

U.S. Bureau of Reclamation WaterSMART Grants: Water Marketing Strategy Grants Fiscal Year 2018

Funding Opportunity Number: BOR-DO-18-F010



Project Title: County of Madera Water Marketing Strategy Development and Pilot Program

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Table of Contents

Technical Proposal and Evaluation Criteria	3
<i>Executive Summary</i>	3
<i>Background Data</i>	3
<i>Project Location</i>	4
<i>Figure 1. Project Area Map</i>	4
<i>Project Description</i>	5
<i>Project Scope of Work</i>	5
<i>Figure 2: Proposed Project Schedule</i>	6
<i>Element 1: Outreach & Partnership Building</i>	6
<i>Element 2: Scoping & Planning Activities</i>	8
<i>Element 3: Development of a Water Marketing Strategy</i>	10
<i>Grant Administration</i>	12
<i>Evaluation Criteria</i>	13
<i>A. Water Marketing Benefits</i>	13
<i>B. Level of Stakeholder Support & Involvement</i>	17
<i>C. Ability to Meet Program Requirements</i>	18
<i>D. Department of Interior Priorities</i>	19
Required Permits & Approvals	23
Project Budget	24
<i>Funding Plan & Letters of Commitment</i>	24
<i>Budget Proposal</i>	25
<i>Budget Narrative</i>	25
Environmental & Cultural Resources Compliance	27
Existing Analysis Contributing to the Water Marketing Strategy	30
Letters of Support	31
Official Resolution	32

Technical Proposal and Evaluation Criteria

EXECUTIVE SUMMARY

- **Submittal Date:** July 17, 2018
- **Submitted By:** County of Madera, Department of Water and Natural Resources
Madera, Madera County, California

The County of Madera currently lacks any effective form of water market strategy that governs individual water transactions among agricultural entities within the boundaries of the County. Under the WaterSMART Water Marketing Strategy Grant, Application Funding Category I, the Madera County Department of Water and Natural Resources will support collaborative planning efforts to develop an economic feasibility analysis leading to a pilot program for a water market strategy that will proactively address water supply reliability, groundwater storage and recharge, as well as increase water management flexibility between agricultural entities. Water markets among willing buyers and sellers developed from this pilot program will be used to help local water users meet demands efficiently in times of shortage, thereby helping to prevent water conflicts within the County. By encouraging collaboration and input to the planning process from a range of stakeholders, this pilot project will expand the lines of communication among Madera County, Bureau of Reclamation, the Madera Farm Bureau, local communities, and among the community stakeholders themselves, building community trust.

Schedule:

This proposed project is expected to begin in July 2019 and be completed by the end of June 2021, fitting within the 2 year timeframe for a Category I grant. Madera County, as part of the Groundwater Sustainability Plan (GSP) planning process required by the State of California under the Sustainable Groundwater Management Act (SGMA), is currently forming the necessary partnerships among the different water agencies within the county.

Past Working Relationships with Reclamation:

Madera County has an allocation of 200 acre-feet per year of Central Valley Project Water for Hidden Lake Estates, a development within Madera County

PROJECT BACKGROUND DATA

In 2014, the California passed a legislative package known as the Sustainable Groundwater Management Act (SGMA). The act requires that groundwater use in 21 critically over drafted basins (including those within Madera County) be brought under a Groundwater Sustainability Plan by January 31, 2020 to be developed by new administrative bodies called Groundwater Sustainability Agencies (GSAs). Madera County is in the process of coordinating the organization of seven GSAs in the Madera Subbasin and four GSAs in the Chowchilla Subbasin and developing a groundwater sustainability plan (GSP). The concept of water marketing fits within to the context of the goals of SGMA in that it gives Madera County groundwater pumpers the ability to reallocate the available water on a supply-and-demand basis thereby promoting efficient use and sustainability of groundwater supplies over the long term.

Currently, the various GSAs and other water management entities within Madera County do not have an effective water marketing strategy in place. Like the development of the GSAs themselves, the creation of a water market system would be a new administrative undertaking within the County. Before a water marketing strategy can be implemented it will be necessary

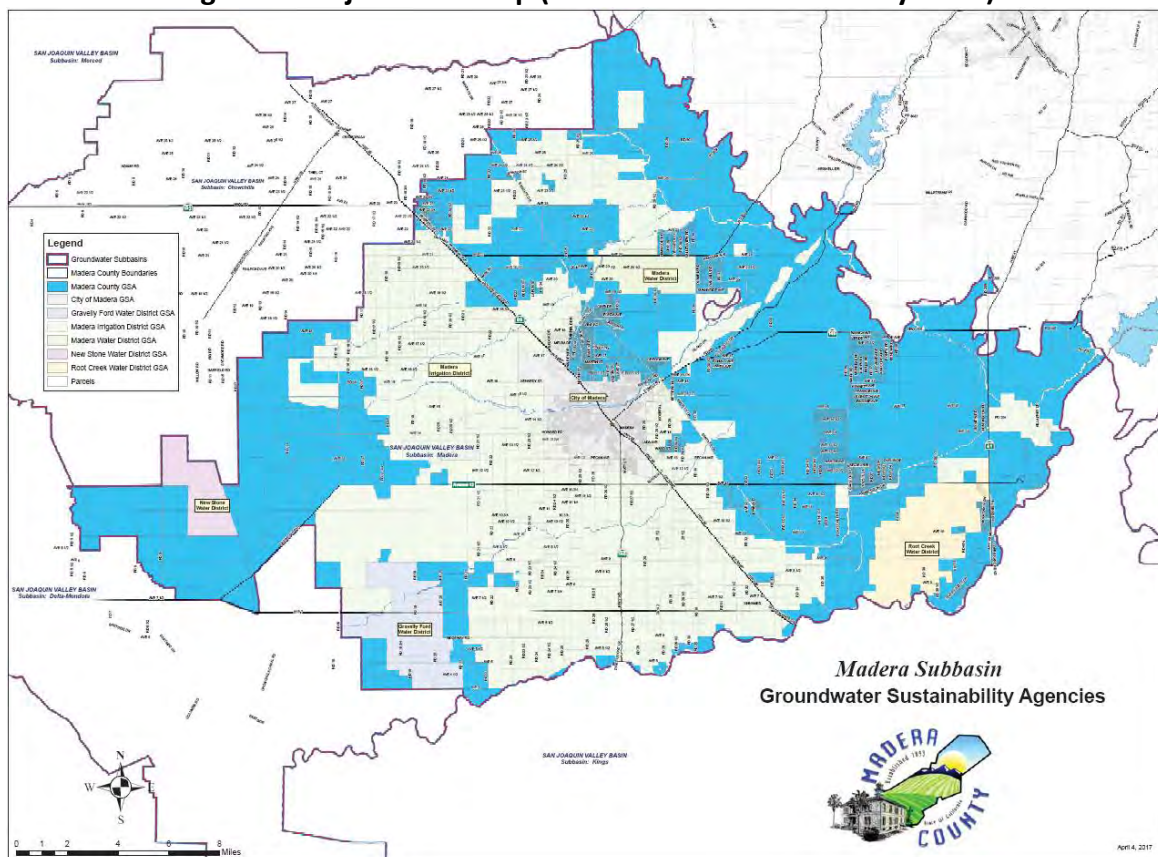
to conduct outreach and obtain input from potential market participants and stakeholders and then conduct studies to explore the potential to conduct water marketing activities within Madera County. Developed partnerships and the findings from various studies can then inform the development of a proper water marketing strategy for the Madera County area.

Madera County has a population of 156,000 and relies on both ground and surface water to meet its entire water demand. The water is used for municipal, domestic, industrial, commercial and agricultural purposes. Water demands within the County of Madera are approximately 1.16 million acre feet per year, which is a combination of groundwater and surface water, including pre-1914 and post-1914 appropriations as well as CVP contracts with Reclamation. There is at least 290,000 acre-feet of overdraft within a normal year.

PROJECT LOCATION

The County of Madera Water Marketing Strategy Development and Pilot Program is located in Madera County, California, in areas between 1 and 12 miles around the cities of Madera and Chowchilla. The project latitude is 36°57'42.9"N and longitude is 120°03'49.6"W, which is the location of the Madera County Government Center in the center of the project area. The project will be eventually accessible to all organizations that make up the various Groundwater Sustainability Agencies (GSAs) within the County. A map of the GSA locations within Madera County is shown below in Figure 1 with a larger version included in application *Attachment 2*.

Figure 1. Project Area Map (Location of Madera County GSAs)



PROJECT DESCRIPTION

The purpose of the County of Madera Water Marketing Strategy Development and Pilot Program is to conduct outreach and partnership building as well as conduct scoping and planning activities in support of developing a water marketing strategy focused on groundwater transfers that will then be tested in a pilot water market program. Once the pilot program has been completed, its findings can be used to refine and expand the marketing strategy to a larger scale across Madera County. Key elements of the project include the following:

- Conducting outreach and defining opportunities with potential partners regarding development of a water marketing strategy in Madera County
- Obtaining input from potential partners regarding concerns and priorities regarding development of a water market strategy
- Assessment of economic, social, and environmental impacts of a water marketing strategy
- A market evaluation, including assessment of development and implementation issues for a water market strategy
- Analysis of legal opportunities and constraints regarding a water marketing system
- Assessment of the local hydrologic conditions, water supplies (quantities), and institutional needs, with a focus on groundwater
- Development of monitoring, quantification, mitigation and standards for assessment of future needs
- Development of finalized water marketing strategy framework through the grant program
- Conducting a pilot water market demonstration
- Post-award grant administration, management, and monitoring activities for the proposed grant project and pilot program

PROJECT SCOPE OF WORK

Madera County's anticipated work efforts will parallel reclamation's three required elements for water-marketing projects as detailed in the grant FOA, with particular emphasis given to Elements 1 and 2 given the preliminary nature of the County's efforts in developing a water marketing system. All work is anticipated to be undertaken by a project team comprised of Madera County, county-partner organizations, and a selected consultant.

A schedule demonstrating the anticipated timing and iterative nature of the tasks within each element is provided below in Figure 2. The dates assume possible award notification in September 2018; completion of financial assistance agreements with Reclamation by December 2018 or January 2019; and an official project start date in July 2019; with activities continuing until June 2021. This gives the project the required a two year project period (from July 2019 to June 2021) as required for Category I grant applications.

Figure 2: Proposed Project Schedule

Project Start Date: July 1, 2019 Project End Date: June 30, 2021 Project Duration: 2 Years	2019							2020 (Quarterly)				2021 (Quarterly)		
	Task	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Q1	Q2	Q3	Q4	Q1	Q2
Element 1: Outreach & Partnership Building														
Task 1 – Defining Opportunities with Partners		■	■ ◊	■										
Task 2 – Understanding Concerns of Potential Affected Parties						■ ◊	■							
Task 3 – Developing Solutions Workshop									■ ◊					
Element 2: Scoping and Planning Activities														
Task 4 – Analyzing Legal Opportunities & Constraints		■ Δ												
Task 5 – Researching Existing Marketing Strategies		■	■	■	■	■	■							
Task 6 –Determining Potential Quantities			■	■ Δ				■ Δ						
Task 7 – Assessing Potential Impacts			■	■		■ Δ		■ Δ						
Task 8 – Assess Market Opportunities & Financial Benefits		■ Δ							■ Δ					
Element 3: Development of a Water Marketing Strategy														
Task 9 – Develop Legal Framework					■	■		■ Δ						
Task 10 – Sample Terms, Standards, & Approaches									■ Δ					
Task 11 – Suggested Rules for Consideration										■ Δ				
Task 12 – Conduct Small-Scale Pilot Water Market Strategy										■	■	■	■	■
Grant Administration														
Task 13 – Grant Administration and Project Management		■	■		■ Δ	■	■	■	■ Δ	■	■ Δ	■	■ Δ	■

- ◊ Workshop
- Δ Required Report Due
- On-going activities during period shown
- Periodic activities during period shown

ELEMENT 1: Outreach and Partnership Building

In order to incentivize water transfers from groundwater sources, the project will require development of a set of new rules and implementation procedures by all interested parties in the Madera County project area. The following specific tasks will be undertaken with tasks described in the other elements, with the goal of achieving consensus on new water transfer requirements and establishing new regulations among all potential partners that could then lead to development of a pilot project.

Task 1 – Defining Opportunities with Partners

This task will focus on discussions with several different partner agencies and organizations to understand and define the opportunities and constraints for a new water marketing strategy. Madera County will reach out to interested parties, including farmers in the County-managed “white” areas under SGMA (areas without a water supply other than groundwater). This effort will be aided by foundational work undertaken as part of the tasks under Element 2.

1.1 Preliminary Outreach:

In conjunction with the Farm Bureau, Madera County will undertake preliminary outreach through various communication channels including phone calls, emails and in-person meetings with likely partners. The County fully anticipates initial conversations will identify additional parties to contact or otherwise invite to the workshop.

1.2 Workshop Preparation:

Using preliminary information developed under Element 2, and based upon initial feedback during the preliminary outreach, Madera County will prepare materials to facilitate workshop discussions and dialogue.

1.3 Partner’s Workshop:

Madera County will host a half-day workshop with partners to discuss (a) water market interest, (b) water market opportunities and constraints, and (c) suggested approaches to define new water market rules.

1.4 Workshop Summary:

A summary that describes desired outcomes from the overall water market effort, defines potential challenges, and outlines legal, regulatory, economic and technical needs will be prepared and provided to the participants of this workshop. The documentation will be used during the Affected Parties workshop as well as development of the legal framework and the crafting of plausible rules and mitigation and monitoring standards.

Task 2 – Understanding Concerns of Potential Affected Parties

Through this task, Madera County intends to explore and understand how injuries could possibly manifest, and when legal protections could apply, to help inform a marketing strategy cognizant of injury concerns. The County also intends to use this effort to help clarify how to establish and represent baseline conditions from which potential injury may be assessed, and to adequately address concerns about potential environmental effects if necessary. Per California law, all water transfers are subject to the “no injury rule,” in that a water transfer may not cause injury to any other legal user of water.

2.1 Preliminary Outreach:

To assure the attendants and subject matter discussed during the workshop is inclusive, in conjunction with the Farm Bureau, Madera County will undertake preliminary outreach through various communication channels including phone calls, emails and in-person meetings with likely affected partners. The County fully anticipates initial conversations will identify additional parties to contact or otherwise invite to the workshop. The County also recognizes some of the potential partners from the prior workshop may also be potentially affected parties and will be encouraged to participate in both workshops.

2.2 Workshop Preparation:

Using preliminary information developed under Element 2 (below) and based upon initial feedback during the preliminary outreach and the Partner's Workshop, the County will prepare materials to facilitate workshop discussions and dialogue. County staff will prepare a presentation, along with an agenda, copies of applicable statutory language, and other written materials as appropriate.

2.3 Affected Parties' Workshop:

Madera County, specifically the County Department of Water and Natural Resources, will host a half-day workshop to discuss (a) current law, (b) interpretations and understandings of the applicability of the no-injury rule to groundwater transfers, (c) destinations of conserved and offset groundwater under baseline conditions compared to a with-transfer condition, and (d) environmental and social impact concerns.

2.4 Workshop Summary:

A workshop summary will be prepared detailing workshop findings and recommendations, and provided to the participants of this workshop and the Partners' Workshop. The documentation will be used during development of the legal framework as well as the crafting of plausible rules and mitigation and monitoring requirements.

Task 3 – Developing Solutions Workshop

This workshop is planned to occur toward the end of the anticipated schedule of tasks for this project. The intent of this workshop will be to present and critique concepts developed based upon the outcomes of the Partners' Workshop and the Affected Parties' Workshop, coupled with draft legal frameworks developed under Element 3 and information prepared and assessed under Element 2.

3.1 Workshop Preparation:

Using information developed in the prior workshops and activities undertaken in Elements 2 and 3, Madera County will prepare materials to facilitate discussions and dialogue. The County anticipates a presentation will be prepared, along with an agenda, suggested legal framework, and other written materials as appropriate for this workshop.

3.2 Solutions Workshop:

Madera County will host a half-day workshop to present a conceptual legal framework and basis for new rules to govern groundwater transfers. The objective of this workshop will be to reach broad agreement on approaches, methods, processes, and standards, as well as the legal framework to support new rules. The information developed through this workshop will be documented in this grant project's final reports.

ELEMENT 2: Scoping and Planning Activities

The activities planned to take place under Element 2 are the foundational efforts within Elements 1 and 3. Madera County anticipates undertaking an iterative approach to develop initial materials for use during the outreach efforts of Element 1, then update materials based upon the outcome of the various workshops. The resulting updates will inform the development of the legal framework and suggested rules that are the focus of Element 3 tasks as the County develops its pilot water marketing strategy project.

Task 4 – Analyzing Legal Opportunities and Constraints

Activities under this task will assess and set forth the primary statutory language and current practical application of the relevant laws to help establish common understanding from which Madera County, its partners, potentially affected parties, and regulators can all proceed in pursuing this new water marketing strategy. Under this task, the County will gather relevant legal information, including any applicable transfer examples or case law, analyze the current statutory interpretations, and develop initial opportunity concepts. Information prepared under this task serves as primary materials to guide discussions at the Partners' Workshop.

Task 5 – Researching Existing Marketing Strategies

Under this task, the County and its partners will research existing water markets in other western states as well as other parts of the world where water marketing activities have been implemented. Although the laws governing water rights, transfers and exchanges vary from state to state, existing water markets in many of the western states as well as other regions can offer insight into methods and strategies for addressing transfers of water using groundwater supplies. Solutions to address potentially affected parties discovered in this research may be informative to the development of new rules under this project.

Task 6 – Determining Potential Quantities

Under SGMA, the Madera and Chowchilla Subbasins have conducted considerable analysis into historical, current and future supply and demand and changes in both over time.

6.1 Quantify Madera County Water Supplies:

Using historic and recent water use data across Madera County, estimates of groundwater supplies will be reviewed.

6.2 Investigating and Quantifying Water Sources & Availability:

There are several critical concerns of potentially affected parties within Madera County including the availability and quality of groundwater, possible subsidence issues, and availability of surface water during drought conditions.

6.3 Refining Quantification Based upon Initial Framework Concepts:

Following both information-gathering workshops, combined with the direction indicated by a draft legal framework (Task 9), the initial quantities of transferable groundwater will be refined. Madera County anticipates that quantification methods expected to be agreed upon in the Solutions Workshop (Task 3) will establish rules that can easily be used to determine the net transferrable quantities of groundwater from gross values evaluated under Task 6.1.

Task 7 – Assessing Potential Economic, Environmental and Social Impacts

Under this task, the County will review relevant statutory requirements, evaluate how the existing single year water transfers (both within the county and in outside it) operate, address concerns, and prepare concepts for recognition of the same for these new transfer types. Information developed under this task will inform the materials prepared and discussions held during the Affected Parties' Workshop (Task 2).

Task 8 – Assess Market Opportunities and Financial Benefits

Madera County will develop the framework for investigations to assess marketing opportunities for transactions involving groundwater between agricultural users in the county. With recent market data regarding transaction costs, willingness to pay, and the location and timing of buyers' needs, the County will prepare a brief document outlining potential market characteristics, including the interest from buyers, location of buyers, timing of needs, and ranges of financial benefits to the County and other users. This effort will demonstrate an iterative evaluation that can be adapted as a template for other purveyors seeking similar opportunities.

ELEMENT 3: Development of a Water Marketing Strategy

Tasks under this element are designed to culminate in a workable set of broadly supported rules and standards governing a groundwater market in Madera County and that adhere to state and federal regulations. These will then be employed in an initial small-scale water market pilot program that could form the basis for implantation of a full scale project.

Task 9 – Develop Legal Framework for New Strategy

This task will focus on first gaining a common understanding of the existing legal framework for water transfers (using the analysis from Task 4), and developing an expanded legal framework that meets the project objectives. Then, the project team will expand on this understanding to incorporate the potentially new groundwater-based transfers under CWC sections 10700-10717, as well as other relevant CWC sections.

9.1 Initial Concepts to Inform Outreach:

The project team will prepare a summary legal packet for consideration by interested stakeholders to inform the outreach effort considered in this project. The legal packet will include the existing relevant statutory sections. Madera County will also prepare a separate information packet that includes the concepts for additional groundwater-based transfers under CWC sections 10700-10717.

9.2 Draft Legal Framework:

Madera County will analyze the methodologies and opportunities related to additional groundwater transfers and prepare a detailed synthesis that reflects the workshop outcomes. The County will assess the opportunities that were developed in the workshops and prepare information framing the key legal issues. The legal framework will include information relevant to specific statutory sections as well as potential regulatory or guidance information that may supplement recommendations and best practices from DWR and Reclamation.

9.3 Finalize Legal Framework:

The County will continue to refine the legal framework through consideration of the information prepared for the workshops and refined by the project team to create the final rules and regulations for the project. This process will be responsive to feedback from project participants and will also provide a detailed analysis in order to develop key language necessary for a coherent water transfer program.

Task 10 – Sample Terms, Quantification and Monitoring Standards, and Mitigation Approaches

This task will use information gathered in the workshops and from the tasks in Element 2 to prepare sample contract terms, quantification and monitoring standards, and mitigation approaches that complement the legal framework broadly supported by the working group. These terms, standards and approaches will be vetted as part of the workshops developed during the course of this Project.

10.1 Suggested Contract Terms:

Specific contract terms will be developed through the workshop process to provide satisfactory guidance relative to groundwater transfers in Madera County.

10.2 Quantification and Monitoring Standards:

Under this task, suggested standards will be formalized. The quantification and monitoring of new transfers will require significant vetting with stakeholder groups and legal counsel.

10.3 Mitigation Approaches and Suggestions:

Mitigation for groundwater-based transfers would need to include assessment of potential impacts. Depending on the amount or right of the water source being transferred, water transfers may impact third party interests or have adverse environmental effects. These and other issues will be considered and suggested mitigation strategies developed, if necessary.

Task 11 – Suggested Rules for State and Reclamation Consideration

This task involves coalescing the findings and suggestions developed in the prior tasks into a set of cohesive rules, protocols and standards that would form the framework for a water marketing strategy. These rules, protocols and standards will then be used to implement the small scale pilot water marketing program. Under this task, the County will draft text representing the standards and protocols previously developed that will form the basis for the pilot water market demonstration program.

Task 12 – Conduct a Small-Scale Pilot Water Marketing Strategy

This task builds on the framework developed in the previous task to implement a pilot groundwater marketing program in Madera County. The potential steps to implement the water market pilot program are outlined as follows:

12.1 Establishing Regulations and Limits:

Users will be informed of and required to comply with the regulations established in this plan.

12.2 Creation of Water Market Governing Authority:

Madera County will appoint a project governing authority (representative body) to coordinate the groundwater marketing system in the pilot study area. The number of members in the governing authority will be no more than 5-7 representatives from the various partner organizations. The system will be set up during the planning stages of the pilot program in 2019 and come into full operation at the commencement of the 2020 water year.

12.3 Issuance of Groundwater Shares:

Madera County, working with the project governing authority, may issue shares to all pumpers in the pilot study area in a manner consistent with the final version of this plan. Every shareholder will be given an account and, at the start of each water year, the governing authority will make a volumetric allocation to these accounts in proportion to the number of shares held. Every shareholder will be required to have the appropriate groundwater use

permits or water rights documentation as well as have water metering and Advanced Metering Infrastructure Systems (AMI) for water use tracking.

12.4 Use of Groundwater Shares

Shareholders will be free to choose whether or not to use, save, or sell any allocations made to their water account. Adjusted only for hydrological losses, account holders may be allowed to carry forward unused groundwater allocations from one water year to the next.

12.5 Monitoring Share Ownership

Share ownership will be recorded in a Water Market Pilot Study Share Register– a database program (computer software) to be created for this project to assist with monitoring and assessment. Any claimed interest in a water share shall be deemed to be invalid unless it is recorded in the Register.

12.6 Encouraging Groundwater Recharge

Groundwater recharge projects will be encouraged. Groundwater recharge projects will be assigned a groundwater account and allocations credited to these accounts as recharge occurs. Location-specific conditions in groundwater use permits will manage undesirable local effects including cones of depression, migration of contaminants, and land subsidence.

12.7 Groundwater Allocation Framework

Allocations will be made to water share accounts that will be tracked in the Share Register software program on an annual basis according to rules established by the water market framework.

12.8 Maintaining Water Share Accounts

Participating entities will be required to maintain water accounts with a positive groundwater allocation to offset the effects of their own water use (from groundwater sources), community projects, and environmental projects on water supplies.

12.9 Addressing Negative Account Balances

Users who unintentionally allow the balance of their water account to become negative will have 30 days to make good. If they cannot do this, they may borrow from the next year's groundwater allocation with a two-for-one penalty. Intentional overuse will result in a three-for-one penalty and suspension of the relevant groundwater use permit until the relevant water account is returned to a nonnegative balance.

12.11 Transaction Monitoring and Management

Using the monitoring tools developed for the water market pilot program, including the Pilot Study Share Register software program, water meters, and AMI systems, Madera County will monitor and manage the various transactions between users that take place in the test of the water marketing strategy.

GRANT ADMINISTRATION: Development and Implementation of the Water Marketing Strategy

This category of work captures Madera County's administrative functions to undertake the work, administer the grant, and prepare final reports. The County intends to hire a specialized technical consultant to assist with the overall proposed project, and will manage the selection of the consultant within this primary task.

Task 13 – Grant Administration and Project Management

The Madera County Director of Water and Natural Resources will be responsible for coordinating the project with Reclamation as well as updating project status, completing significant milestones, and preparing deliverables. Specific subtasks are as follows:

13.1 Select Technical Consultant:

Madera County will select a qualified consultant to assist with the tasks detailed under each of the three required elements. The selected firm must be able to demonstrate extensive legal, regulatory, and technical knowledge of California water law, current water transfer processes, and water management.

13.2 Prepare Financial Reports:

Financial reports will be prepared by the project manager using the SF-425, Federal Financial Report, at the interval required by Reclamation. The reports will provide sufficient detail for Reclamation to approve of all expenditures.

13.3 Prepare Program Performance Reports:

This sub-task involves submission of project performance reports per Reclamation guidelines. Reports could include the following content: (1) summarize activities performed during the reporting period, (2) compare actual accomplishments to milestones, (3) provide reasons why established milestones were not met (if necessary), (4) provide status of milestones, (5) discuss schedule and budget activities, and (6) form the basis for determining whether invoices are consistent with work performed.

13.4 Prepare Final Report:

A final report will be prepared in the format required by Reclamation and will summarize activities performed during the project's duration. The report will provide sufficient detail to show how the project objectives and goals were met.

13.5 Monitoring Budget:

The project manager will monitor expenditures and match funding. Financial reports will be prepared by the project manager. The reports will provide sufficient detail for Reclamation to approve all expenditures.

EVALUATION CRITERIA

Evaluation Criterion A—Water Marketing Benefits:

- Explain whether the water market/activity will address a specific water supply shortfall and describe the extent of benefits to different sectors, including agricultural, municipal/industrial, tribal and environmental sectors, including:
 - *Will the water marketing strategy address a specific water supply shortfall?*

The California Department of Water Resources (DWR) *Bulletin 118* document defines the boundaries and describes the hydrologic characteristics of California's groundwater basins and provides information on groundwater management and recommendations for the future. For the subbasins that have acreage under Bulletin 118 within Madera County, GSP-related documents identify a shortfall of approximately 290,000 acre-feet per year (AFY). The Madera, Chowchilla, and Delta-Mendota subbasins are all regarded by the state and Reclamation as critically over-drafted groundwater basins.

- *What is the nature and severity of the shortfall and which sectors are affected? Please provide support for your response.*

In the subbasins that have acreage under DWR's Bulletin 118 within Madera County, there is a shortfall of approximately 290,000 AFY based on 2015 land use studies and using historical hydrology. This shortfall includes approximately 160,000 AFY for the Madera Subbasin and 130,000 AFY for the Chowchilla Subbasin. The shortfall for the Delta-Mendota Subbasin has not yet been calculated (as of July 2018), but it is a significantly smaller geographic area and the shortfall is expected to be considerably less than the other subbasins within Madera County. These numbers are currently being refined by Madera County's consultant, Davids Engineering, but are not expected to change significantly.

- *How and to what extent will the water market/water marketing activities, once implemented, address the shortfall? Please describe the expected benefits.*

Properly implemented and controlled water markets can have a beneficial purpose. A water market allows for some of the redistribution of water (though it does not change the actual rights to the water, just the temporary use of that water). The agency coordination, water quantification and monitoring standards, legal framework, and pilot water market system proposed in this project will help reduce impacts on local water supplies in Madera County. The establishment of high-functioning and well-governed water markets – in which a cap on total use is set; rights to use water are legally defined, monitored, and enforced; water exchanged among water users and water supplies redistributed among users – will provide a powerful integration of public and private efforts to alleviate water scarcity within the County. A well-functioning water market in Madera County will provide financial incentives for improving water's productivity by enabling those users and purveyors willing to use less water to be compensated by those needing more water, or wanting to return water to the environment. By so doing, water markets open up pathways for entities wanting to access more water to do so in a highly cost-effective manner that is far less environmentally damaging than building new infrastructure.

- *Will the water market/water marketing activities benefit multiple sectors and/or types of water uses? If so, to what extent and which sectors and water uses will benefit?*

It is anticipated that the water marketing activities involving groundwater transfers in Madera County will benefit multiple sectors, including agricultural, municipal and environmental sectors. Examination of other water markets in the Western United States and internationally has shown that both farms and cities will buy water, but most sellers tend to be in the agricultural sector.

- *Explain how and to what extent the proposed water market or water marketing activities will improve water supply reliability in general in the area upon implementation of the strategy (address all that apply):*
 - *Reducing the likelihood of conflicts over water*

In a water market, buyers and sellers may exchange water for money through short-term leases, long-term leases, and permanent sales of their water rights. Such trades can help reduce conflicts with water users over the allocation of scarce supplies. Long-term and permanent transfers accommodate geographic shifts in water demand as the economy changes and the population grows. The most potentially successful blend of short-term and long-term trades will be analyzed as part of the work of this project.

- *Increasing resiliency to drought*

A water market will allow for sharing of water resources, particularly in times of need, such as a drought. Short-term transfers of water can lessen the economic impact of shortages during droughts by shifting water to activities and places where the lack of water will be more costly. This will likely reduce conflicts over water and increase resiliency to drought because water is sold/transferred to where it is needed most.

- *Sustaining agricultural communities*

Based on the historical experience of Westlands Water District in California, it is expected that there would be more trades during dry and drought years, but that the median size of the trade during wet years might be larger as farmers make choices to shift crop patterns or to financially benefit from high availability of water.

- *Demonstrating a water marketing approach that is innovative and which may be applied by others*

Although there is a historical precedent for water marketing activities in California, these have not been widespread and the concept of water marketing is still relatively new and innovative method for dealing with water scarcity in the region. It is anticipated that the proposed Madera County pilot study will help inform other public agencies about how to implement similar strategies. Additionally, this effort is motivated by strong interest from the Madera Ag Water Association, which includes farmers whose entire source of water is groundwater. This particular group is facing a unique challenge under SGMA, and navigating successfully through this challenge would be helpful to similar groups throughout California

- *Providing in-stream flows for species, recreation or water quality objectives.*

A water market system can be used to support the environment where water purchases are used to support wildlife refuges, increase in-stream flows for fish, and reduce salt build-up in bodies of water. Water markets – in which a cap on total use is set; rights to use water are legally defined, monitored, and enforced; and in which rights can be exchanged among water users – tend to cause users to use water more efficiently to alleviate water scarcity.

- *Explain the extent to which the water market/activity will be ready to proceed upon completion of the strategy, addressing each of the following:*
 - *Describe your plans and timeline for implementing the strategy upon its completion.*

Development of the water marketing strategy will occur in 2019 with a market to open for a pilot program in 2020. Issues to be resolved include the parameters of the market (for example, identification of participants, defining pools that can trade within a geographic area; how trading will distribute costs in the market; how the market could lower barriers to entry and encourage participation, and so on) as well as an analysis of unintended consequences in the water market strategy document.

- *Are there complex issues, including issues of law or policy, that would need to be resolved before the strategy could be implemented?*

Developing a local water market would address several key reforms recommended by the Public Policy Institute in their recent (2016) report on water markets in California. Currently, water availability is often only informally known through “coffee shop talk.” A water market would formalize the process by allowing farmers to list water available to buy and list those in need of water. The end result of a local water market would be a repository of information on

volumes and prices of trade. This would increase the transparency of the process as well as market access for farmers.

- *Explain whether previous planning, outreach and/or water marketing activities have been completed, including work on any of the required Project elements 1 to 3.*

A water market system/strategy has not been previously attempted among the water users in Madera County. In order to learn from the experience of others with a water market, the Farm Bureau and Madera County recently took a trip to Ventura County and the Fox Canyon Groundwater Management Agency, which included meeting with managers to discuss the hurdles and successes of their particular water market. The trip was highly successful in furthering a partnership between the Farm Bureau and Madera County regarding the development of a water market.

Evaluation Criterion B—Level of Stakeholder Support and Involvement:

- Identify stakeholders in the planning area who have committed to be involved in the planning process.
 - *Describe their commitment.*

Madera County Subbasins are made up of lands with and without sufficient water supply that service individual communities, agriculture operations, and grazing operations. It is necessary for this diverse population to begin to coordinate together to utilize the limited resource of water as efficiently as possible. All three of these interested stakeholder groups want to find a better solution to trading water in times of abundance and conserving in times of scarcity. No one stakeholder group will be able to survive without the others participation.

- *Please explain whether the project is supported by a diverse set of stakeholders.*

Specifically, each of the individual stakeholders have groups and entities representing their interests. These “groups” include: Madera Ag Water Association, Self-Help Enterprises, the County of Madera, Madera County Cattlemen Association, Madera County Farm Bureau, the Madera and Chowchilla Resource Conservation Districts and the subbasin GSAs.

- Describe stakeholders in the planning area who have expressed their support for the planning process, whether or not they have committed to participate.

Below are some of the stakeholders that have expressed support for the Madera County water market pilot project:

- **Madera Ag Water Association (MAWA):** the organization has as a membership of approximately 40 members who have all agreed to financially assist with the implementation of a water market. The group was created in an effort to develop such a system, and has already contracted with a consultant to conduct studies necessary for implementation.
- **Self-Help Enterprises:** the organization will assist in educating the communities, and be engaged in the planning process.
- **County of Madera:** Developed and submitted the WaterSMART application and will coordinate the entire water market pilot project implementation and monitoring.
- **Madera County Cattlemen Association, Madera County Farm Bureau and the Madera and Chowchilla Resources Conservation Districts:** these organizations will assist with in-kind services including education and outreach as well as participate in the planning process that are tied to the project.

- [Is there opposition to the proposed strategy?](#)

There is no known opposition to the proposed water market strategy development or pilot; however, there is uncertainty about the proposed project area within Madera County. Outreach will continue to groundwater users who are concerned about how markets could impact groundwater management.

- [Do any separate planning efforts express support for the proposed water market/transaction? Or, will the proposed water marketing strategy complement other ongoing or recent planning efforts within the area?](#)

The strategy complements existing planning efforts. At the moment, the subbasin is in the GSP planning stages of gathering information about the subbasin as well as deciding on projects and management actions to address the overdraft. This project would complement the GSP by addressing how access to groundwater could be transferred on a short-term basis to other pumpers. Such market mechanisms are contemplated in SGMA.

- [Please describe any relevant planning efforts, including who is undertaking these efforts and whether they support or are complemented by the proposed water marketing strategy. Explain how the proposed water marketing strategy will avoid duplication or complication of other ongoing planning efforts.](#)

The most relevant planning effort for this projects concerns developing the Groundwater Sustainability Plan (GSP) to comply with California's Sustainable Groundwater Management Act (SGMA). SGMA requires that groundwater use in 21 critically over drafted basins (including those within Madera County) be brought under a GSP by January 31, 2020. The GSPs are to be developed by new administrative bodies called Groundwater Sustainability Agencies (GSAs). Madera County is in the process of coordinating the organization of GSAs in the Madera Subbasin and four GSAs in the Chowchilla Subbasin and developing a groundwater sustainability plan (GSP). The planning work being done under SGMA complements (and does not duplicate) the development of this water marketing strategy in that the strategy reallocates available water on a supply-and-demand basis thereby promoting efficient use and sustainability of groundwater supplies over the long term, which is in line with the goals of SGMA.

- [Describe what efforts that you will undertake to ensure participation by a diverse array of stakeholders in developing the water marketing strategy.](#)

The GSP development process has already begun stakeholder meetings, technical meetings, and created stakeholder committees to provide input to the GSP. To date Agriculture, Water Districts, Municipalities, Disadvantaged Communities, Non-Governmental Agencies have all been involved in the planning process. Continued outreach and input is being requested by the governing agencies. Those requests have come through email, public meetings, phone calls, personal outreach at community meetings such as Madera County Farm Bureau, Self Help Enterprises, Madera County, and others.

Evaluation Criterion C—Ability to Meet Program Requirements:

- [Describe how the three elements of a water marketing strategy will be addressed within the required timeframe.](#)

Please refer to the tasks, details, and charts in the Scope of Work in the Technical Proposal/Project Description section of this application as well as the budget presented under

the Project Budget section. Madera County and its partner organizations fully recognize integration of the three elements throughout the water market strategy development is essential for timely success of the effort. Previous work by the County and its partners to evaluate long-term demand and supply management needs – including the timing of continued community growth’s effect on demand, to implement transfers, and to identify the need and timing for major infrastructure projects will provide valuable foundational information for this effort.

- *Describe the availability and quality of existing data and models applicable to the proposed water marketing strategy.*

Madera County proposes using Fox Canyon Groundwater Management Agency (GMA) as a model for the development of a water market. Madera County already met with the Farm Bureau of Ventura County as well as Fox Canyon Groundwater Management Agency to discuss similarities and differences between the Ventura County and Madera County in terms of agricultural production and hurdles to a water market. Westlands Water District has operated a water market for decades and can also be used as a model. However, Westlands has a significant amount of water available from the Central Valley Project (CVP), which is a surface water supply, while Madera County has significant areas without any access to CVP water that are entirely reliant on groundwater. This means that Fox Canyon GMA may be a stronger model for the water market among groundwater users than Westlands (even though Westlands is geographically closer and more similar to Madera in terms of climate).

- *Identify staff with appropriate technical expertise and describe their qualifications. Describe any plans to request additional technical assistance from Reclamation, or by contract.*

There are three critical partners: Madera County, the Farm Bureau of Madera County and the Madera Ag Water Association (MAWA). Key project staff will come from these organizations:

- 1) **Stephanie Anagnoson, Madera County Director of Water and Natural Resources:** Stephanie will lead the effort for Madera County. Stephanie is an experienced water resources manager with relevant experience both at an importer of surface water (Castaic Lake Water Agency) as well as for mutual water company entirely reliant on severely stressed groundwater (Sleepy Valley Water Company). She has a master’s degree from Harvard University where she specialized in environmental ethics and a bachelor’s degree from Wesleyan University in earth sciences.
- 2) **Christina Beckstead, Farm Bureau of Madera County Executive Director:** Christina will lead the effort with the Farm Bureau and has brought together a large network of local farmers. She has a Juris Doctorate, as well as a Bachelor’s Degree in Agriculture Business/Economics from CSU Fresno. Christina promotes agriculture in organizations including the Farm Bureau and California Women for Agriculture.
- 3) **Kevin Herman and Tom Coleman, Farmers Representing MAWA:** Kevin and Tom represent the Madera Ag Water Association – an organization of farmers that are entirely reliant on groundwater in Madera County. Both are experienced agricultural managers for grapes, figs, almonds and pistachios, and both serve on local and statewide agricultural boards. They will work with Christina to bring together diverse coalitions of farmers for this project.

If pilot activities are to be a part of the project, please include the following:

- *Describe any permits or approvals that will be required, along with the process for obtaining such permits or approvals.*

While it is unlikely that significant permitting will be required for this project specifically, the County of Madera will consult with its legal counsel and planning department staff to determine what type of permitting (if any) would be needed to implement a water market system. Possible permits that could be necessary (beyond environmental compliance) may include domestic or de minimis water use permits; water well permits; electrical and mechanical permits; agriculture zoning and use permits; agricultural or other land use permits.

- *Identify and describe any engineering or design work performed specifically in support of the proposed pilot activities.*

The general steps for implementing the pilot water marketing program are described in detail in the Scope of Work under Element 3, Task 12. Engineering and design work in support of the pilot water marketing project include the following:

- Selecting a specific geographic area within Madera County for participation
 - Development of a tracking mechanism (software) to facilitate buying and selling of water (referred to as the Water Market Pilot Study Share Register program in the Scope of Work)
 - Program participants must have installed water meters and AMI systems for tracking water usage
 - Tracking participation formally (as well as informally) will involve a number of trades, hurdles toward participation
 - Assessment of the success/failures of the pilot program based on program observations and data
- *Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?*

The environmental compliance cost estimate was developed based on budget estimates for similar water infrastructure projects that Madera County has applied for in the past, namely through various California state agencies. The compliance cost has not yet been discussed with Reclamation.

Evaluation Criterion D—Department of Interior Priorities:

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
 - a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment*

The California Department of Water Resources, through its SGMA planning process, has advocated that sustainable groundwater management is best achieved locally through the development, implementation, and updating of plans and programs based on the best available science. Scientifically-informed ideas and best practices will be used regularly to inform the activities undertaken as part of Madera County's water market strategy pilot study. There are a variety of published scientific works and case studies regarding water marketing that could be useful for informing this project. Through the process of gathering data about the water supplies, water uses, geological make up and existing areas of concern through the ongoing GSP process, the County and its partners will have a starting point to build upon for better land and

water management. Through the creation of the Groundwater Sustainability Plan (GSP), the data collection of water well elevations, water quality, crop types and surface water supplies has been completed. Ongoing monitoring of well use, surface supply use, elevation and quality changes will continue to inform the operational activities of the basin.

b. Examine land use planning processes and land use designations that govern public use and access

A water market can shift water to where it is needed the most, particularly in times of drought, and water sources can be managed in the long term by encouraging land use changes. Land use designations that govern Madera County and as outlined in the County's General Plan and other related documents will be reviewed as part of the work done under Tasks 4-6 of Element 2 of the Scope of Work (see above). As data is collected and improved upon during the project period, it will become clearer as to the best locations for urban development, agriculture and potential land fallowing for purposes of groundwater recharge. Although existing land use practices may not change, the information will help inform the future development decisions. As required by California law, any elements of the project that may require significant planning actions or alterations to certain land use designations receive a public hearing with the Madera County Board of Supervisors for public comment and approval from the local legislative body. Stakeholder comment would also be taken. Standard amendment ratification processes would be used for any changes to planning process and land use designations that may be needed.

c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards

It is the intent of the proposed project to adhere to all applicable requirements of the California Environmental Quality Act (CEQA) as well as the National Environmental Protection Act (NEPA) including the development of full Environmental Impact Reports (EIRs) to include identification of all significant effects, alternatives, and potential mitigation measures that may result from this project. Further, the project will also comply with the tenets of California Senate Bill 610 and Senate Bill 221 (adopted by the state legislature in 2002) which are companion measures that seek to promote more collaborative planning between local water suppliers and cities and counties. Madera County will comply with both statutes by submitting detailed information regarding water availability as a result of this project to the Madera County Board of Supervisors prior to approval of any large development projects.

d. Review Interior's water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity

Madera County has several Bureau of Reclamation facilities within its boundaries, including Friant Dam and Millerton Reservoir, the Madera Canal, and the Delta-Mendota Canal. One project being contemplated under the SGMA GSP is the expansion of multiple canal capacities to move water during wet years. Upon the success of the new water marketing strategy and new transfer rules, Madera County may seek temporary transfers with Reclamation and other CVP contractors to help address water supply reliability objectives within the project area. Depending on the pathway and ultimate place of use of any transferred water, various Reclamation storage and conveyance facilities would be used to successfully deliver water.

e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands

As part of the outreach and partnership building activities under Element 1 of the Scope of Work, it is the intent of Madera County to conduct outreach to potential project partners and address the concerns of parties that may be affected by the proposed project. As part of these outreach efforts the County will coordinate with local and statewide conservation organizations, including applicable local and state agencies.

f. Identify and implement initiatives to expand access to Interior lands for hunting and fishing

This is not applicable to the proposed project.

g. Shift the balance towards providing greater public access to public lands over restrictions to access

This is not applicable to the proposed project.

2. Utilizing our natural resources

a. Ensure American Energy is available to meet our security and economic needs

Any electrical or other energy used as part of this project will come from local sources that are either generated through renewable means (such as solar power) or which draw from the existing electrical grid. The electrical grid in Madera County, California, is managed by the Pacific Gas and Electric company (PG&E), which is an American-owned energy company using energy generated within the United States.

b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications

This is not applicable to the proposed project.

c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle

The proposed project will not directly affect local timber programs in the Sierra Nevada Mountains, however, once the water market is in operation as a result of the project, it will potentially enable water to be used in a more sustainable fashion. Madera County's surface and groundwater sources originate from watersheds in the Sierra Nevada Mountains, which are currently facing a tree mortality crisis that could affect Madera's water supply. Ongoing drought, a century of fire suppression, widespread tree mortality due to insect attacks and disease, and a changing climate have led to continued die-off of trees. A state of emergency has been declared in this region and the county has received state aid in the form of grants and allocations to reduce risk to public infrastructure resulting from tree mortality. Current grant-funded efforts include the removal of trees in the County right-of-way areas, which will benefit the watershed.

d. Manage competition for grazing resources

This is not applicable to the proposed project.

3. Restoring trust with local communities

a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands

By implementing such a program, residential users could have a better understanding of the current water needs of multiple users and be willing to engage in reasonable dialogue. Madera County has a network of local agencies already in place that could carry out a water marketing strategy, as a result of the formation of the Groundwater Sustainability Agencies (GSAs)

required by California's Sustainable Groundwater Management Act (SGMA) legislation. This process began in 2014 when various public agencies in Madera County began meeting to discuss groundwater and the need to coordinate and collaborate their efforts in the management of groundwater in the local groundwater subbasins. These efforts provided the basis for the formation of Groundwater Sustainability Agencies as part of the SGMA process in California. Both the Madera and Chowchilla Subbasin GSAs bring together local agencies and related parties vested with the authority and/or ability to support implementation of SGMA in the Madera and Chowchilla Groundwater Subbasins.

- b. Expand the lines of communication with Governors, state natural resource offices, fish and wildlife offices, water authorities, county commissioners, Tribes, and local communities*

As part of the efforts to form the GSAs required by California's SGMA legislation, Madera County and its partner organizations have been in regular contact with staff and administrators from the California Department of Water Resources (DWR) and the California State Water Resources Control Board (SWRCB) as well as local water districts, communities, and tribal governments. Creating a water marketing strategy is in line with the goals of SGMA which (broadly) seeks to organize agencies at a local level to develop water-sharing systems that bring local groundwater use within sustainable limits. The partnerships developed through the implementation of the SGMA protocols will provide Madera County with a ready-made network of local and state-level partnerships that will assist with development and implementation of a water marketing strategy.

4. Striking a regulatory balance

- a. Reduce the administrative and regulatory burden imposed on United States (U.S.) industry and the public*

This section is not applicable to the proposed project.

- b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis*

This section is not applicable to the proposed project.

5. Modernizing our infrastructure

- a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure*

As part of California's SGMA compliance process and the formation of the GSAs within Madera County, various public agencies and private businesses have been meeting regularly since 2014 to discuss the need to coordinate and collaborate their efforts in the management of groundwater in the local subbasins. Specifically, private landowners have been building their own infrastructure to connect to current systems. Multiple efforts culminated in the successful formation of the Madera and Chowchilla Subbasin GSAs with each organization involving representatives from public bodies as well as private, commercial, and agricultural entities. The SGMA process represents a key example of a public/private partnership initiative.

- b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs*

Water delivery systems in Madera County were originally built for the delivery of water in specific water districts or municipalities. There is limited ability to move water or store water efficiently when available in abundance. The need to improve inter-conveyance between water

districts to get water to places of need and recharge when available is dire however, the water market allows for water to be bought and sold without additional conveyance. Additional improved conveyance mechanism through improved channel flows, interconnectivity of out of district irrigation systems and connection to the best recharge areas in the subbasin to surface water supplies. Additionally, the limitation of moving excess water between areas will need to be relaxed in times of abundance for the utilization in the most beneficial places.

c. Prioritize Interior infrastructure needs to highlight:

1) Construction of infrastructure

The proposed project involves mostly outreach, planning, scoping, and regulatory development activities that will lead to the implementation of a pilot water marketing system. However, there may be additional recharge facilities built. They will not involve significant construction of new infrastructure and will rely on existing water conveyance systems within Madera County.

2) Cyclical maintenance

It is anticipated that regular (cyclical) maintenance will be performed on the water conveyance systems used as part of the pilot water marketing project by the entities that own the infrastructure. Madera County will perform maintenance on the systems it oversees and other public and private agencies involved in this project will do the same with their own facilities. Currently, county-owned water facilities are overseen by the County Department of Water and Natural Resources as well as the Public Works Department. County staff or hired contractors will be used to perform maintenance on any water infrastructure.

3) Deferred maintenance

Madera County understands that the failure to perform needed repairs could lead to deterioration and impairment of the water conveyance infrastructure to potentially be used in this project. The county understands that were it to pursue a policy of continued deferred maintenance, such a policy could result in higher costs, infrastructure failure, and in some cases, health and safety implications for local communities and residents. Madera County will work with its project partners to regularly maintain the water conveyance infrastructure and machinery that will be used in this project.

REQUIRED PERMITS OR APPROVALS

At this time, there are no known permits that would be applicable to this project. As the project progresses, there will be reviews with Madera County Planning Department and Public Works Department staff to make sure all procedures and protocols are being followed for any applicable permits.

PROJECT BUDGET

1) Funding Plan and Letters of Commitment

- How you will make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant.

The applicant contribution will be drawn from budgeted funds from the Madera County Department of Water and Natural Resources 2019/2020 budget. The Madera Ag Water Association (MAWA) is willing to provide matching funds if needed. This commitment has been documented in the letter provided by MAWA in the Letters of Support included under *Attachment 3* of this application.

- Describe any in-kind costs incurred before the anticipated Project start date that you seek to include as costs.

Section not applicable. Madera County does not anticipate incurring in-kind costs prior to the project start date of July 2019.

- Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.

Section not applicable; however, the Madera Ag Water Association is willing to provide matching funds if needed as documented in its letter of support included under *Attachment 3* of this application.

- Describe any funding requested or received from other Federal partners

Section not applicable. There are no other Federal partners associated with this application.

- Describe any pending funding requests that have not yet been approved, and explain how the Project will be affected if such funding is denied.

The Board of Supervisors of Madera County adopted a resolution (number 2018-094) during the July 10, 2018 board meeting certifying that the County has the matching funds available for the applicant share for this proposed project. A copy of the resolution has been included with this application under *Attachment 4*. The applicant share will be drawn from the current Madera County Department of Water and Natural Resources Fiscal Year 2018/2019 budget.

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1) County of Madera (Dept. of Water & Natural Resources budget)	\$200,000
Non-Federal Subtotal	\$200,000
Other Federal Entities	
1) None	\$0.00
Other Federal Subtotal	\$0.00
REQUESTED RECLAMATION FUNDING	\$199,999.43

2) Budget Proposal

BUDGET ITEM DESCRIPTION	Cost/Unit	Quantity	Quantity Type	TOTAL COST
Salaries and Wages				\$199,999.43
Employee 1 (County W&NR Director)	\$74.69	859.5	hourly	\$64,193.91
Employee 2 (County W&NR Deputy Director)	\$43.21	1510	hourly	\$65,240.84
Employee 3 (County Engineer)	\$46.73	1510	hourly	\$70,564.69
Fringe Benefits				
Full-Time Employees				\$0.00
Part-Time Employees				\$0.00
Travel				
Trip 1	\$0.00			\$0.00
Equipment				
Item A	\$0.00			\$0.00
Supplies and Materials				
Item A	\$0.00			\$0.00
Contractual/Construction				\$200,000.00
Contractor A (Economic Analysis/Strategy Dvmt.)	\$180,000		Lump Sum	\$180,000
Contractor B (Legal Analysis)	\$20,000		Lump Sum	\$20,000
Other				
Other				\$0.00
TOTAL DIRECT COSTS				\$399,999.43
Indirect Costs				
Type of Rate	Percentage	\$base		\$0.00
TOTAL ESTIMATED PROJECT COSTS				\$399,999.43

3) Budget Narrative

Salaries and Wages:

Total = \$199,999.43

- Madera County Director of Water and Natural Resources Department: \$74.69/hour salary x 859.5 project hours = \$64,193.91 total cost
- Madera County Deputy Director of Water and Natural Resources Department: \$43.21/hour salary x 1,510 project hours = \$65,240.84 total cost
- Madera County Engineer, Water and Natural Resources Department: \$46.73/hour salary x 1,510 project hours = \$70,564.69 total cost

The project will be administered by the Madera County Department of Water and Natural Resources staff. Estimated hours and cost per hour for each Madera County employee are provided above and in the budget table. The Madera County Director of the Water and Natural

Resources Department will provide project oversight and high-level management. The Deputy Director of Water and Natural Resources Department and the Department's Engineer will be directly responsible for the project implementation (working with assistance of contractors) project management, and reporting as detailed in the Project Scope of Work.

Fringe Benefits:

Total = \$0.00

No fringe benefits costs being requested in this proposal.

Travel:

Total = \$0.00

No travel costs requested in this proposal.

Equipment:

Total = \$0.00

No equipment costs requested in this proposal.

Materials and Supplies:

Total = \$0.00

No materials and supplies costs requested in this proposal.

Contractual:

Total = \$200,000

- Contractor A – Economic Analysis & Water Market Strategy Development: Lump sum payment to be no more than \$180,000.
- Contractor B – Legal analysis: Lump sum to be no more than \$20,000

The County plans to hire a professional consultant with expertise in water market strategies, water delivery systems, and customer use characteristics. Ideally, this consultant will be familiar with the Madera County/Central California area as well as potential partners, affected parties, regulations and other items that would be used for developing a water marketing strategy. This consultant will be selected in accordance with Madera County contractor solicitation/purchasing/hiring requirements as well as standard Public Contract Code requirements.

Madera County plans to hire a professional legal consultant to assess and set forth the primary statutory language and current practical application of the laws to help establish common legal understanding from which Madera County, its partners, potentially affected parties, and regulators can all proceed in pursuing this new water marketing strategy. Under this task, the legal consultant (working with county staff) would gather relevant legal information, including any applicable transfer examples or case law, analyze the current statutory interpretations, and develop initial opportunity concepts.

Other Expenses:

Total = \$0.00

No additional expenses requested in this proposal.

Indirect Costs:

Total = \$0.00

Madera County proposes no Indirect Cost rate for this proposal.

Total Costs:

- Total Requested Reclamation Funding = \$199,999.43
- Total Applicant Cost Share Funding = \$200,000.00
- Total Project Cost = \$399,999.43

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

- Will the proposed Project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Scientific studies have shown that water markets, if left unregulated, have the potential to significantly alter flow regimes and water supplies, resulting serious consequences for water quality and ecological habitats. J.G. Tisdell, in the January 2001 issue of the Journal of Environmental Management published a study of water markets in Australia which concluded that trade in water entitlements increased the differential between extractive demand and historical flow regimes, and that water markets were likely to limit the effectiveness of water policies aimed at restoring natural flow regimes. It is possible that the proposed Madera County project could have impacts particularly on local groundwater supplies and quality if it remains unregulated.

However, water marketing activities, properly implemented and controlled, can also have a beneficial purpose. The goal of developing the water quantification and monitoring standards, as well as a legal framework for the water market system (described in Tasks 4-8 of Element 2 of the Scope of Work above) will help reduce impacts on local water supplies. The establishment of high-functioning and well-governed water markets – in which a cap on total use is set; rights to use water are legally defined, monitored, and enforced; and in which rights can be exchanged among water users – can provide a powerful integration of public and private efforts to alleviate water scarcity. A well-functioning water market can provide financial incentives for improving water’s productivity by enabling those willing to use less water to be compensated by those needing more water, or wanting to return water to the environment. By so doing, water markets open up pathways for entities wanting to access more water to do so in a highly cost-effective manner that is far less environmentally damaging than building new infrastructure.

- Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the area? If so, would they be affected by any activities associated with the proposed Project?

The proposed project involves mostly outreach, planning, scoping and regulatory development activities leading to a pilot water marketing system in Madera County. The project itself should not result in any negative impacts to threatened or endangered species as well as critical habitats if the pilot program is monitored and regulated. However, as noted in the previous question, water marketing activities, if left unregulated, have the potential to affect the environment by decreasing historical flow regimes in rivers and bodies of water that directly affect the critical habitats in those areas. This means there is the possibility that the water marketing activities that result from this project *could* be affected by activities associated with the outcomes of this project. It is hoped that the establishment of high-functioning and well-governed water marketing system in Madera County through – in which a cap on total use is set; rights to use water are legally defined, monitored, and enforced; and in which rights can be exchanged among water users – can help mitigate any serious impacts to threatened or endangered species as well as critical habitats.

- Are there wetlands or other surface waters inside the Project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

Madera County’s boundaries include the Chowchilla River and the San Joaquin River and may encompass wetlands. There are no estimated impacts of the proposed project on these areas.

- When was the water delivery system constructed?

The water delivery systems within Madera County were constructed over the last 100 years and vary in age greatly. The proposed project does not include using water delivery systems to create a water market.

- Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project involves mostly outreach, planning, scoping and regulatory processes activities that will result in the development of a water marketing system in Madera County; as such it is not expected to result in modification to irrigation systems. Should the water marketing activity that results from this project go forward, it will make use of existing irrigation and other water conveyance systems within Madera County when transferring supplies between users.

- Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

There are no known structures listed on the National Register of Historic Places that will be directly affected by the proposed project. As stated previously, project involves mostly outreach, planning, scoping and regulatory processes that will result in the development of a water marketing system in Madera County and should not result in physical impacts to any historical structures.

- Are there any known archeological sites in the proposed area?

There are no known archaeological sites that will be directly affected by the proposed project. In the event archaeological sites are located, any construction activities occurring within a 50-foot radius of the identified potential resource until a qualified archaeologist evaluates the item for its significance and records the item. A professional archaeologist or paleontologist, as selected by the County, shall determine whether the item requires further study. If, after the appropriate technical analyses, the item is determined to be significant under CEQA, feasible mitigation measures will be pursued. However, as stated previously, the project involves mostly outreach, planning, scoping and creation of regulatory processes that will result in the development of a water marketing system in Madera County and should not result in physical impacts to any archaeological sites.

- Will the proposed Project have a disproportionately high and adverse effect on low income or minority populations?

The proposed project involves mostly outreach, planning, scoping and regulatory processes leading to the development of a water market system in Madera County. As part of these efforts, the County will include low-income and minority populations as well as community organizations representing such groups during the stakeholder outreach as well as scoping and planning phases of the project (see Elements 1-2 in the Scope of Work above). Potentially, a water market would place less stress on the groundwater in agricultural areas that surround low-income populations.

- Will the proposed Project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

The proposed project involves mostly outreach, planning, scoping and regulatory processes that will result in the development of a water marketing system and should not result in physical impacts to tribal lands or limited access to any sacred sites. Madera County will coordinate with the California Native American Heritage Commission to conduct a Sacred Lands File search. The County will also coordinate with all local tribes as needed during the developmental processes that make up the grant project scope and then following during the implementation of the pilot and full water marketing strategy.

- Will the proposed Project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The proposed project is not expected to result in the introduction, continued existence, or spread of noxious weeds or non-native invasive species. Madera County will work with local conservation organizations and the California Department of Fish and Wildlife to detect and respond to introductions should they occur, and prevent the spread of invasive species that have become established in any waterways used by the proposed project.

EXISTING ANALYSIS CONTRIBUTING TO THE WATER MARKETING STRATEGY

Links to the research and reference materials that were consulted during the preparation of the Technical Proposal, Evaluation Criteria, and Environmental and Cultural Resources Compliance portions this application have been provided below, with sources organized by section of the application where they were used:

References for Technical Proposal & Scope of Work Sections

- *2014 California Sustainable Groundwater Management Act (SGMA)*. (2018) California Department of Water Resources. Retrieved from: <https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management>
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LETTERS OF SUPPORT

Letters of support for the County of Madera Water Marketing Strategy Development and Pilot Program were received from the following organizations and have been attached to this application under *Attachment 3 Letters of Support*.

- Madera County Farm Bureau
- Madera Ag Water Association (MAWA)
- Chowchilla Red Top Resource Conservation District
- Self Help Enterprises

OFFICIAL RESOLUTION

The Board of Supervisors of Madera County, during the Board Meeting held on Tuesday, July 10, 2018, considered and adopted a resolution (number 2018-094) certifying that Madera County will have sufficient funds to operate and maintain the project and to authorize the County Administrative Officer, or their designee, to submit an application to Reclamation's FY 2018 WaterSMART Water Marketing Strategy Grant.

A copy of the resolution has been included with this application as part of the required documentation under *Attachment 4 Official Resolution*.