MAC)
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ATTACHMENT –BENEFITS RESOURCE STEWARDSHIP

Reduction in greenhouse gas emissions (continued from page 7)

In the following table is presented the estimated horsepower –hours of pumping that would be reduced at the South Fork Pump Station with delivery of water, by gravity head, from the Middle Fork Ditch Project to Jeff Davis Reservoir.

<u>Year</u>	<u>Annual Reduction in HP-Hours of Pumping, South Fork Pump Station</u>
2015	2,232,800
2019	2,370,400
2024	2,553,200
2029	2,750,400
2034	2,963,200
2039	3,192,000

Under average conditions the 1 MW South Fork Hydroelectric Facility would also produce some 4,408 Megawatt-Hours per year of power. The hydroelectric power produced would replace energy supplied by other, natural gas burning, power generating facilities.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Amador Household Water Efficiency Project

Project Location: Amador Water Agency and retailers' service area

Project Type: **Implementation**

Project Proponent Information

Contact Name: Reuben Childress

Affiliation: Foothill Conservancy

Address: 35 Court St. Suite 1, Jackson CA 95642

Phone: (209) 223-3508

Email: reuben@foothillconservancy.org

Other Participating Agencies (if applicable): Potential: Amador Water Agency, Amador-Tuolumne Community Action Agency

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

Drought Preparedness

Use and Reuse Water More Efficiently

Climate Change Response Actions

Expand Environmental Stewardship

Practice Integrated Flood Management

Protect Surface Water and Groundwater Quality

Improve Tribal Water and Natural Resources

Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Amador Household Water Efficiency Project is intended to implement and expand on the conservation program adopted by the Amador Water Agency in 2010, much of which has not been 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
- 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 planning, 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 Foothill Conservancy staff, and the in-kind value of office space and equipment provided for the project coordinator.

Multi-Agency/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

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ 692,000

Annual O&M Costs: \$ 35,000

Estimated Project Life (Years): 5 years

Cost Basis (if not 2015 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 in the next section, 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, year, and benefit cost ratio):

Water Supply Avoided Costs

Avoided Water Treatment Costs: \$61,000

Avoided Costs of New Supplies: \$143,000 (est cost of new storage needed for water saved @\$10,000 per af)

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 expenses of those who take advantage of the rebate programs, thereby providing them with additional spending money to meet their other basic needs.

Native American Tribal Communities

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

The project will reduce the water and power expenses of those who take advantage of the rebate programs, thereby providing them with additional spending money to meet their other basic needs.

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 Criteria

Best Project for Intended Purpose

Please indicate 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.*

High –

Justification: 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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High –

Justification: 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 AWA partner has an incentive to join because of its mandate to reduce overall water use.



**Mokelumne/Amador/Calaveras (MAC)
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Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Amador/Calaveras rainwater capture demonstration and distribution project

Project Location: Calaveras and Amador Counties

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Reuben Childress

Affiliation: Foothill Conservancy

Address: 35 Court St. Suite 1, Jackson CA 95642

Phone: (209) 223-3508

Email: reuben@foothillconservancy.org

Other Participating Agencies (if applicable): Amador-Tuolumne Community Action Agency, AWA, CCWD, CPUD, UMRWA, local schools

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

Drought Preparedness

Use and Reuse Water More Efficiently

Climate Change Response Actions

Expand Environmental Stewardship

Practice Integrated Flood Management

Protect Surface Water and Groundwater Quality

Improve Tribal Water and Natural Resources

Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|---|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input checked="" type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input checked="" type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input checked="" type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Amador/Calaveras Residential Rain Barrel Demonstration and Distribution Project is intended to plan and implement a program where free or discounted rain barrels or water storage tanks and technical guidance would be made available to county residents to construct stormwater capture facilities at home. The project would be completed in phases. Phase 1 will include an assessment of interest between Calaveras and Amador Counties and the construction of a demonstration project that would highlight a functional system where interested parties could learn about how systems work and how to construct their own. Phase 1 would also include the procurement of at least one shipment of rainwater catchment tanks, or more, based on the assessment of interest, that would then be provided below retail cost to interested parties. Future phases of this project would involve additional assessments of interest and additional procurement and distribution of tanks and materials.

Benefits of this project would directly reach participants of the program through increased water reliability, drought preparedness, reduced groundwater pumping and reduced water bills. Other direct environmental benefits include reduced erosion around participating residences and reduced transport of contaminants in stormwater into creeks, waterways, and downstream storage from urban or residential areas. Indirect benefits could potentially be seen by neighbors whose wells pump from the same groundwater sources as participating homes, and through reduced demand on surface water supplies, especially in the dry summer months.

Project Status: Conceptual Design

Readiness to Proceed

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

The project is in the planning stage. Phase 1 would require a minimal assessment of interest to determine number of water-tanks to purchase and then could be implemented. There would likely be no environmental documentation required. Once phase 1 of the project was funded, the program would be able to complete further outreach and assessment of interest and complete ongoing rounds of implementation. Required matching funds would come from: In-Kind partner staff time, NGO volunteer time, and other potential contributing organizations' time and donated materials.

Multi-Agency/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 program has potential to meet existing BMPs in existing but non-implemented water conservation plans of local water agencies. Environmental benefits and benefits of stormwater contamination reduction could potentially be realized by both Amador and Calaveras Counties. Purchase of water-tanks and the accompanying hardware would also benefit local business.

Technical Feasibility

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

Many NGOs, cities, counties, and other organizations have completed similar demonstration projects and residential subsidized rain barrel/tank programs. See demonstration projects tab.

<http://www.whollyh2o.org/rainwater-stormwater/item/59-costs.html>

The city of Oakland contracted with a NGO to implement this project between 2010-2012

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ 37T

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ 50,000 (estimate for Phase 1)

Annual O&M Costs: \$ (\$22,000 operation + cost for additional barrels based off interest)

Estimated Project Life (Years): 2 years (Phase 1 = 1 year, potentially 1 or more phases of procurement/distribution could be completed in year 2)

Cost Basis (if not 2015 dollars): 37T

Possible Funding Sources: DWR grants, local cities, water agencies.

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 in the next section, 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, year, and benefit cost ratio):

There has been no economic analysis of this project, however, some average costs of average individual systems are estimated below. Direct and indirect benefits would translate to local businesses and individuals.

<http://www.whollyh2o.org/rainwater-stormwater/item/59-costs.html>

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: Depends on level of implementation/interest

Acre-feet Per Year of Reduced Demand: Depends on level of implementation/Interest

Water Quality Benefits

Reduction in pollutant loading: would require further analysis based on participation

Reduction in pollutant transport: would require further analysis based on participation

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: would require further analysis based on participation and location

Reduction in greenhouse gas emissions: N/A

Other: The demonstration project would also provide educational opportunities for school programs and other drought preparedness programs. Rainwater would be an additional source of new water for residents that would help buffer the effects of climate change on water supply.

Disadvantaged Communities / Environmental Justice

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

Project implementation could help members of disadvantaged communities subsidize their annual water bills through reduced reliance on surface or ground water supplies. Project would reduce stormwater runoff contamination to creeks and streams.

Native American Tribal Communities

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

Any tribal communities that elect to participate in the program would benefit by acquiring subsidized materials and education to install rainwater catchment systems that could reduce home water bills and reliance on surface or groundwater supplies. Project would reduce stormwater runoff contamination to creeks and streams that could negatively affect cultural resource or harvesting sites.

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.

Capturing rainwater for outdoor use would provide a buffer to water supply from the effects of climate change. Capturing water that would otherwise run off the surface from around a residence, be lost to evaporation, or transport pollutants into nearby creeks results in decreased reliance on ground or surface water supplies.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High:

Justification: Project is the only proposed rainwater collection subsidization project in the MAC region. Benefits from this project would achieve drought preparedness goals, environmental stewardship goals, and water supply reliability goals. Benefits from this project also prioritize social, environmental, and economic principles that would benefit the surrounding counties and their residents.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High:

Justification: This project has very minimal implementation risk. An assessment of interest would be conducted before the program utilized funding for purchasing water tanks that would be subsidized. As this program only intends to provide water tanks for capture and outdoor use, no permitting process is required. Environmental benefits would be spread to both counties with increased participation.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Citizen Water Quality Monitoring

Project Location: Mokelumne River

Project Type: Implementation

Project Proponent Information

Contact Name: Reuben Childress

Affiliation: Foothill Conservancy

Address: 35 Court Street, Suite 1, Jackson CA 95642

Phone: (209) 223-3508

Email: reuben@foothillconservancy.org

Other Participating Agencies (if applicable): Potential: CSRC, Eldorado National Forest, Stanislaus National Forest, BLM, Trout Unlimited, Amador-Calaveras Consensus Group, Amador flyfishers

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 check all that apply.

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

Drought Preparedness

Use and Reuse Water More Efficiently

Climate Change Response Actions

Expand Environmental Stewardship

Practice Integrated Flood Management

Protect Surface Water and Groundwater Quality

Improve Tribal Water and Natural Resources

Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input checked="" type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Foothill Conservancy's citizen water quality monitoring program would be a three-year project and utilize Calaveras and Amador County citizen volunteers who previously received training to conduct monitoring on water quality through the Central Sierra Resource Conservation and Development Council's citizen water quality monitoring program and/or volunteers who would receive training to conduct monitoring as a part of the program.

The program would involve monitoring of streams and tributaries in the Amador/Calaveras area where other monitoring efforts have gaps or where an identified need for monitoring is determined. Data generated from this project would be shared with the State Water Resources Control Board's Citizen Monitoring program database so that information would be made publicly available. It would also share data with county health and sanitation districts.

Monitoring areas may include but are not limited to:

Temperature, benthic macroinvertebrates, pH, total dissolved solids/electrical conductivity, dissolved oxygen, turbidity, Coliform bacteria, and streamflow.

Project Status: Conceptual design

Readiness to Proceed

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

Project design and implementation could proceed immediately following disbursement of funds. Equipment from the previous CSRC&D citizen monitoring program is still in good working condition and could be used by this program to reduce equipment costs. Previous volunteers are ready and willing. This project would not require environmental analysis. Matching funds would come from in-kind volunteer and partner organization time as well as the value of loaned/donated equipment and materials.

Multi-Agency/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 would provide a strong educational component that would teach participants valuable technical skills, and an opportunity for area citizens to become stewards of their local streams and watersheds. The program will also provide an important sense of connectedness of local people with their streams and watersheds.

This project would also be linked to the State Water Resources Control Board's Citizen Monitoring program and could provide valuable data to inform public health and safety planning for both counties.

Technical Feasibility

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

This link from the State Water Resources Control Board's Citizen monitoring page takes you to the other participating citizen monitoring groups in the state.

<http://batchgeo.com/map/74e2dcf703ccc0bf1b3cc8da1e2942cb>

Citizen water quality monitoring programs exist all over the United States. Locally, the Central Sierra Resource Conservation and Development Council implemented a similar project for a number of years that was successful and valued by citizen volunteers. The proposed project is

technically feasible in part because it will use some of the CSRC&D's program, volunteers, and existing resources/equipment.

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study:

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ 25,000 (for 3 years of program)

Annual O&M Costs: \$ 3,000 (estimate)

Estimated Project Life (Years): 3 years (could be adjusted for longer)

Cost Basis (if not 2015 dollars):

Possible Funding Sources: IRWMP implementation grant, DWR, other 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 in the next section, 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, year, and benefit cost ratio): No economic analysis has been completed for this project. Benefits will be discussed below.

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: This project would create one paid job and numerous volunteer positions who would gain valuable technical skills. One result of the previous CSRC&D project was the attribution of a previously discovered high level of coliform bacteria in the middle Fork Mokelumne River above West Point to human sources and septic leaching issues. There are many miles of streams that do not currently receive water quality monitoring and that could benefit from identifying point-source contamination. This information could be used for future remediation projects and actions that could improve water quality downstream. All citizens of the county could benefit from knowledge of local water quality and safety, and local water agencies could benefit as a result of subsequent remediation projects that provide them and their customers with higher quality water.

Disadvantaged Communities / Environmental Justice

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

Identifying contamination issues in streams could have a direct impact on the health of people in disadvantaged communities who use local swimming holes in the summer to cool off or fish.

Native American Tribal Communities

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

Contamination issues in streams could have a direct impact on the health of tribal communities who use local streams or swimming holes in the summer to cool off or fish.

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 implications of climate change could mean reduced snowpack and reduced stream-flow throughout the year. If there are lower flows, contamination concentration levels and the impact to riparian or aquatic life and habitat will increase. Monitoring and identifying streams and creeks that are currently not monitored will provide necessary information to inform policy and develop climate change adaptation strategies for environmental, health and human safety considerations.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High:

Justification: Project would rejuvenate a previous highly successful project that would provide social, environmental, and economic benefits to a diverse group of interests in both Amador and Calaveras Counties. Informing and engaging people in local water quality has great social benefit, Environmental degradation could be identified and reduced through this project. Economic benefits would come from job generation, technical education for citizens, and indirect benefits to local business from volunteers actions traveling and working in this new group.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High:

Justification: This project would have minimal implementation risk as a result of institutional barriers. The program is anticipated to have a low degree of controversy, as benefits from implementation of the project would be recognized by a diverse group of interests. The program would also require few or no permits.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: High Country Meadow Restoration

Project Location: Upper Mokelumne River Watershed

Project Type: Planning

Project Proponent Information

Contact Name: Reuben Childress

Affiliation: Foothill Conservancy

Address: 35 Court Street, Suite 1, Jackson CA 95642

Phone: (209) 223-3508

Email: reuben@foothillconservancy.org

Other Participating Agencies (if applicable): Amador Calaveras Consensus Group, U.S.

Forest Service: Amador Ranger District, Calaveras Ranger District, Bureau of Land Management, American Rivers, other NGOs .

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 check all that apply.

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

Drought Preparedness

Use and Reuse Water More Efficiently

Climate Change Response Actions

Expand Environmental Stewardship

Practice Integrated Flood Management

Protect Surface Water and Groundwater Quality

Improve Tribal Water and Natural Resources

Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 High Country Meadow Restoration program would develop an implementation/prioritization plan for upper elevation meadows in the Mokelumne River Watershed. Phase I would compile existing assessments within the watershed and identify additional meadows that require assessment. Phase II would fund additional work prioritized by the plan.

The overall goal is to restore high-elevation meadows to approximate natural function to provide water supply, storage, and ecosystem enhancement benefits. The program would involve identifying and assessing potential meadows for restoration through coordination with local groups such as the Amador Calaveras Consensus Group, and U.S. Forest Service who are actively involved in meadow restoration projects in the watershed.

Benefits of restoration of this type could come in many forms depending on the location, ownership, need, and function of each identified meadow. Previously completed meadow restorations in the Sierra Nevada have shown benefits to ecologic function, water quality, habitat, and high-country grazing for livestock

Project Status: Conceptual design

Readiness to Proceed

Please discuss project readiness and anticipated start date. Include a description of the status of planning, 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 in-kind services provided by the Amador Calaveras Consensus Group, volunteers from Foothill Conservancy and other participating NGOs, the value of Federal agency staff time, and funding sources such as the National Fish and Wildlife Foundation.

Multi-Agency/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.

Both the Amador and Calaveras Ranger Districts are actively involved in meadow restoration projects through a federally funded Collaborative Forest Landscape Restoration Act (CFLRA) program with the Amador Calaveras Consensus Group (ACCG). The ACCG is a community-based organization of diverse stakeholder groups that works to create fire-safe communities, healthy forests and watersheds, and sustainable local economies.

Benefactors and benefits of restoration of this type could come in many forms depending on the location, ownership, need, and function of each identified meadow. Previously completed meadow restorations in the Sierra Nevada have shown benefits to many diverse interests including but not limited to: ecologic function, water quality, water supply reliability, habitat, and high-country grazing for livestock.

Care must be taken to assure equitable distribution of benefits to all stakeholders. This project would rely on the decision-making capabilities of the diverse ACCG group to work through the multi-agency/entity integration and benefits that would result from implementation of the restoration plan.

Technical Feasibility

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

Similar evaluations have been completed that show technical feasibility of such a project. As an example: American River's 2012 "Evaluating and Prioritizing Meadow Restoration in the Sierra" created a process that could greatly accelerate future work that needs to be done.

See: <http://www.americanrivers.org/assets/pdfs/meadow-restoraton/evaluating-and-prioritizing-meadow-restoration-in-the-sierra.pdf?c8031c>

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ 40,000

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

The National Fish and Wildlife Foundation published a business plan in March 2010 to guide their prioritization of grant-making for Sierra Nevada meadow restoration. It has general evaluation of costs/benefits to water supply, water quality, natural resources and other metrics resultant of meadow restoration work.

http://www.nfwf.org/sierranevada/Documents/Sierra_Meadow_Restoration_business_plan.pdf

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:

Acre-feet Per Year of Reduced Demand:

Water Quality Benefits

Reduction in pollutant loading: Potential reduction in sedimentation of stream course and downstream infrastructure.

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Depends on prioritized and funded work

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): Depends on prioritized and funded work

Reduction in flood-related damages: Depends on prioritized and funded work

Reduction in greenhouse gas emissions:

Other:

This assessment by American Rivers of Sierra Nevada meadows provides some rough estimations of costs/benefits from Meadow Restorations.

<http://www.americanrivers.org/assets/pdfs/meadow-restoration/evaluating-and-prioritizing-meadow-restoration-in-the-sierra.pdf?c8031c>

Disadvantaged Communities / Environmental Justice

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

Restoring areas of public land to proper function will ensure that visitors from local disadvantaged or any communities will be able to appreciate the physical benefits of restored meadows and help local residents learn why restoration and environmental function is important for wildlife and people.

Native American Tribal Communities

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

Benefits to environmental function as a result of meadow restoration will allow for multiple educational possibilities as well as stewardship of natural resources and sites traditionally used by tribal communities.

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.

Enhanced environmental function of restored meadows provides many benefits that combat the effects of climate change. Potential watershed services that could provide resilience to climate change include but are not limited to: Flood attenuation and flow reliability, increased late-season water flow, reduced erosion, improved habitat for birds and amphibians, and decreased water temperature during the summer.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High:

Justification: This project works with a diverse collaborative that is currently planning and has completed other meadow restorations in the Mokelumne Watershed. This project would be put before the Amador Calaveras Consensus group that makes policy and decisions based on local input for their triple bottom line principles that consider social, environmental, and economic outcomes of any project.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High:

Justification: This project would have minimal implementation risk due to the long-standing and successful history of the Amador Calaveras Consensus Group. The group has been united on meadow restoration projects to date and would have little to no controversy and little to no implementation risk. The group has many examples throughout their six-year history of collaboration and finding agreement on challenging subjects and has won awards for its work. As a result of this history, institutional barriers, permitting obstacles, and controversial topics can be resolved quickly and efficiently.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Restoring the Upper Mokelumne's Anadromous Fish

Project Location: Upper Mokelumne River - from Camanche Dam upstream

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Reuben Childress

Affiliation: Foothill Conservancy

Address: 35 Court Street, Suite 1, Jackson, CA 95642

Phone: (209) 223-3508

Email: reuben@foothillconservancy.org

Other Participating Agencies (if applicable): East Bay Municipal Utility District, California Department of Fish and Wildlife, National Marine Fisheries Service, U.S. Fish and Wildlife Service, nonprofit fish and conservation groups, Bureau of Land Management, U.S. Forest Service, Pacific Gas and Electric Company, tribal interests

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input checked="" type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Upper Mokelumne Anadromous Fish Restoration Program is intended to benefit California's anadromous fish populations while restoring nutrients to the upper Mokelumne watershed's forests and streams. The program would design and implement a program to study the feasibility of moving anadromous fish from the Mokelumne at Camanche Dam to the river above Pardee Reservoir, and back. The project would be completed in phases. First a pilot study project assessing the feasibility of transporting fish above Pardee Reservoir would be completed. The pilot would seek to identify any potential benefits, impacts, and constraints to the following: domestic water supply; river flows; technical, political, environmental, economic, legal, and recreation. The study also will recognize that, prior to implementation, the project will require analysis under CEQA and/or NEPA and will also need to comply with other applicable law. Based on results of the pilot study, long-term goals of establishing a self-sustaining population in the upper watershed could begin. This phase may incorporate further spawning habitat assessment, habitat restoration, and monitoring components, all of which would be

subject to environmental analysis and applicable law. The project will be guided by a collaborative steering committee to ensure stakeholder concerns are addressed.

Project Status: **Planning and Implementation**

Readiness to Proceed

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

As of January 2015, the project is in the planning stage. Pilot project finalization and environmental review could proceed as soon as funds are awarded. Matching funds would come from in-kind services provided by staff and 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 Environmental Benefits Program. Services provided by East Bay Municipal Utility District fisheries staff, and Pacific Gas and Electric Company staff would be additional sources of project match.

Parts of the program would be subject to CEQA (and possibly NEPA). After the pilot project plan is complete, the project could proceed to full CEQA/NEPA review. Depending on the final pilot project plan. Review could be complete one year from its start date.

Multi-Agency/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 could include local anglers, local communities that benefit from the direct/indirect/induced economic and revenue benefits of increased recreation, fish viewing, 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 landowners and land 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.

Do we need to list some studies or reports?

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ 100,000

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ 1,000,000 (estimate)

Annual O&M Costs: \$ 50,000 (estimate)

Estimated Project Life (Years): Planning and implementation work for Pilot project: 5 years, and Long-term implementation goals: 10 years. If pilot informs implementation of long term goals and/or a feasible volitional passage strategy, the program could continue indefinitely.

Cost Basis (if not 2015 dollars):

Possible Funding Sources: IRWMP planning/implementation grants, MokeWISE program, 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 in the next section, 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, year, and benefit cost ratio):

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: It is difficult to quantify the number of restored acres at this point. However, once the plan is implemented, potential restoration opportunities will be Identified and prioritized. Depending on the degree of implementation and the level of long-term implementation, the benefits of the resource will be easier to quantify. Mileage of stream and surrounding lands/forest enhanced by the project at minimum would be 15 miles of river on the North Fork Mokelumne and potentially additional distance on lower portions of the south and middle forks of the Mokelumne. However, this mileage will also be informed by tracking and usage patterns of the fish and be quantified as part of the pilot study.

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): The Pilot Study will have an added recreation bonus in the opportunity for viewing salmon, however, will not likely provide the opportunity for angling for adult salmon. If the pilot study shows that long-term goals are feasible, a self-sustaining population could be actualized and additional recreation components could be considered in the program.

Reduction in flood-related damages: n/a

Reduction in greenhouse gas emissions: n/a

Other: No one has fully estimated the commodity and ecosystem services value of a fully restored salmon fishery in the Sierra, much less 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. Although it is unlikely, If the project failed to achieve any of the above benefits or additional goals, but did succeed in increasing production of salmon on the Mokelumne River, it would still be a positive and worthwhile endeavor.

Disadvantaged Communities / Environmental Justice

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

There will be direct, indirect and induced economic and revenue benefits from increased recreation in the area. If long-term goals are realized, the project could provide an additional source of healthy protein for residents.

Native American Tribal Communities

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

Short-term goals would achieve the benefit of restoring a once vital resource for native communities back into the upper watershed. If long-term goals are realized, the project could provide an additional source of healthy protein for native communities and restore traditional practices, with opportunities for intergenerational education.

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 anadromous fish in California as climate change threatens river flows and habitat on other streams across the globe.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High: Project is the best possible alternative to meet the stated need from a social, environmental and economic perspective.

Justification for scoring: This project only proposes to meet the goal of returning anadromous fish to the Mokelumne River above the two large rim dams. There is no other alternative, now or proposed in any long-term planning documents, that would achieve returning anadromous fish to upper watersheds above rim dams in the Central Sierra. 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 anadromous fishery and provide public education opportunities 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. This project is guided by a diverse collaborative steering committee from within the watershed and gives great weight to the project's ability to provide social, economic, and environmental benefits within the watershed and local communities surrounding it.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high 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 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 Wildlife has opposed this sort of transport program in the past, it is now supporting a pilot program on the Yuba River. On rivers where dam removal is not an option to restore anadromous runs, transport programs are more acceptable, and could demonstrate that it is worthwhile to build some form of volitional passage in the future. 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)
Integrated Regional Water Management Plan Update
Project Information Sheet**

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Hemlock Landscape Restoration

Project Location: Headwaters of the Middle Fork Mokelumne River; Stanislaus National Forest, Calaveras Ranger District

Project Type: Implementation

Project Proponent Information

Contact Name: Teresa McClung, District Ranger

Affiliation: Stanislaus National Forest, Calaveras Ranger District, United States Forest Service

Address: PO Box 500, 5519 Highway 4, Hathaway Pines, CA 95233

Phone: (209)795-1381, extension 314

Email: tmcclung@fs.fed.us

Other Participating Agencies (if applicable): Sierra Nevada Conservancy, California Department of Fish and Wildlife, Cal Fire, and the Bureau of Land Management through their participation in the Amador Calaveras Consensus Group (ACCG)

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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 Landscape Restoration project will 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; and closing or decommissioning unneeded roads.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Description: Treatments in the Hemlock Landscape Restoration project are 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 ethnobotanical connectivity and diversity. As such, this project would direct natural resources towards this goal.

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: Maintain or improve watershed ecosystem health and function.

Description: Watershed ecosystem health in the Hemlock Landscape Restoration area will be improved by reducing sediment generated by the road system and delivered to streams and special aquatic features through improvement of road drainage features. Watershed ecosystem health will be enhanced through the improvement of recreation sites by stabilizing areas of erosion, restricting vehicle access to streams and other sensitive areas, and managing foot access to streams. Maintenance or enhancement of the hydrologic, geomorphic, and biological characteristics of special aquatic features (springs, seeps, meadows, and fens) will occur at multiple locations within the project area. Habitat that needs restored or maintained for riparian and aquatic species is also a major component of the Hemlock Landscape Restoration project and includes culvert reconstruction for aquatic organism passage.

Goal: Minimize adverse effects on cultural resources.

Description: Locations within the Hemlock Landscape Restoration project have cultural value and have planned management activities to produce ethno-botanical diversity similar to indigenous stewardship conditions on and around those archaeological sites by managing vegetation and woody debris and reducing the risk of fire damage. Other proposed protection for cultural resources includes road decommissioning or blocking, barrier installation, and relocation of specific recreation areas.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

Description: Identified recreation areas including dispersed campsites will be improved or maintained. Identified motorized and non-motorized trails will be reconstructed, rerouted, and hiking trails and trailheads will be will be constructed or reconstructed.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Recycled Municipal Water |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Surface Storage – Regional/local |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Drinking Water Treatment and Distribution |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Precipitation Enhancement | |

- | | |
|--|---|
| <input type="checkbox"/> Salt and Salinity Management | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Urban Runoff Management | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Flood Risk Management | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Agricultural Lands Stewardship | <input type="checkbox"/> Water-Dependent Recreation |
| <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) | <input checked="" type="checkbox"/> Watershed 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.

Location: The Hemlock Landscape Restoration project is located on the Calaveras Ranger District of the Stanislaus National Forest in Calaveras County, California (Figure 1). The project area is northeast of Arnold and southwest of the Bear Valley Recreation area on the north side of the North Fork Stanislaus River. The project area would be in all, or portions of, Township 6N, Range 16E, Sections 1-5, 8-12, Township 6N, Range 17E, Sections 5 and 6, Township 7N, Range 16E, Sections 12 – 14, 23 – 27, 33 – 36, and Township 7, Range 17E, Sections 15 – 22, 26 – 35 and contained within the Tamarack and Calaveras Dome USGS 7.5 minute Quadrangle Maps. Elevations within the 14,000 acre project area range between 5,400 feet and 7,920 feet.

Description: The main project goals are to:

- Increase tree, stand, and landscape resiliency and sustainability by producing different stand structures and densities across the landscape. Enhance the general health of forested stands by reducing susceptibility to insect, diseases, and drought-related mortality by improving and promoting stand and individual tree growth and vigor.
- Reduce future fire intensity and severity to federal land and adjacent private land by reducing surface fuels, increasing the height to canopy, decreasing crown density, and retaining large, fire-resistant tree species.
- Maintain and enhance important wildlife habitat, mature forest ecosystem values, and connectivity of mature forest stands [e.g., late seral with closed canopies, (CWHR size classes of 4-6, and density classes of M and D)].
- Maintain and enhance the extent and connectivity of aspen stands by reducing encroaching conifers.
- Achieve an environmental context of ethno-botanical diversity similar to indigenous stewardship conditions on and around archaeological sites by managing vegetation and woody debris and reducing the risk of fire damage.
- Improve watershed condition by reducing sediment generated by the road system and delivered to streams and special aquatic features through improvement of road drainage features. Improve resource conditions at dispersed recreation sites by stabilizing areas of erosion, restricting vehicle access to streams and other sensitive areas, and managing foot access to streams. Remove user-created trails and rehabilitate areas that have suffered resource damage associated with these trails. Maintain or enhance the hydrologic, geomorphic, and biological characteristics of special aquatic features (springs, seeps, meadows, and fens). Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore or enhance habitat for riparian and aquatic species.

Project Status: In Design

Readiness to Proceed

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

The NEPA and CEQA analyses and documentation are expected to be completed by late summer 2015. Project implementation could occur as early 2016. Environmental documentation is expected at the Environmental Analysis (EA) level. Project implementation matching funds would be secured through the ACCG Cornerstone project, California State Parks off-Highway Vehicle grants program, Forest Service appropriations, and other grant opportunities. Efforts related to the Mokelumne Watershed Environmental Benefits Program may also provide leveraged funds.

Multi-Agency/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 US Forest Service has collaborated with Amador Calaveras Consensus (ACCG) group in project design, implementation, and monitoring. The project is part of a larger Collaborative Forest Landscape Restoration (CFLR) program to treat over 33,000 acres within the Cornerstone boundary.

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

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ Project implementation costs have not been estimated. An economic discussion comparing alternatives will occur in the Environmental Assessment.

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ Has not been estimated

Annual O&M Costs: \$ Has not been estimated

Estimated Project Life (Years): Has not been estimated

Cost Basis (if not 2015 dollars): Has not been estimated

Possible Funding Sources: Project implementation matching funds would be secured through the ACCG Cornerstone project, California State Parks off-Highway Vehicle grants program, Forest Service appropriations, and other grant opportunities. Efforts related to the Mokelumne Watershed Environmental Benefits Program may also provide leveraged 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 in the next section, 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, year, and benefit cost ratio): An economic analysis of project costs/outputs has not been conducted.

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: Has not been estimated

Acre-feet Per Year of Reduced Demand: Has not been estimated

Water Quality Benefits

Reduction in pollutant loading: Water quality benefits have not quantified for the project. However, we expect a reduction of pollutants entering waterbodies by reducing the amount of road and trail sedimentation, and increasing riparian and meadow functionality.

Reduction in pollutant transport: See above response.

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Greater than 3000 acres are expected as a result of project restoration actions.

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): 4.3 miles of restored/new trails, 1 new trailhead, 1 new parking area, 420 acres National Scenic Byway treatments.

Reduction in flood-related damages: Has not been estimated.

Reduction in greenhouse gas emissions: Has not been estimated.

Other:

Disadvantaged Communities / Environmental Justice

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

Calaveras County is located in the Historically Underutilized Business Zones (HUBZone). This program is administered by the U.S. Small Business Administration, and encourages economic development in historically underutilized business zones 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 the distress areas by providing access to more federal contraction opportunities.

In addition, the project is part of the ACCG Cornerstone landscape restoration program with stated goals to create healthy forest and watersheds, fire-safe communities, and sustainable local economies. ACCG 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 watershed

Native American Tribal Communities

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

This project will minimize adverse effects on cultural resources. All cultural resources in the project area have been identified and Historic Preservation Compliance completed. The Forest Service have/will 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.

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 reduction of greenhouse gas emissions from project activities has not been calculated. Analysis related to these parameters will be conducted during the NEPA and CEQA process.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

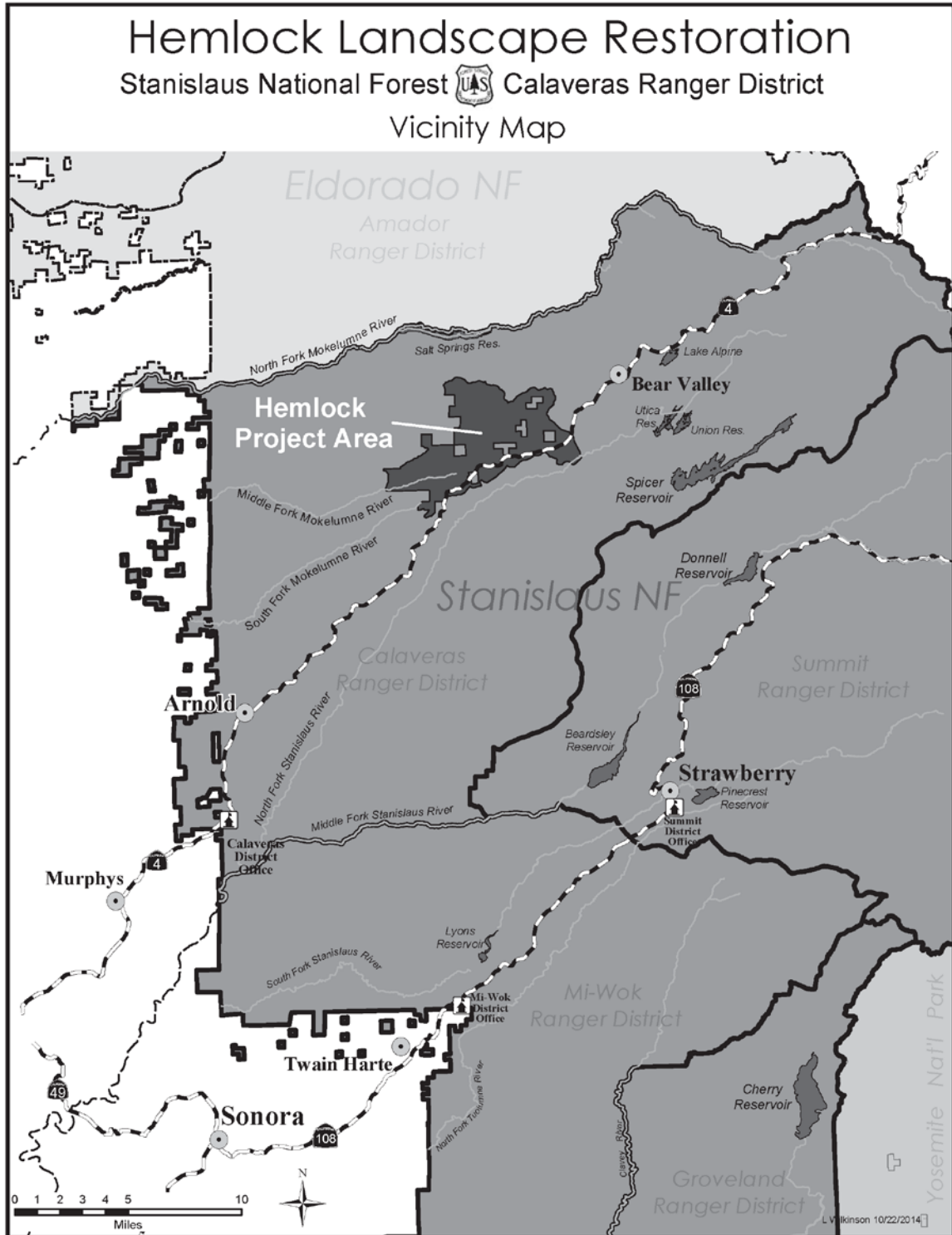
This project will be designed to yield the best possible alternative to meet social, environmental, and economic perspectives. The Forest Service is collaborating with the Amador Calaveras Consensus Group (ACCG) on the design of this project. ACCG is advancing an All-Lands strategy to create a heightened 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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- **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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

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 has been designed in close partnership with ACCG. Barriers to the project's implementation were identified, and mitigated, through the Forest Service's participation with ACCG and other public input. Multiple collaborative and public input check-points have been implemented throughout the planning period.





**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:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Mattley Meadow Restoration

Project Location: North Fork of the Mokelumne River, Stanislaus National Forest, Calaveras Ranger District.

Project Type: Planning and Implementation

Project Proponent Information

Contact Name: Teresa McClung

Affiliation: U.S. Forest Service

Address: P.O. Box 500, Hathaway Pines, CA 95233

Phone: 209-795-1381

Email: tmmclung@fs.fed.us

Other Participating Agencies (if applicable): Sierra Nevada Conservancy, California Department of Fish and Wildlife, Cal Fire, Natural Resources Conservation Service, and the Bureau of Land Management through their participation in the Amador Calaveras Consensus Group (ACCG).

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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.

Mattley Meadow is an approximate 109-acre meadow of which approximately 62 acres are privately owned. In addition, there are approximately 23-acres of disconnected meadows around Mattley Meadow, potentially disconnected by encroaching conifers, altered hydrology, and other environmental stressors. Mattley Creek enters into the North Fork Mokelumne River approximately 0.4 miles above Salt Springs Reservoir. Mattley Meadow has channel migration, deeply eroded channels, and a change in meadow floristic composition, trending towards dryland species and non-vegetation areas. In addition, encroaching conifers are expected to be removed from the meadow, and an OHV route would be re-aligned to minimize disturbances.

The project is expected to use engineered plans for a channel fill or pond and plug system on approximately 1.0 mile of eroded channel(s). In addition, the project would design hydrologic restoration actions to potentially re-connect adjacent meadows to Mattley Meadow.

After project implementation, the seasonal water table is expected to stay higher for longer into the dry season, encouraging the growth of riparian vegetation, and providing cooler water for fish and wildlife downstream. Planting of riparian vegetation would be considered in project design.

To achieve maximum benefits from meadow restoration actions, the US Forest Service is collaborating with the private landowner, Plumas Corps, NRCS, and the Amador Calaveras Consensus group in project design, implementation, and monitoring. The Amador-Calaveras Consensus Group (ACCG) is a local collaborative that works to create healthy forests and watersheds, fire-safe communities, and sustainable local economies. ACCG 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. The group 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 emphases on balancing environmental, social and economic goals.

Project Status: Planning

Readiness to Proceed

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

Restoration designs were developed during the 2014 field season by Plumas Corps. These designs will help drive proposed actions for NEPA and CEQA analyses and documentation (expected completion summer 2016). Project implementation could occur in late summer 2016, or 2017). Environmental documentation is expected at the Environmental Analysis (EA) level. Project implementation matching funds would be secured through the ACCG Cornerstone project, California State Parks off-Highway Vehicle grants program, Forest Service appropriations, Plumas Corps and other grant opportunities. Efforts related to the Mokelumne Watershed Environmental Benefits Program may also provide leveraged funds.

Multi-Agency/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 US Forest Service is collaborating with the private landowner, Plumas Corps, NRCS, and the Amador Calaveras Consensus group in project design, implementation, and monitoring. We expect project benefits to each of these stakeholders in terms of meadow function and long-term sustainability. The project is part of a larger Collaborative Forest Landscape Restoration (CFLR) program to treat over 33,000 acres within the Cornerstone boundary. Changes in hydrological flow and timing may provide water benefits to downstream municipalities (East San Francisco Bay communities).

Technical Feasibility

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

Engineered designs for restoration actions were developed during the 2014 field season by Plumas Corps. Plumas Corps has a long history of meadow, riparian, and special aquatic feature restoration in northern California. Plumas Corps were instrumental in the 2012 restoration of Indian Valley meadow on the Amador Ranger District,

Eldorado National Forest (within the Cornerstone Boundary). As such, the Forest Service has direct experience in implementing similar projects. In addition, this project will be planned, implemented, and monitored in close collaboration with ACCG and the private landowner. All actions will be consistent with the Stanislaus National Forest Plan Direction (USDA Forest Service 2010).

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$ Project Planning Costs have not been estimated, but are expected to be below \$200,000. Matching dollars have already been secured and utilized for project design.

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ Has not been estimated.

Annual O&M Costs: \$ Has not been estimated.

Estimated Project Life (Years): Has not been estimated.

Cost Basis (if not 2015 dollars): Has not been estimated.

Possible Funding Sources: Project implementation matching funds would be secured through the ACCG Cornerstone project, California State Parks off-Highway Vehicle grants program, Forest Service appropriations, NRCS, Plumas Corps and other grant opportunities. Efforts related to the Mokelumne Watershed Environmental Benefits Program may also provide leveraged 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 in the next section, 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, year, and benefit cost ratio): Has not been estimated.

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: Has not been estimated.

Acre-feet Per Year of Reduced Demand: Has not been estimated.

Water Quality Benefits

Reduction in pollutant loading: Has not been estimated, but project activities are expected to delay water release by retaining water in the meadow (sponge effect). Natural water infiltration into the meadow should yield a reduction in pollutants loading and transport.

Reduction in pollutant transport: Has not been estimated (see answer above).

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: 200 acres

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): Approximately 1.5 miles of motorized trail would be re-aligned out of the meadow to reduce disturbance.

Reduction in flood-related damages: N/A

Reduction in greenhouse gas emissions: GHG reduction has not been calculated. However, proper functioning meadows may provide opportunities for Carbon offsets.

Other:

Disadvantaged Communities / Environmental Justice

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

Calaveras County is located in the Historically Underutilized Business Zones (HUBZone). This program is administered by the U.S. Small Business Administration, and encourages economic development in historically underutilized business zones 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 the distress areas by providing access to more federal contraction opportunities.

In addition, the project is part of the ACCG Cornerstone landscape restoration program with stated goals to create healthy forest and watersheds, fire-safe communities, and sustainable local economies. ACCG 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 watershed.

Native American Tribal Communities

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

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.

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 reduction of greenhouse gas emissions from project activities has not been calculated. Analysis related to these parameters would be conducted during the NEPA and CEQA process.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

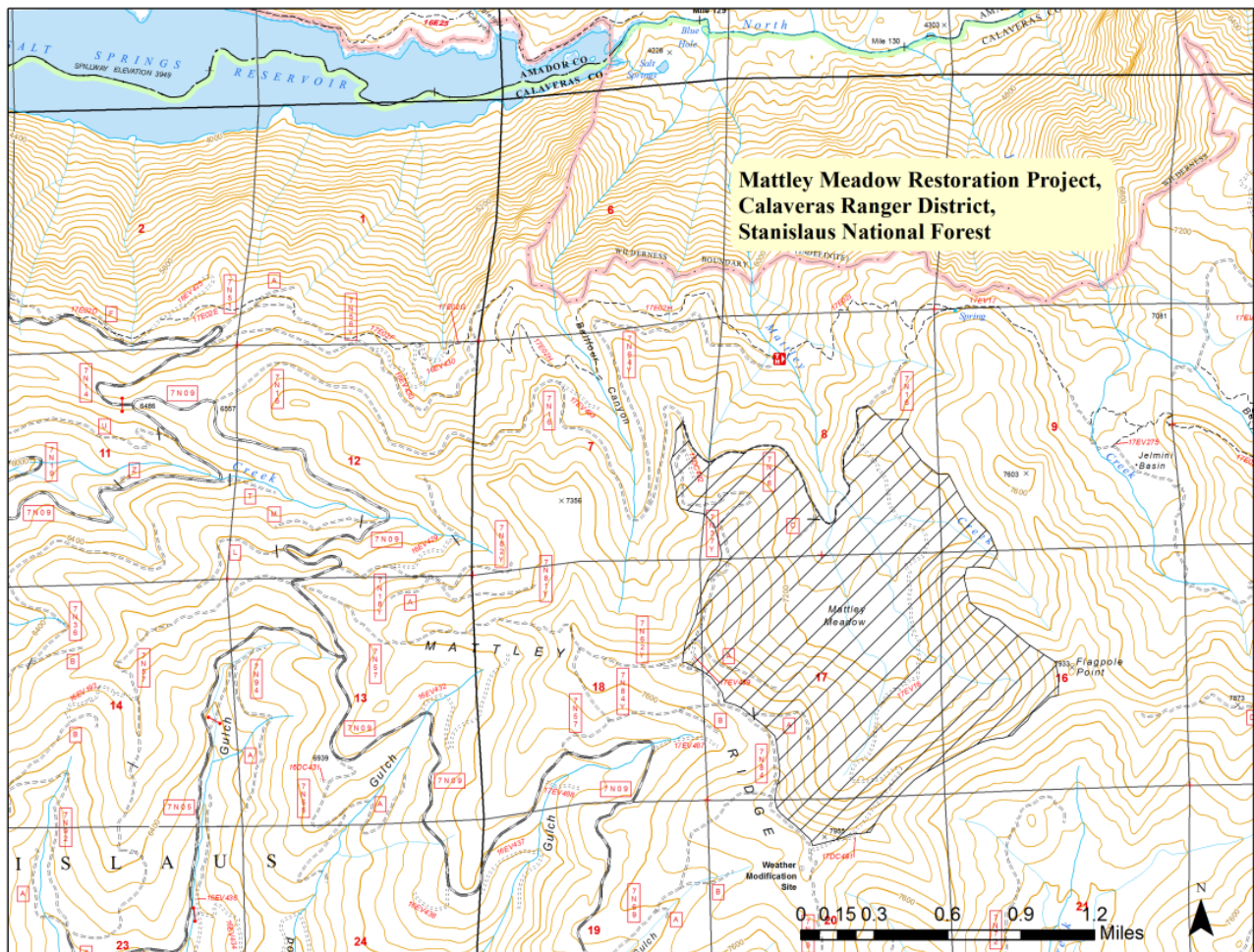
This project will be designed to yield the best possible alternative to meet social, environmental, and economic perspectives. The Forest Service is collaborating with the Amador Calaveras Consensus Group (ACCG), NRCS, Plumas Corps, and the private landowners with the design of this project. ACCG is 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.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- **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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.

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 FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Moore Creek Restoration

Project Location: Headwater of the North Fork Mokelumne River; Stanislaus National Forest, Calaveras Ranger District

Project Type: Planning

Project Proponent Information

Contact Name: Teresa McClung

Affiliation: US Forest Service

Address: po box 500 Hathaway Pines, Ca 95233

Phone: 209-795-1381 ext 314

Email: tmmclung@fs.fed.us

Other Participating Agencies (if applicable): California Parks and Recreation Dept.- OHV, Sierra Nevada Conservancy, California Department of Fish and Wildlife, Ca Fire, and the Bureau of Land Management through their participation in the Amador Calaveras Consensus Group (ACCG)

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

- Ensure Equitable Distribution of Benefits

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input checked="" type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input type="checkbox"/> Surface Storage – Regional/local | <input checked="" type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input checked="" type="checkbox"/> Watershed 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 Stanislaus National Forest, Calaveras Ranger District, is proposing to conduct landscape restoration treatments in the upper headwaters of the North Fork Mokelumne River in collaboration with the Amador Calaveras Consensus Group (ACCG). The project is located in Calaveras County, California, northeast of Arnold. Elevations in the planning area range between 3200- 4200 feet. The project area includes wild land urban interface zone (WUI) concerns. It is also habitat for the California spotted owl (*Strix occidentalis occidentalis*), Northern goshawks (*Accipiter gentilis*) and several threatened and endangered frogs (*Rana spp.*).

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 goals for Region 5, is to retain and reestablish ecological resilience of these lands to achieve sustainable management on our wild lands and forests while providing a broad range of ecosystem services. Ecologically healthy and resilient landscapes have greater capacity to survive natural disturbances and large scale threats to sustainability. This is especially important with changing environmental conditions, such as those driven by climate change and increasing human use. In addition, ecologically healthy and perceived to be free or limitless such as air and water purification, flood and climate regulation, recreational activities, 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 sustainability. The Moore Creek 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.

The Moore Creek Restoration Project will address current recreational issues of the area that effect water quality, soil erosion and degradation of pre-historic sites. Current activities from recreational users include illegal Off Highway Vehicle use, unregulated dispersed camping and user created trails. These activities contribute to the sanitation, safety and water quality concerns including adverse effects to natural and cultural resources. The restoration project will identify the location of dispersed campsites to decrease pollution and containments into the watershed. As well, user created motorized and non-motorized trails will be mapped to minimize soil erosion and cultural and natural resource damage.

The project will manage storm water flows and transport of sedimentation including contaminants. There are a number of unpaved forest roads and trails which are a significant source of storm water runoff and fine sediment that is transported to streams. Road and trail treatments in the project would reduce storm water runoff and fine sediment that is delivered to streams by: performing routine road and trail maintenance that has been deferred. Including disconnecting hydrologically connected road and trail segments by improving and increasing the number of drainage structures (e.g. cross drain culverts, rolling dips, waters bars, etc). The project would improve or replace undersized and failing stream crossing and clos or decommission unneeded road and trails.

There are more than 14 prehistoric archaeological sites within the immediate vicinity of the Moore Creek Restoration project. Some of these sites already have documented impacts from unauthorized recreational uses. Heritage sites upstream from this project area have already been identified as significant to understanding regional life ways. (See USGS Scientific Investigations Report 2009-5225 for further information at <http://pubs.usgs.gov/sir/2009/5225/>)

Further survey, documentation, and assessment is needed to determine the eligibility of sites within the project area for listing on the National Register of Historic Places. Additional survey and determination of eligibility/ineligibility will provide guidance in the future management of heritage resources within this project area. Tribal consultation will be conducted to discuss site significance and archeological feature preservation. Ethnobotany considerations will be identified and best management practices to care for heritage resources within the high recreational use areas will be drafted. Identification of educational and interpretive displays will be discussed to determine how future cultural and natural resource degradation can be averted through an environmental stewardship focus.

The Calaveras Ranger District has an existing agreement to build and maintain the Mokelumne Coast to Crest Trail (MCCT) through the Stanislaus National Forest. The Moore Creek Restoration Project incorporates some of the last trail sections to be built heading from the Moore Creek campground west towards Tiger Reservoir. The MCCT provides recreational opportunities for equestrian and hiking access the Mokelumne River and further East thru the Forest until it reaches the Pacific Crest Trail in the Carson Iceberg Wilderness.

^a North, N.,P. Stine, N. 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 planning, design and environmental documentation (if applicable), and securing required matching funds.

The Forest Service has identified the need for a landscape restoration project at the Moore Creek area and is ready to begin field review and planning of this project. Field surveys for botany, wildlife, cultural resources, time, fuels, hydrology, roads, and soils would be conducted during the summer 2016. Restoration treatment would follow the guidelines outline in GTR-220 (North et al. 2009). Effects of proposed actions would be analyzed in a Categorical Exclusion (CE), with an expected Decision Notice in Summer 2017. Matching funds are secured through the ACCG Cornerstone project, the California State Parks Off Highway Vehicle grants program and may be derived from Forest Service appropriations.

Multi-Agency/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 Moore Creek Restoration Project is part of the ACCG Cornerstone project in partnership with the Forest Service. 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 Amador and Calaveras county watersheds.

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).

Moore, J.G., and Diggles, M.F., 2009, Hand-hewn granite basins at Native American saltworks, Sierra Nevada, California: U.S. Geological Survey Scientific Investigations Report 2009-5225

Economic Feasibility

Is your project a planning project? *If yes, please provide estimated project costs (total estimated cost for completing the study or plan).*

Total Cost of Plan or Study: \$ NA

Is your project an implementation project? *If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.*

Capital Cost: \$

Annual O&M Costs: \$

Estimated Project Life (Years):

Cost Basis (if not 2015 dollars):

Possible Funding Sources:

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 in the next section, 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, year, and benefit cost ratio):

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: Planning acres are about 350

Increase in new or enhanced recreation / public access opportunities (e.g., miles of trail): About 7 miles of non-motorized MCCT trail, unknown number of dispersed campsites.

Reduction in flood-related damages: Unknown

Reduction in greenhouse gas emissions: Unknown

Other:

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 the distress areas by providing access to more federal contraction opportunities.

The project is part of the ACCG landscape restoration project in close partnership with the Forest Service. The ACCG is a local collaborative that works to create healthy forest 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 watershed.

Native American Tribal Communities

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

The project is expected to protect, preserve, and enhance heritage resources through cooperative efforts with affiliated tribes. This project proposes to work side by side with tribal members to restore traditional plant habitats, establish best management practices for specific sites, and provide educational opportunities. Calaveras District already has a strong working relationship with Calaveras Healthy Impact Product Solutions (CHIPS), who employs an “all native” crew for work within heritage resource areas. CHIPS is regularly used to provide removal of small brush and small diameter wood throughout the Calaveras Ranger District. The Moore Creek Restoration Project will utilize CHIPS for future brush and small tree removal per ACCG requirements.

There are over 14 prehistoric archeological sites within the Moore Creek project area. Tribal consultation will be an important part of this project. Stanislaus National Forest currently operates a WakaLuu HepYoo, a Forest Service Campground within the Calaveras District, cooperatively with the Calaveras Band of MiWuk Indians due to the high significance of heritage resources in that area. WakaLuu HepYoo provides a model for cooperative education and interpretation of heritage resources within this proposed project area as well. Guidelines for the preservation and future management of significant areas will be developed as part of this project.

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 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.

Within this project of about 350 acres, if these acres were treated with an understory thin to a canopy cover target of 40%, followed by a prescribed burn, approximately 2.1 tons of carbon per acres would be release into the atmosphere (North et al. 2009). Although the project related carbon emissions may be negligible in terms of climate change, stands will become more fire and drought resilient. Research suggest 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 in to the atmosphere (Stephens et al. 2009, North et al. 2009). Lower stand densities also decrease crown competition and reallocate resource to more vigorous tress that are more resilient to disturbance and drought (Oliver 1995, Oliver and Larson 1996). Treatments that reduce risk of large, high0severity wildfires have an 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. Consolidation 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 resequenter 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.
- IPPC 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. Fires 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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

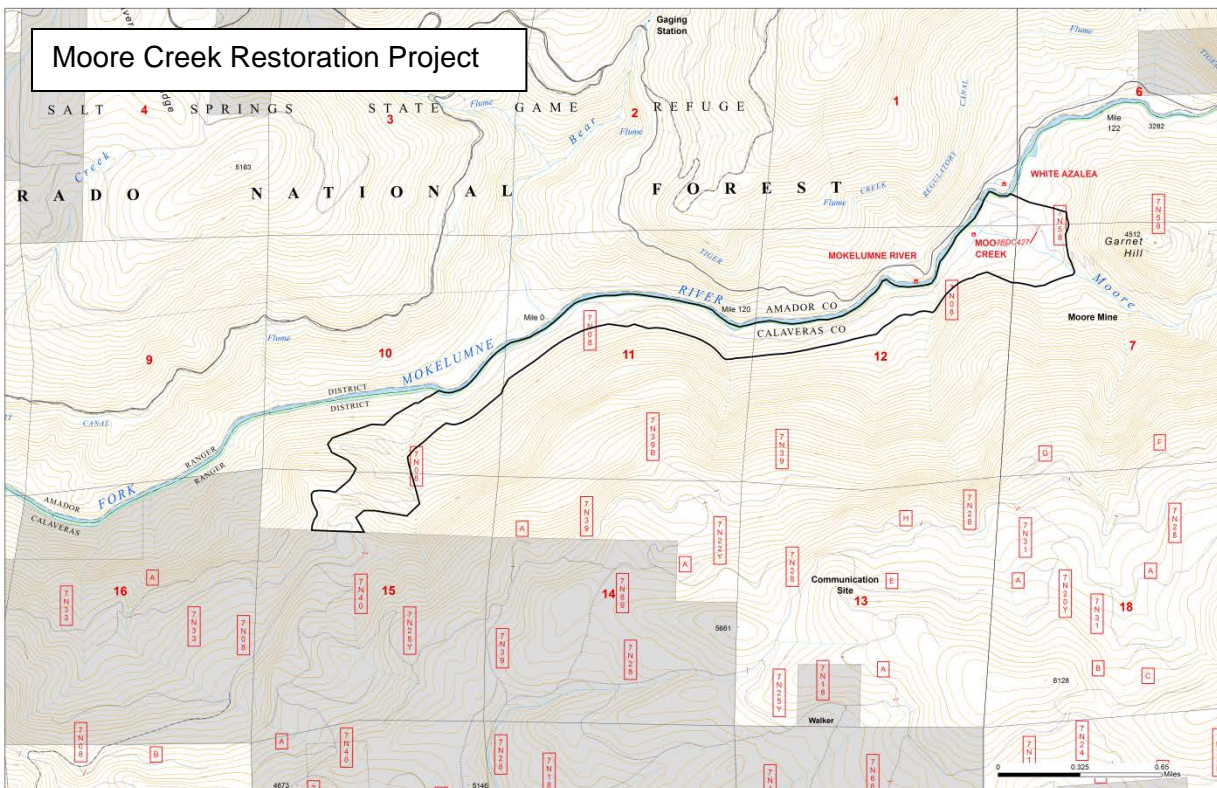
High: This project will be designed to yield the best possible alternative to meet social, environmental and economic perspectives. This project will be designed to yield the best possible alternative to meet social, environmental, and economic perspectives. The Forest Service is working with the ACCG with the design of the project, advancing an All-Lands strategy to create a heightened degree of environmental stewardship, local jobs and greater local economic stability, forest and communities. ACCG principle reflect the groups emphasis on it triple bottom line for balancing environmental, social and economic goals. As well, the Forest Service is working with the Calaveras Band of MiWuk Indians for the education and protection of heritage resources.

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

High: There is a minimal implementation risk that may result from documented institutional barriers (regulator, environmental, or permitting obstacles) and controversy, legal challenge. The uncertainty will be minimal because the project will be designed in close partnership with ACCG and the Calaveras Band of MiWuk Indians. 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. The Forest Service will obtain all the necessary county, state and federal permits to implement restoration actions.





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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Plymouth Arroyo Ditch Pipeline Project

Project Location: Middle fork Cosumnes River, South Fork Cosumnes River and Six Tributaries to the City of Plymouth

Project Type: Implementation

Project Proponent Information

Contact Name: Jeff Gardner

Affiliation: City Manager

Address: PO Box 429/9426 Main Street Plymouth, CA 95669

Phone: 209-245-6941

Email: Jgardner@cityofplymouth.org

Other Participating Agencies (if applicable): 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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

Goal: Reduce sources of contaminants.

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

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

Goal: Ensure sufficient firm yield water supply.

Goal: Maintain and improve water infrastructure reliability.

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

Goal: Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

Goal: Protect, conserve, enhance and restore the region's natural resources.

Goal: Maintain or improve watershed ecosystem health and function.

Goal: Minimize adverse effects on cultural resources.

Goal: Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|--|--|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input checked="" type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input checked="" type="checkbox"/> Water Transfers | <input type="checkbox"/> Flood Risk Management |
| <input checked="" type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input type="checkbox"/> Recycled Municipal Water | <input checked="" type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input checked="" type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed 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 Arroyo Ditch is an 18 mile long, mostly open, water conveyance system that starts at the Middle fork of the Cosumnes River, includes six tributaries, the South Fork of the Cosumnes River and ends in the City of Plymouth. Similar to the AWA Amador Canal open conveyance system, this system is very inefficient due to significant water loss (approximately 70% infiltration and 10% evaporation) and is susceptible to contamination and damage. The project will improve water reliability, enhance fire suppression, reduce property loss, and improve the public water supply. The Arroyo Ditch and the City's commercial wells are a backup water supply identified by OES in the event something should happen to the AWA system. In July 2014 the Arroyo Ditch system experienced significant damage during the Sand fire. Approximately the first 9 miles of the system is affected and requires some measure of remediation. We are working with our insurance and OES to get the repairs done.

Project Status: Pre-Design

Readiness to Proceed

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

No environmental work has been done for the project. Once that is completed, with some additional engineering, the project could be put out to bid. Approximate time to construction could be 1-2 years.

Multi-Agency/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 City has started working with a group which includes Trout Unlimited, Ducks Unlimited and Federal Fish and Wildlife and which may include several other stakeholder groups. The objective would be to pipe the ditch and use some or all of the water saved from infiltration and evaporation to help reestablish the anadromous fish population in the Cosumnes River, at least until such time the North County or some other City project requires the use of some of that water. Initially the City would take a limited amount of water and allow most to continue flowing in the river channel for the beneficial use of the wildlife.

Technical Feasibility

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

In A Study of Water Supply for the City of Plymouth written in 1990, AWA proposed upgrading of Arroyo Ditch with piping as an alternative to supplying Plymouth with additional water.

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$12 - \$18 Million Dollars

Annual O&M Costs: \$ \$125,000

Estimated Project Life (Years): 50 Years

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Water Bonds and other 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 in the next section, 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, year, and benefit cost ratio): The economic benefit from the project would depend on sales of available raw and/or treated water vs the benefit of letting the water go down the Cosumnes River to help reestablish a local fishery.

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:

Acre-feet Per Year of Reduced Demand: 10,000-15,000AF

Water Quality Benefits

Reduction in pollutant loading:

Reduction in pollutant transport:

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced: Unknown

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

Revenues generated would help the City of Plymouth, A disadvantaged community.

Native American Tribal Communities

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

Habitat restoration along the Cosumnes River may directly or indirectly benefit local Tribal units. If a potential Casino is built in Plymouth the Arroyo Ditch could be used as a water source for the Rancheria.

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.

Additional Criteria

Best Project for Intended Purpose

Please indicate 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.*

High

Minimize Implementation Risk

Please indicate the score below that best reflects your project, and provide a justification of how you arrived at your score.

- *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 moderate 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 high degree of controversy, potential legal challenge, or potential partners' uncertainty.*

Essentially with the right group of partners this project can be win/win/win. We can conserve a significant amount of water, we can help reestablish the anadromous fish population on the Cosumnes River and provide reliable water to the North side of Amador County for range/agriculture/domestic uses. In this scenario a broad coalition of Farmers/Ranchers/Local Government/State/Federal/Nonprofit/Fishery&Wildlife supporters would work together to provide funding, permitting, environmental clearance and a vision to make it work for everyone. Currently, Trout Unlimited and Ducks Unlimited are working with the State and Federal Governments in an attempt to restore the fish and bird populations along the Cosumnes River and in the Cosumnes River watershed. The City of Plymouth holds one of the Pre-1914 senior diversionary water rights in the basin. In collaboration with Amador County, the City is working to develop this water source for long term use on the North side of Amador County. It has long been a goal to pipe the ditch and use the water more efficiently. Towards that end the City realizes it is in the best interest of all parties to move this project along as quickly as possible. The City believes with the collaboration of all parties, it would be possible to provide much needed water to the basin in the early years of restoration and there is a willingness on the part of the City to see some of the water flow down the river in perpetuity. The amount allocated to this endeavor could be higher initially as the local use and needs are not what they ultimately will be. As a result of piping the ditch and conserving the approximately 80% loss which now occurs, there should be enough water to make this project work for everyone.



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

PLEASE SUBMIT COMPLETED FORMS BY FEBRUARY 6, 2015

Questions and completed forms should be directed to:

Dawn Flores
RMC Water and Environment
310-566-6471
dflores@rmcwater.com

Proposed Project

Project Title: Plymouth Wastewater Irrigation Project

Project Location: Plymouth, CA

Project Type: Implementation

Project Proponent Information

Contact Name: Jeff Gardner, City Manager Plymouth,

CA Affiliation:

Address: PO Box 429/9426 Main Street Plymouth, CA 95669

Phone: 209-245-6941

Email: jgardner@cityofplymouth.org

Other Participating Agencies (if applicable):

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 check all that apply.*

Please check all that apply to your project.

Policy 1: Maintain and Improve Water Quality

- Goal:* Reduce sources of contaminants.
- Goal:* Manage stormwater flows and transport of sediment and contaminants.

Policy 2: Improve Water Supply Reliability and Ensure Long-Term Balance of Supply and Demand

- Goal:* Ensure sufficient firm yield water supply.
- Goal:* Maintain and improve water infrastructure reliability.
- Goal:* Promote water conservation, recycling and reuse for urban and agricultural uses.
- Goal:* Develop appropriate drought mitigation measures.

Policy 3: Practice Resource Stewardship

- Goal:* Protect, conserve, enhance and restore the region's natural resources.
- Goal:* Maintain or improve watershed ecosystem health and function.
- Goal:* Minimize adverse effects on cultural resources.
- Goal:* Identify opportunities for public access, open spaces, trails, and other appropriate recreational benefits and avoid harm to existing or planned recreational uses.

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.

Statewide Priorities

Please check all that apply to your project.

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

Resource Management Strategies

Please select all that apply to your project.

- | | |
|---|--|
| <input checked="" type="checkbox"/> Agricultural Water Use Efficiency | <input type="checkbox"/> Matching Quality to Use |
| <input type="checkbox"/> Urban Water Use Efficiency | <input type="checkbox"/> Pollution Prevention |
| <input type="checkbox"/> Conveyance – Regional/local | <input type="checkbox"/> Salt and Salinity Management |
| <input type="checkbox"/> System Reoperation | <input type="checkbox"/> Urban Runoff Management |
| <input type="checkbox"/> Water Transfers | <input checked="" type="checkbox"/> Flood Risk Management |
| <input type="checkbox"/> Conjunctive Management & Groundwater Storage | <input checked="" type="checkbox"/> Agricultural Lands Stewardship |
| <input type="checkbox"/> Precipitation Enhancement | <input type="checkbox"/> Economic Incentives (Loans, Grants and Water Pricing) |
| <input checked="" type="checkbox"/> Recycled Municipal Water | <input type="checkbox"/> Ecosystem Restoration |
| <input checked="" type="checkbox"/> Surface Storage – Regional/local | <input type="checkbox"/> Forest Management |
| <input type="checkbox"/> Drinking Water Treatment and Distribution | <input type="checkbox"/> Recharge Area Protection |
| <input type="checkbox"/> Groundwater Remediation/Aquifer Remediation | <input type="checkbox"/> Water-Dependent Recreation |
| | <input type="checkbox"/> Watershed Management |

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The Plymouth Wastewater Irrigation Pipeline Project would take treated sewer effluent to a vineyard adjacent to the sewer storage reservoir for use as a drip irrigation source for up to 400 acres of grapes. Initially the project would irrigate 120 acres of grapes which are already planted. Once the system is installed 80 more acres of grapes would be planted. Ultimately an additional 200 acres would be planted as the supply becomes available over time. This would allow the City of Plymouth to absorb additional growth without having to do substantial upgrades to the system. It would allow the City of Plymouth to prolong the life of the irrigation system at the sewer spray fields. Most importantly it would significantly reduce or eliminate Nitrogen and other constituent loading of the soil on the spray fields and significantly reduce the risk of groundwater contamination from spray field operations.

Project Status: In Design

Readiness to Proceed

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

The preliminary engineering has been completed. The environmental review is ready to get started. The Draft Title 22 report has been submitted to SWRCB and responses to questions are ready to be resubmitted. A Notice of Intent has been prepared and is under review to be submitted to allow the project to proceed under the Statewide General Order. The City of Plymouth was at the forefront in working with the State to develop a General Order to facilitate the use of treated effluent for agricultural projects. The City is working on an MOU with the Vineyard owner to facilitate the use of the water. The Vineyard owner will provide matching funds if required. The City anticipates this project could be ready for construction in the Spring/Summer 2016.

Multi-Agency/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.

Technical Feasibility

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

Economic Feasibility

Is your project a planning project? If yes, please provide estimated project costs (total estimated cost for completing the study or plan).

Total Cost of Plan or Study: \$

Is your project an implementation project? If yes, please provide estimated project costs (capital, operations and maintenance) and estimated project life.

Capital Cost: \$ \$2 - \$3 Million

Annual O&M Costs: \$ \$55-\$85,000

Estimated Project Life (Years): 40

Cost Basis (if not 2015 dollars):

Possible Funding Sources: Water Bonds/SRF/Private

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 in the next section, 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, year, and benefit cost ratio): Rancho Victoria Vineyards came to the City of Plymouth in 2014 with a proposal to use the City's sewer effluent to irrigate their vineyards. They prepared an engineering analysis. The City began to work with SWCRB and DPH to find out if this was feasible. From a regulatory standpoint the State encouraged the project. After an engineering study and operational cost study were performed by the City's engineer (KASL), it appears the project will be able to move forward at a cost substantially within the feasibility range of the vineyard.

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:

Acre-feet Per Year of Reduced Demand: 140–210 AF

Water Quality Benefits

Reduction in pollutant loading: Yes

Reduction in pollutant transport: No

Resource Stewardship Benefits

Acres of Habitat Created, Restored, or Enhanced:

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

Reduction in flood-related damages:

Reduction in greenhouse gas emissions:

Other:

Disadvantaged Communities / Environmental Justice

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

The City of Plymouth has been and continues to be a disadvantaged community. Projects of this nature will allow the City to control costs and alleviate the projected need for capital expansion costs and the resulting increase in debt which could cause an increase to rates.

Native American Tribal Communities

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

In the event a Tribal Reservation or Casino is built in Plymouth by the Lone Band of Miwok Indians as planned, additional storage capacity in the Plymouth system could become a beneficial resource for the Tribe.

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.

Additional Criteria

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The wastewater effluent transmission pipeline has a very limited amount of exposure

This project is being developed by the City of Plymouth and a private party. The regulatory barriers have all been addressed. We anticipate doing an MND for the environmental document. We have another project going at the sewer plant currently and most if not all of the environmental issues are known. The project is supported by City Council and the SRWQCB. The private party will pay the matching costs and debt service ad part of the annual operating costs. Strategically it is a very good project for the City from all of the perspectives outlined above and throughout this document. If we are unsuccessful at getting money through the State Water Bond Program, the private party has indicated they will most likely find other sources of financing.