

Tulare Irrigation District

Kaweah Subbasin Water Marketing Strategy

Tulare County, California

APPLICATION SUBMITTED TO THE UNITED STATES BUREAU OF RECLAMATION FOR A
WATERSMART GRANTS: WATER MARKETING STRATEGY GRANTS FOR FISCAL YEAR 2019

(Funding Opportunity No: BOR-DO-19-F006)



Tulare Irrigation District

Project Manager: Jeremy Barroll, Assistant Engineer

6826 Avenue 240
Tulare, California 93274
Phone: (559) 686-3425
Fax: (559) 686-3673
E-mail: jab@tulareid.org
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Technical Proposal and Evaluation Criteria

Executive Summary

Date: July 29, 2019
Applicant Name: Tulare Irrigation District
City: Tulare
County: Tulare County
State: California

Project Summary

The Tulare Irrigation District proposes to pursue the Kaweah Subbasin Water Marketing Strategy (Kaweah Marketing Strategy or Water Marketing Strategy) to collaborate with surrounding growers, communities, rural homeowners and other interested parties in developing a water marketing strategy to provide groundwater resource flexibility for individual water users within the Kaweah Subbasin and to implement a Pilot Program to test and evaluate the Kaweah Marketing Strategy. The Kaweah Marketing Strategy is intended to create a plan whereby the three Groundwater Sustainability Agencies (GSAs), which collectively cover the entire Kaweah Subbasin (Subbasin), set a groundwater pumping allocation for individual users to comply with the Sustainable Groundwater Management Act (SGMA) mandate to bring the Subbasin into groundwater sustainability by 2040. The Kaweah Marketing Strategy will identify the willing buyers and sellers of said pre-allocated groundwater supplies and develop the contracts, rules, policies and software to administer the trading of the groundwater allocations within a structured framework. The goal is to achieve water supply reliability and groundwater sustainability.

Project Timeline

The Kaweah Subbasin Water Marketing Strategy is anticipated to begin in November 2020 and be completed by November 2023. Please see the attached Project Schedule (**Figure 4**) for a more detailed description of the Kaweah Marketing Strategy tasks.

Project Facilities

The proposed strategy involves the entirety of the Kaweah Subbasin, which is bisected by and receives water from the Friant-Kern Canal, a Bureau of Reclamation facility conveying surface water as part of the Central Valley Project. See Background Data for more information regarding the Kaweah Subbasin's use of Central Valley Project water. See **Figure 1** for a map of the Kaweah Subbasin, including the three GSAs located within the Subbasin and the Tulare Irrigation District. Tulare Irrigation District, along with several other districts within the Kaweah Subbasin, has contracts with the Bureau of Reclamation to receive CVP Friant water supplies.

Background Data

The scope of project will include agricultural operations, industrial food processing (mainly local dairy processing plants and produce packing facilities) and municipalities across the Kaweah

Subbasin, which covers 688 square miles of mostly agricultural land producing primarily nuts, grapes, wheat, dairy products, cotton and citrus. Cities include:

- | | |
|---------------------------------|-------------------------------------|
| 1. Visalia (Population 133,000) | 4. Farmersville (Population 11,000) |
| 2. Tulare (Population 64,000) | 5. Exeter (Population 11,000) |
| 3. Lindsay (Population 13,000) | 6. Woodlake (Population 8,000) |

The Subbasin also includes a number of small, rural communities. Many of these small communities qualify as Disadvantaged Communities or Severely Disadvantaged Communities. These communities include, but are not limited to, Okieville, Waukena, Soult's Community Tract, Lemon Cove, and Goshen.

Irrigation districts include:

1. Tulare Irrigation District (Friant Water Authority member)
2. Exeter Irrigation District (Friant Water Authority member)
3. Lindsay-Strathmore Irrigation District (Friant Water Authority member)
4. Lindmore Irrigation District (Friant Water Authority member)
5. St Johns Water District (Friant Water Authority member)
6. Ivanhoe Irrigation District (Friant Water Authority member)
7. Stone Corral Irrigation District (Friant Water Authority member)
8. Portions of Lakeside Irrigation Water District and Kings County Water District, which are primarily in the Tulare Lake Subbasin.

Additionally, the Kaweah Delta Water Conservation District conducts modeling and groundwater recharge activities and their jurisdiction covers most of the Subbasin. A number of mutual water companies (ditch companies) provide surface water to much of the agricultural area not within the aforementioned irrigation districts.

The Subbasin is divided into three Groundwater Sustainability Agencies, including:

1. Greater Kaweah GSA
2. Mid Kaweah GSA
3. East Kaweah GSA

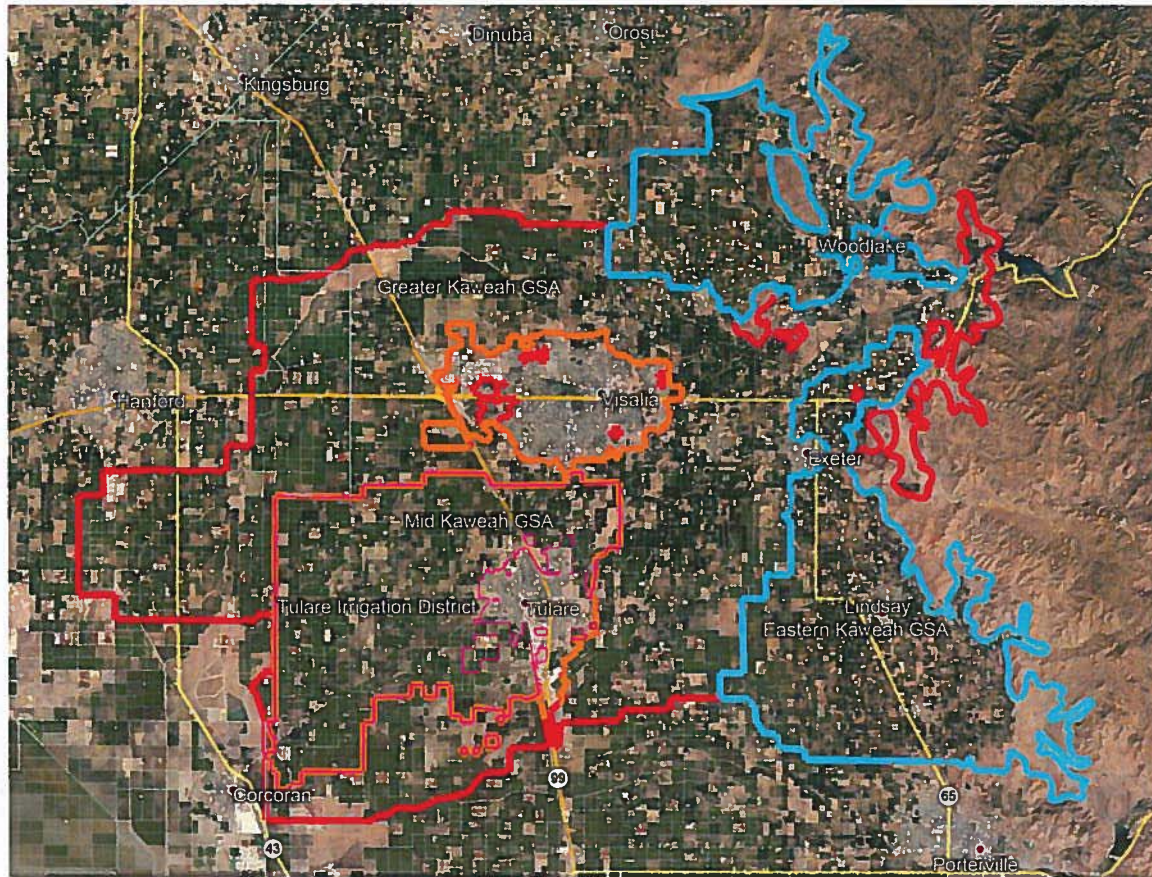


Figure 1: Kaweah Subbasin GSAs, with Greater Kaweah GSA in Red, Eastern Kaweah GSA in blue and Mid Kaweah GSA in orange. Tulare Irrigation District is shown as a magenta line within the Mid Kaweah GSA.

Water Supply and Demand

In regards to water resources, the various irrigation districts and water companies of the Subbasin generally have pre-1914 rights to Kaweah River water, which is stored in Lake Kaweah, an on-stream reservoir with 185 Thousand Acre Feet (TAF) of storage which is operated by the Army Corps of Engineers primarily for flood control. This water is allocated and distributed by the Kaweah & St Johns River Association. Several agencies also have rights to Central Valley Project water, as delivered from the San Joaquin River via the Friant-Kern Canal (those agencies listed above as members of the Friant Water Authority). In total, the Kaweah Subbasin has historically utilized an average of 332,205 AF of Kaweah River water, 154,793 AF of CVP water and 6,658 AF of Kings River water from 1997-2017¹. However, surface water supply is highly variable and therefore the majority of growers with surface water rights depend on groundwater pumping as a water supply supplement when surface water deliveries are insufficient. Meanwhile, growers without surface water rights (those outside of irrigation district/ditch company service areas) and all of the communities in the Subbasin rely 100% on groundwater to meet their agricultural, municipal and residential water needs. Groundwater extraction is mainly supplemented by a combination of percolation of surface water through

¹ Kaweah Subbasin Setting Components- Preliminary Draft, Page 65.

conveyance and irrigation canals; precipitation; subsurface inflow from surrounding basins; and groundwater recharge activities conducted by agencies (See Figure 2).

The Kaweah Subbasin has been identified as a critically overdrafted Subbasin by the California Department of Water Resources (DWR). Due to the critical overdraft, the growers, landowners, and residents within the Subbasin must comply with the Sustainable Groundwater Management Act (SGMA) which specifies that High-Priority Subbasins, including the Kaweah Subbasin, must stabilize their respective groundwater levels by 2040. Therefore, the GSAs face the expectation of having to set groundwater pumping allocations for water users, a prospect with the potential to harm individual growers, domestic users and entire communities as agriculture is the main industry of the region. Currently, the estimated imbalance of groundwater usage versus sustainable supply is 77,600 Acre-Feet (AF) annually within the Kaweah Subbasin, according to data from 1997-2017². As local agencies are now in the process of developing Groundwater Sustainability Plans (GSPs) to comply with SGMA and set a path for sustainability, many of the GSPs have identified water marketing systems as a potential project that can allow for increased flexibility in water management to achieve groundwater sustainability.

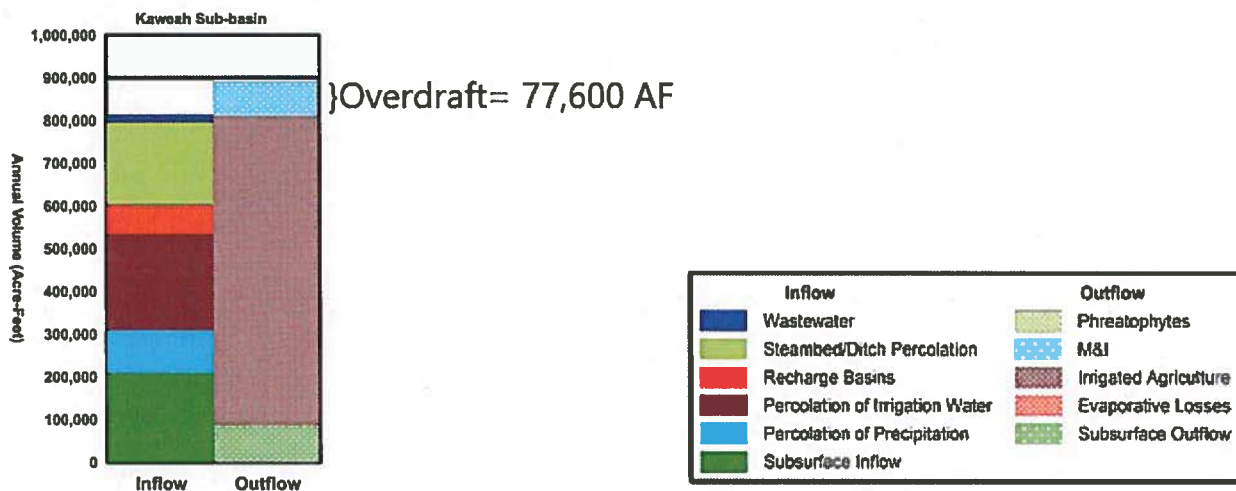


Figure 2: Inflow and outflow components of groundwater in the Kaweah Subbasin 1997-2017 using the hydrologic equilibrium equation.²

Further, the Subbasin produces a variety of crops and deficit irrigating (underwatering) certain crops causes more damage than underwatering others. Therefore, the water exchanges would largely entail growers of row crops (cotton, wheat, corn, beans) selling to growers of tree crops as trees are permanent while row crops rotate every year. Regional tree crops feature mainly nuts in the West of the Subbasin (almonds, walnuts and pistachios) and mainly citrus in the East. While some tree crops, notably pistachios, are flexible in that they can be underwatered and still be productive in future years, others such as almonds and especially citrus cannot. It has been shown that in specific tree crops deficit irrigation in any given year could cause permanent damage to the trees, impacting the future economic viability of the crop.

² Kaweah Subbasin Setting Components- Preliminary Draft, Page 108.

Tulare Irrigation District Geographic Location

The District was formed on September 21, 1889 as one of the first of several irrigation districts formed under the Wright Act of 1887. The District provides service to approximately 70,000 acres within Tulare County, California and is situated in the southern San Joaquin Valley. The District is approximately 50 miles southeast of the City of Fresno and approximately 65 miles northwest of the City of Bakersfield. The City of Tulare is situated within the District and represents the largest urban community within the District boundary. Adjacent water agencies include the Kaweah Delta Water Conservation District, Corcoran Irrigation District, Kings County Water District and numerous private ditch companies. A location map for the District is included as **Figure 3**.

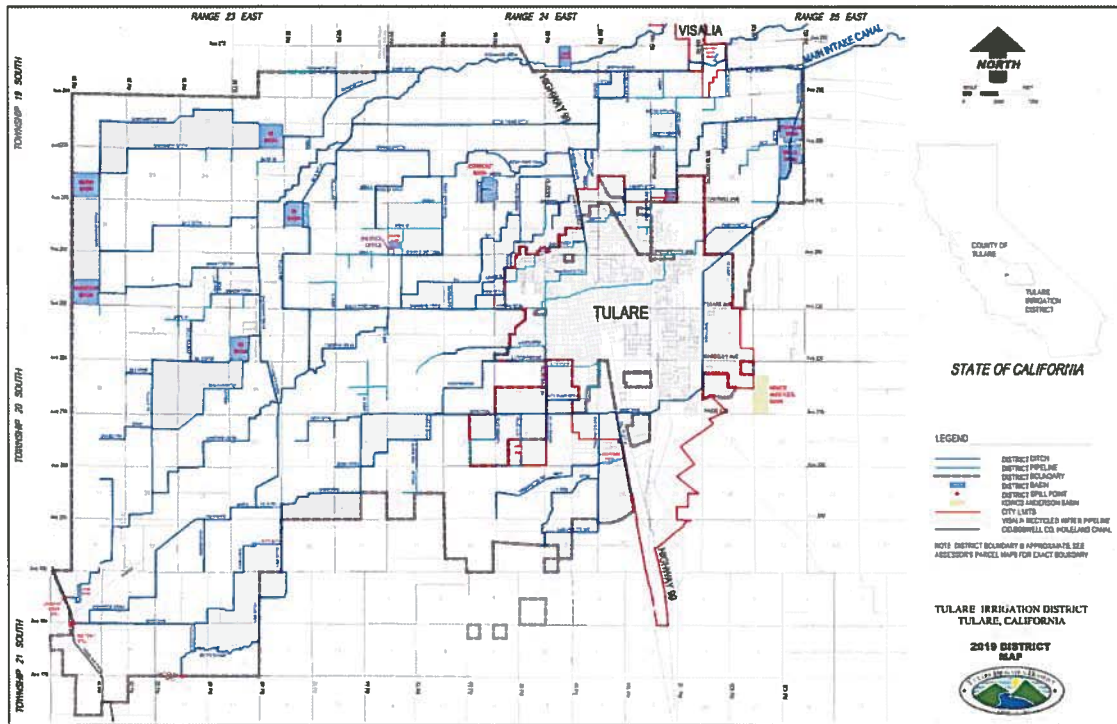


Figure 3. District Location Map

Bureau of Reclamation Working Relationship

The District has maintained a good working relationship with the USBR since the execution of its contract for a water supply from the Friant Unit of the CVP in 1949. In recent history (past 14 years) the District has also partnered with the USBR on several grant projects (nine in total) that have improved water conservation and water efficiency within the District. Six of the projects have been completed and were done within the anticipated schedule and budget. Below is a list of grants that the District has received and are currently in progress:

- **WaterSMART Grant – FY 2012**
A \$452,000 grant to construct new SCADA automated measuring structures and install SCADA automated gates on District canals. The project is currently ongoing and is currently on schedule with a no-cost time extension.
- **Part III Grant – FY 2013**

A \$1.9 million grant to conduct several water supply studies and construct a recharge basin to address current and future losses of Friant CVP supplies to the San Joaquin River Settlement. The project is currently ongoing and is currently on schedule with a no-cost time extension and on budget.

- **WaterSMART Grant – FY 2017**

A \$73,000 Grant to migrate District SCADA sites from the Lookout platform to the web-based Ignition platform, and to provide a large screen and tablets for staff and ditchtenders to access real-time monitoring data. The project is currently ongoing and is currently on schedule and on budget.

Project Description

Task 1: Project Outreach and Partnership Building

Subtask 1.1: Identifying Potential Interested Parties

The first step of project outreach will be to create an Interested Parties List. Tulare Irrigation District will contact all potentially interested parties operating and/or residing in the Kaweah Subbasin, including but not limited to: local growers, food processing facilities, municipalities, rural disadvantaged community residents and public agencies.

Subtask 1.2: Interested Parties Workshops- Early Engagement

Tulare Irrigation District will then host three separate workshops (one in each GSA) in which interested parties identified on the Interested Parties List and the public will be invited for a presentation of how the Water Marketing Strategy will be developed and its intended goals. Participants will be free to discuss their concepts and concerns with regard to the creation of the water marketing strategy and express interest in participating in the Kaweah Subbasin Water Marketing Strategy Committee. These public workshops will also be used to help populate the Interested Parties List.

Subtask 1.3: Kaweah Subbasin Water Marketing Strategy Committee Identification

Next, a Water Marketing Strategy Committee (Committee) consisting of roughly 10-11 individuals will be identified by selecting highly interested individuals representing a variety of stakeholders. Additionally, three staff members representing each of the three GSAs will be selected to provide administrative and technical support to the Committee. Lastly, the Committee will seek through a public process the assistance of a consultant to assist in the facilitation of the Water Marketing Strategy Development. Key to the selection of the consultant will be past experience in the development of a water marketing strategy.

Subtask 1.4: Draft Water Marketing Strategy Public Workshops

The newly created Committee will then host a number of workshops (within a selected timeframe) to develop the concepts of the Water Marketing Strategy. The number, frequency and duration of the workshops will be determined by the facilitation process as defined by the facilitation consultant and the various items that require public presentation in other tasks and subtasks. Each workshop is intended to work through the various elements needed to develop the Water Marketing Strategy.

Subtask 1.5: Final Water Marketing Strategy Workshop

Once the Final Water Marketing Strategy has been developed, the Committee shall hold a public workshop to share how the Water Marketing Strategy will be implemented and the anticipated outcome.

Task 2: Scoping and Planning Activities

Subtask 2.1 – Analyzing Water Rights Within the Context of a Water Market

The Committee will select a group of water resources attorneys (envisioned 1 to 3 attorneys) to educate the Committee on the water rights associated with groundwater and surface water currently established by case law. The attorneys will also provide information on how case law regarding surface and groundwater rights should be applied within the development and implementation of the Water Marketing Strategy. A written Water Rights Report shall be delivered to the committee at the end of the Subtask.

Subtask 2.2 – Researching Existing Water Markets and Strategies

The Committee will develop a high-level document that catalogs the various water market strategies that have been implemented in California and areas throughout the world. The goal is to identify how water markets are structured, how they are implemented and how they would fit within the water rights in California. Lastly, the document will look at the benefits and costs associated with the existing water marketing strategies. The Existing Water Markets and Strategies Report will be delivered to the Committee and shared with the public at a workshop.

Subtask 2.3 – Identifying Buyers and Sellers and Establishing Roles

The Committee will establish which types of buyers and sellers and which types of exchanges are acceptable. For example, the Committee will establish how far a pumping allocation can be traded, how to manage parties operating along the Subbasin boundary and whether outside investors will be allowed to exchange. A Buyers, Sellers and Roles Report shall be developed by the Committee and shared during a public workshop.

Subtask 2.4 – Quantifying the Sub Basin Water Market Exchange Quantities (Sub Basin Water Budget and Water Allocation Framework)

The Committee will utilize previous work completed on behalf of the GSAs to quantify the water budget for the Subbasin. This work has been previously done by the local GSAs in their goal to establish GSPs for the Kaweah Subbasin, however some refinements will be needed and will be conducted as a part of the Water Marketing Strategy. Meanwhile, the GSAs will define the individual water budget framework assigned to the various interests within the Subbasin largely based upon the legal framework of surface and groundwater rights (Subtask 2.1) as well as the knowledge attained by the Committee regarding water market function attained from Subtasks 2.2 and 2.3. It is envisioned that much of this work will be carried out by an engineering consultant and will result in a revised Water Budget and Water Budget Allocation Framework. This material will be developed and shared with the public at a workshop.

Subtask 2.5– Analysis of Social, Economic, Community and Environmental Impacts/Benefits of Markets

A number of impacts related to the Strategy will have to be assessed. For example, whether earnings from water sales are mostly recirculated within the local economy and whether followed

fields associated with water sales create an invasive weed problem. The Committee will look at many of the short-term and long-term social, economic, community and environmental impacts to the local market participants and develop a Social, Economic, Community and Environmental Impact Report to be presented to the Committee and the public during a workshop.

Subtask 2.6 – Assessment of Digital Platforms to Implement the Water Market

It is envisioned that a digital platform will be created to automate the individual water sales transactions. The rules of the Water Marketing Strategy and established roles will need to be programmed into the platform such that there is an automated process for buyers and sellers to trade groundwater and achieve sustainability.

Task 3: Development of Water Marketing Strategy

Subtask 3.1 – Develop Legal Framework

The Committee will work to develop a Legal Framework Report based upon the initial work done in Subtask 2.1, but with an expanded goal of defining the specific legal requirements needed to establish the Water Marketing Strategy and ensuring compliance with the California Water Code and existing groundwater and surface water case law. The Legal Framework Report will be reviewed by the Committee and shared with the public at a Legal Framework Workshop. During the workshop the the Legal Framework Report will be summarized and the public will have an opportunity to comment and provide feedback. After the public workshop the Committee and staff shall finalize the Legal Framework Report.

Subtask 3.2 – Develop Terms, Standards, and Practices

Information gathered in Sub-Task 1.2 and 1.4 will be used to develop an initial Draft Water Marketing Strategy Contract (Draft Contract) with terms, conditions, and responsibilities that are coordinated with the Legal Framework Report. The Draft Contract will have the terms, conditions and responsibilities that buyers and sellers must agree to in order to participate in the Water Marketing Strategy. The Draft Contract will be shared during a public workshop to gather public comments and revisions. After the public workshop the Committee and staff shall finalize the Contract for implementation of the Water Marketing Strategy.

Subtask 3.3 – Develop Rules and Procedures

All of the information gathered in the previous tasks and public workshops will be used to develop a draft Rules and Procedures document. The Draft Rules and Procedures will be the underlying rules and procedures to implement the Water Marketing Strategy. The Draft Rules and Procedures will be shared during a public workshop to gather public comments and revisions. After the public workshop the Committee and staff shall finalize the Draft Rules and Procedures for implementation of the Water Marketing Strategy.

Subtask 3.4 – Develop Water Marketing Strategy Document

All of the information developed and collected in prior tasks will be summarized in a Water Marketing Strategy. This will include a summary of the process conducted to develop the Water Marketing Strategy and provide a template for the implementation of the program. The Water Marketing Strategy will be presented to the public at a workshop per Subtask 1.5.

Task 4: Implement Pilot Program

Subtask 4.1 – Identify Pilot Program Participants

Before full implementation, a pilot program will be set up for one year within a more limited geographic boundary, such as Tulare Irrigation District and the City of Tulare or any geographically contiguous area that would like to participate. Pilot program participants will be identified and enrolled in the pilot program.

Subtask 4.2 – Operate Kaweah Sub Basin Water Market Pilot Program

Using the materials developed in Task 3, a Kaweah Subbasin Water Marketing Pilot program shall be implemented. Groundwater allocations will be issued and groundwater credits and pumping shall be implemented within the Water Marketing Strategy. Willing buyers and sellers will be allowed to process transactions through the digital platform.

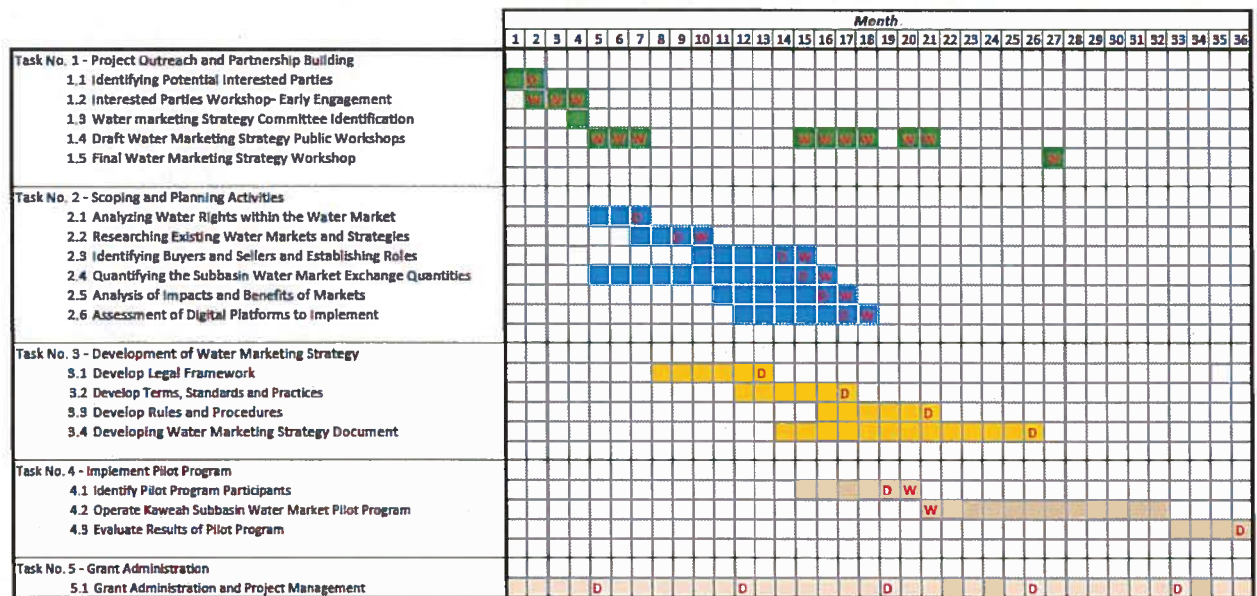
Subtask 4.3 – Evaluate Results of Pilot Program

Results will be evaluated by average and range of costs charged for water exchanges as well as average and range of distances that water has been transferred. We will also analyze which crops are most associated with water sales and which are most associated with water purchases.

Task 5: Grant Administration

Subtask 5.1 – Grant Administration and Project Management

The Tulare Irrigation District will perform the grant administration functions of the Water Marketing Strategy Project. The grant administration includes the preparation and submission of program performance reports, financial reports and a final report. The District will also monitor the budget to actual expenditures.



Notes:
 W Workshop/Public Meeting
 D Report/Deliverable

Figure 4. Project Schedule

Evaluation Criteria

E.1.1. Evaluation Criterion A—Water Marketing Benefits (40 points)

Explain whether the water market/water marketing strategy project 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 project address a specific water supply shortfall?**

The Kaweah Subbasin Water Marketing Strategy will address a specific shortfall, namely that groundwater pumping will be limited to a balanced input and output upon implementation of SGMA. Based upon early estimations, the Kaweah Subbasin is approximately 78,000 AF in groundwater overdraft per year given current groundwater input and output. Contributing to this overdraft in the future is the reduction in surface water to the Tulare Irrigation District and other CVP Friant users in the Kaweah Subbasin to comply with the San Joaquin River Settlement, which diverts water from the CVP Friant system to establish a salmon fishery on the San Joaquin River.

- **What is the nature and severity of the shortfall, and which sectors are affected?**

Please provide support for your response.

Based on estimations done on historical surface water and groundwater flows from 1997 to 2017, the Kaweah Subbasin is in overdraft by approximately 78,000 AF. This overdraft is largely due to agricultural pumping, municipal pumping and industrial pumping (from the dairy industry). A large portion of our local economy is dependent upon the agricultural and dairy industry, which means cutbacks in this sector of the economy will mean drastic cutbacks in local communities. Without the ability to trade groundwater allocations, the Subbasin anticipates that approximately 26,000 acres would need to be fallowed to reduce groundwater pumping and achieve sustainability. If the assumed average net crop revenue per acre in the Subbasin was \$1,500 per year this would reduce the agricultural economy by \$3.9 million per year. This is magnified by the spending reductions in the local communities, which has been estimated to be \$2 for every \$1 reduction in agriculture. This would mean the overall impact to the local economy could be as high as \$11.7 million per year.

- **How and to what extent will the water market/water marketing strategy activities, once implemented, address the shortfall? Please describe the expected benefits (e.g., how water users will benefit) and provide support for your response.**

The District anticipates that by developing a locally generated and supported water marketing strategy, local water users will have the flexibility to manager their water supplies and needs in a beneficial manner. The goal of the Water Marketing Strategy is to generate a program that allows for the redistribution of groundwater to reduce the economic, social, and environmental impacts to our local industries and communities. It is anticipated that water users with excess groundwater beyond their needs can seek financial compensation to trade their groundwater with water users who are short of groundwater supplies to meet their needs. This transactional system keeps the financial economy stable, while also stabilizing water supply needs for water users that have fixed demands. We also anticipate that with the ability to financially gain from increasing groundwater credits, water users will generate new innovative groundwater recharge programs and management actions to increase the availability of groundwater supplies that can be used in the Water Marketing Strategy.

- **Will the water market/water marketing strategy activities benefit multiple sectors (e.g., agricultural, municipal, tribal, and environmental) and/or types of water uses (e.g., hydropower generation, municipal, recreation, and irrigation)? If so, to what extent, and which sectors and water user will benefit? Provide support for your response.**

The Water Marketing Strategy process as outlined above will include participation by the public, with a concerted effort to include all sectors of the Kaweah Subbasin. Because the Water Marketing Strategy has not been developed, the specific availability of participants is not known, however it is anticipated that for the program to be effective it must link the entities that have potential groundwater to sell with those that need to buy. In the Kaweah Subbasin this equates to most of the larger interests such as agriculture, industry (dairy facilities and dairy support facilities, agricultural packing facilities, processing facilities, etc.), cities, environmental interests (preserves, habitat, etc.), disadvantaged communities, rural schools and rural residents.

Explain how and to what extent the proposed water market/water marketing strategy 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;**

The Water Marketing Strategy is intended to provide the structure and mechanism to link willing buyers and sellers of groundwater to ensure the reduction in conflict over allocations of a scarce resource. The program is intended to transfer needed resources (water) from those with the flexibility to alter their operations or activities to those that lack flexibility and have the financial resources to pay for the resource. The rules, regulations, policies and software platform of the Water Marketing Strategy are intended to reduce conflicts under a structured framework.

- **increasing resiliency to drought;**

A water market is intended to be a program for the shifting/sharing of resources, which ensures that the water users with flexibility to sell their groundwater allocations are paid a fair market value by water users that lack flexibility. During periods of drought this will provide a mechanism to ensure that water users with high value activities are protected and users that are willing to forgo their groundwater usage are appropriately compensated. Currently, the Kaweah Subbasin does not have this mechanism, and during the last significant drought from 2012 to 2016 several high value industries like the citrus and nut industry lost crops, while lower value crops were still in production. Also, during this drought a significant number of rural residential and disadvantage community wells went dry.

- **sustaining agricultural communities;**

The Water Marketing Strategy will improve reliability by allowing individual growers, municipalities, industrial users and domestic users to purchase additional groundwater above their pumping allocation. Without a market for groundwater transfers, users would be strictly limited to their pumping allocations and this would create extreme unreliability for growers, especially those that need reliable water every season for their tree crops, as well as domestic users that are dependent on pumping for their household supply. With the Water Marketing Strategy in place, users will be able to avoid these uncertainties. Additionally, conflict over the premise that some users are going over their allocations illegally, therefore effectively

reducing the allocations of others due to the entire Subbasin needing to be in balance, will be avoided.

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

The Water Marketing Strategy is a new program for water marketing in the Southern San Joaquin Valley of California. A quick search for existing programs showed no programs in the area, however there are some programs within California. The Water Marketing Strategy intends to develop several reports and eventually a document called the Water Marketing Strategy, which will encapsulate the process to develop the program and all of the documentation to support the Water Marketing Strategy. Other interested water users and the public will have access to all of the information developed as a part of the Water Marketing Strategy.

- **providing instream flows for species, recreation or water quality objectives.**

It is anticipated that the environmental interests in the Kaweah Subbasin will have access to participation in the development of the Water Marketing Strategy including participation as a willing buyer or seller. In this fashion it is expected that environmental interests could purchase groundwater credits to support refuges, preserves, in-stream flows or to provide for habitat.

Explain the extent to which the water market/water marketing strategy activities 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.**

The Water Marketing Strategy includes the implementation of a Pilot Program. The Pilot Program will be used to test the Water Marketing Strategy, allowing the Subbasin the opportunity to make refinements to the Water Marketing Strategy and to identify the benefits and costs associated with the program. In the development of the three GSPs within the Kaweah Subbasin, each GSA has entertained the implementation of a water marketing strategy to provide the needed flexibility to sustainability manage groundwater within the region. Based on the outcomes of the Pilot Program, each GSA will be able to consider the implementation of the Water Marketing Strategy for the benefit of their members. It is anticipated that this decision will be made prior to 2025, at which time the first 5-year update to the GSPs is required by SGMA. This Water Marketing Strategy is anticipated to be completed by November 2023, which gives each GSA approximately 1 year to determine their participation in implementing the final Water Marketing Strategy.

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

The Water Marketing Strategy is intended to be developed with steps to address legal and policy issues, via the participation of the Committee and the public. It is anticipated that most if not all of the complex issues should be addressed in the Water Marketing Strategy. Due to the uncertainties and uncharted territory a water marketing program presents to the area, the Water Marketing Strategy Pilot Program will be implemented to identify any unforeseen issues, including legal or policy decisions. After the Pilot Program is conducted, it is anticipated that refinements to the Water Marketing Strategy could be made ahead of full implementation in the Kaweah Subbasin.

- **Explain whether previous planning, outreach and/or water marketing activities have been completed, including work on any of the three required project components.**

Note that links to existing work that will contribute to the strategy are requested in Section D.2.2.8. Existing Analysis Contributing to the Water Marketing Strategy (if applicable). While previous planning/water marketing is not required, these efforts may support the resolution of complex issues within the timeframe for the grant, so that implementation may follow quickly upon completion of the strategy.

Existing work has been done in preparation for a Water Marketing Strategy. The three GSAs within the Kaweah Subbasin drafted the Kaweah Subbasin Basin Setting, which is a document that describes the Kaweah Subbasin geography and geology. It also includes a Subbasin water budget that summarizes the historical surface water inflows, groundwater inflows and groundwater outflows and determines the average annual change in storage and overdraft of the Kaweah Subbasin. It is currently estimated that the 441,000 acre Kaweah Subbasin is in overdraft by approximately 78,000 AF annually.

The GSAs within the Subbasin have also conducted a preliminary legal review of the current California Case Law and have developed a Water Allocation Framework, which establishes the legal framework for the tracking of groundwater inflows, from native supplies, foreign supplies and salvaged supplies.

E.1.2. Evaluation Criterion B—Level of Stakeholder Support and Involvement (30 points)

Identify stakeholders in the planning area who have *committed to be involved* in the planning process.

- **Describe their commitment, e.g., will they contribute funding or in-kind services or otherwise engage in the planning process?**

At this time we do not have any commitments to participate directly in the Water Marketing Strategy, however we anticipate that upon receiving the grant, establishing the Interested Parties List and establishing the Committee, that we will have the participation of numerous water related interests in the Subbasin. We have received numerous verbal commitments and support for this program, however due to the ongoing development of GSPs, which are consuming most of the availability at this time, many cannot provide specific confirmation of participation.

- **Please explain whether the proposed project is supported by a diverse set of stakeholders (appropriate given the types of interested stakeholders within the watershed and the scale, type and complexity of the proposed strategy). For example, is the project strategy supported by entities representing environmental, agricultural, municipal, tribal, or recreation uses?**

At this time all three GSAs within the Kaweah Subbasin intend to include a water marketing strategy in their GSP. Each GSA is supported by a diverse set of interests in the Subbasin. As an example, the Mid-Kaweah GSA has an Advisory Committee that was established to support the development of the GSP. This committee consists of agricultural, disadvantaged community, municipal residential, environmental, and public water system interests in the GSA. The other two GSAs within the Subbasin also have their equivalent committee to support the development of their GSPs.

Documentation can include letters from stakeholders committing to be involved in the planning process (see *Section D.2.2.9. Letters of Support*); such letters should explain what their specific interest is and how they plan to participate.

See attached support letters in **Appendix A**.

Describe stakeholders in the planning area who have *expressed their support* for the planning process, whether or not they have committed to participate. Support can include letters of support from stakeholders or a description of feedback from interested stakeholders; such letters should identify the stakeholder's specific interest.

Stakeholders in the region and specifically the agricultural interests have shown an interest in developing a water marketing strategy to provide flexibility in the management of their water supplies during ongoing public meetings and direct discussions with the District.

Is there opposition to the proposed strategy? If so, describe the opposition and explain how it will be addressed. Opposition will not necessarily result in fewer points.

At this time there has been no opposition to a water market within the Kaweah Subbasin.

Do any separate planning efforts express support for the proposed water market/water marketing activities? Or, will the proposed water marketing strategy complement other ongoing or recent planning efforts within the area? Other relevant planning efforts can include:

- **Water Management Plans**
- **Water Conservation Plans**
- **Drought Contingency Plans**
- **State Water Plans**
- **Other planning efforts**

Yes, the 3- Groundwater Sustainability Plans created by the 3- Groundwater Sustainability Agencies for compliance with SGMA aim to manage the groundwater resource in the future in a way that will involve minimal damage to agriculture. The 3- GSAs have been planning for the creation of a pumping allocation market which would be described in future GSPs (SGMA mandates the writing of GSPs every 5 years from 2020 to 2040).

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 Kaweah Marketing Strategy is intended to involve the entire Kaweah Subbasin and the various interests that utilize groundwater as a resource. Currently, local three GSAs are in the process of developing GSPs that include projects and managements actions. Included in these projects and management actions is the development of a water maketing system. This grant application and the development of the Water Marketing Strategy avoids the independent development of a marketing strategy within each GSA via their GSP and involves all interested parties within the Kaweah Subbasin.

Describe what efforts that *you will undertake* to ensure participation by a *diverse* array of stakeholders in developing the water marketing strategy. If specific stakeholders have not

yet been identified, or if some sectors are not yet represented, explain how you will accomplish this in the first few months after an award. Support can include a description of key stakeholder interests in the planning area and what efforts that you will undertake to engage them in the planning process, including outreach to stakeholders or collaborating with other groups or partners.

With the implementation of SGMA there has been a deliberate attempt to identify all interests within the Subbasin and to get participation by all sectors of the region. One of the first steps, Sub-Task 1.1 is to develop and Interested Parties list that can be used to contact specific interests within the various industries and communities within the Kaweah Subbasin. The initial step includes collecting the interest parties lists from each GSA within the Kaweah Subbasin and generating overarching Interest Parties Lists. At the initial Outreach Meeting in Sub-Task 1.2, participants will also be asked to identify parties not listed on the Interested Parties List and who they might represent. Names or entities not listed shall be contacted and asked to participate in future outreach meetings.

E.1.3. Evaluation Criterion C—Ability to Meet Program Requirement (20 points)

Describe how the three required project components (outreach and partnership building, scoping and planning activities, and development of a water marketing strategy) of a water marketing strategy grant will be addressed within the required timeframe. Please include an estimated project schedule that shows the stages and duration of the proposed work including major tasks, milestones, and dates. If prior planning work will be relied on to meet any of the required project components, please explain this and describe the work that will be relied on. Your response should demonstrate your understanding of the tasks required to address the required project components of a water marketing strategy grant.

Note: the budget proposal will also be considered under this sub-criterion (e.g., whether the budget is reasonably detailed and appropriate for the work proposed).

Please see the attached Project Schedule (**Figure 4**) for a schematic of how the the Water Marketing Strategy is proposed to be developed.

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

The Kaweah Subbasin has developed numerous data sets and a groundwater model for the Kaweah Subbasin in the process of developing a GSPs for compliance with SGMA.

Historically, the Kaweah Delta Water Conservation District has also been collecting surface and groundwater data. Using existing data, water agencies, interested parties and water users worked to develop the Kaweah Subbasin Basin Setting, which is a collection of the data for the Subbasin concerning geology, weather, surface water, groundwater, cropping patters, communities and various other aspects regarding water supply. An integral part of the Basin Setting was the development of the Kaweah Subbasin Water Budget. The Water Budget summarized the surface and groundwater inflows and outflows and established the average annual overdraft for the Kaweah Subbasin.

Also part of the effort was the refinement of an existing Modflow Model for the Kaweah Subbasin.

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

At this time the District intends to have the District Manager and the Assistant Engineer work on this project. The District Manager has been with the District for over 13 years and has worked on numerous grant programs. The District Manager has also been intimately involved with the Mid-Kaweah GSA in SGMA development of the GSP and has been in discussion with various interested parties regarding a water marketing strategy. The District manager will help guide the Assistant Engineer. The Assistant Engineer will be responsible for the day-to-day administration of the grant and facilitate workshops and development of the Water Marketing Strategy.

The Water Marketing Strategy envisions the development of a Committee to represent the various water use interests in the Kaweah Subbasin. Supporting the committee would be three staff members, one from each of the GSAs. At this time it is envisioned that staff would be the managers of each GSA. Lastly, the Water Marketing Strategy intends to involve three different consultants to help develop the program. A legal consultant specializing in surface water and groundwater rights, a water marketing facilitator, and an engineering consultant.

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.**

At this time there are no permits or approvals required for the Water Marketing Strategy. During the process, if the legal analysis determines there is a permit or approval required, the Committee shall address the need.

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

The engineering activities assumed during the Water Marketing Strategy include:

- Development/Refinement of the Water Budget and Water Allocation Framework
- Engineering needed to support the infrastructure (metering) as a part of the Pilot Program.
- Tracking of the transactions in the Pilot Program and assessment of the implementation of the Pilot Program.
- **Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?**

We do not anticipate the need for any environmental compliance in the development of the Water Marketing Strategy or the Pilot Program.

E.1.4. Evaluation Criterion D—Department of the Interior Priorities (10 points)

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 Water Marketing Strategy intends to use the Water Budget and Water Allocation Framework to establish a sustainable trading program that allows willing buyers and sellers of groundwater allocations to ensure sustainability in a variable climate.

b. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;

The Strategy will reduce conflicts over groundwater within the Subbasin, much of which is supplied through the Central Valley Project's Friant-Kern Canal and local delivery systems in the form of artificial recharge, conveyance percolation and irrigation percolation.

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

The Water Marketing Strategy is based upon a broad outreach program to involve all interests from water users to conservation entities to ensure that water resources are utilized to achieve sustainability, which is a benefit to the region from an economic, social and environmental standpoint.

2. Utilizing our natural resources

The District receives surface water supplies from the Friant Division of the Central Valley Project. The District has a Friant Contract for Class I and Class II supplies, which are utilized to support the conjunctive operations of the District. Otherwise, the Kaweah Marketing Strategy does not directly entail energy, mineral, timber or grazing resources, although those resource extraction processes that involve groundwater extraction would certainly be afforded additional flexibility.

3. Restoring trust with local communities

The TowTEM Groundwater Recharge Enhancement Project will be housed on property owned or operated by the District. The project does not take place on any Reclamation lands or facilities; however, the Project will be used on lands that are within the place of use for the CVP.

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

The Water Marketing Strategy intentionally is designed to begin with an outreach and identification of interested parties to ensure that as this program is developed, those that manage and use water resources are involved in the discussion and development of the Water Marketing Strategy. It is envisioned that this includes areas adjacent to the Kaweah Subbasin, including the Kings Subbasin, Tulare Lake Subbasin and the Tule Subbasin.

b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

The Water Marketing Strategy as indicated above includes a robust outreach program, which will include many of the local agencies, state agencies and local community leaders.

4. Striking a regulatory balance

The TowTEM Groundwater Recharge Enhancement Project is located in the Kaweah Sub-basin of the Tulare Lake Groundwater Basin. The Friant-Kern Canal traverses these basins to supply surface water to agricultural and municipal users.

a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;

Compliance with SGMA was originally anticipated to require the fallowing (idling) of approximately 25% of the agricultural lands in California. Fallowing of ground stops the flow of revenue and subsequently impacts the economic viability of our local communities. With the Water Marketing Strategy willing sellers are connected with willing buyers of groundwater pumping allocations, hence keeping revenue to those that would forgo groundwater pumping therefore fallowing their ground.

5. Modernizing our infrastructure

The Friant Division of the CVP extends from Fresno County southerly to Kern County. Sections of the Friant-Kern Canal and its service area lie within Tulare County. The water that will be better managed by the Kaweah Subbasin Water Marketing Strategy will be located within the Kaweah Subbasin, which lies largely within the Friant Division service area. Therefore, the District believes that the water better managed by this Project will contribute to a basin where a Reclamation project is located.

Project Budget

The District proposes the costs of the Kaweah Subbasin Water Marketing Strategy that are not being requested under this grant application will be contributed from the Tulare Irrigation District and may be supplemented in the future by in-kind contributions from participating Kaweah Subbasin agencies.

The District has not incurred any costs for the Kaweah Subbasin Water Marketing Strategy to date and anticipates that the Project will begin once funding is awarded and made available. The District has not sought any other federal, state or other funding for this Project at this time. In the event that additional other funding becomes available, other than federal funding, the District will notify the Bureau of Reclamation immediately. Presented in **Table 1** is a summary of the funding requested and supplied as a part of the Project.

Table 1. Funding Sources for Water Marketing Strategy

FUNDING SOURCES	AMOUNT
Non Federal Entities	
1. Tulare Irrigation District	\$432,000.00
Other Federal Entities	
1. N/A	\$0.00
REQUESTED RECLAMATION FUNDING	\$400,000

Budget Proposal

Budget Item/Description	Computation			Recipient Funding	Redamation Runding	Total Cost
	\$/Unit	Unit	Quantity			
1. Salaries and Wages						
District General Manager	\$ 80.00	Hour (HR)	250	\$ 20,000.00	\$ -	\$ 20,000.00
District Assistant Engineer	\$ 30.00	HR	1,500	\$ 22,500.00	\$ 22,500.00	\$ 45,000.00
Mid-Kaweah GSA Staff	\$ 85.00	HR	400	\$ 17,000.00	\$ 17,000.00	\$ 34,000.00
Greater Kaweah GSA Staff	\$ 85.00	HR	400	\$ 17,000.00	\$ 17,000.00	\$ 34,000.00
East Kaweah GSA Staff	\$ 85.00	HR	400	\$ 17,000.00	\$ 17,000.00	\$ 34,000.00
2. Fringe Benefits						
District General Manager	\$ 48.00	HR	250	\$ 12,000.00	\$ -	\$ 12,000.00
District Assistant Engineer	\$ 18.00	HR	1,500	\$ 13,500.00	\$ 13,500.00	\$ 27,000.00
Mid-Kaweah GSA Staff	\$ 51.00	HR	400	\$ 10,200.00	\$ 10,200.00	\$ 20,400.00
Greater Kaweah GSA Staff	\$ 51.00	HR	400	\$ 10,200.00	\$ 10,200.00	\$ 20,400.00
East Kaweah GSA Staff	\$ 51.00	HR	400	\$ 10,200.00	\$ 10,200.00	\$ 20,400.00
3. Supplies & Materials						
Water Market Software	\$ 100,000.00	Lump Sum		\$ 50,000.00	\$ 50,000.00	\$ 100,000.00
4. Consultant / Contractor						
Water Market Consultant	\$ 200,000.00	Lump Sum		\$ 100,000.00	\$ 100,000.00	\$ 200,000.00
Legal Consultation	\$ 50,000.00	Lump Sum		\$ 25,000.00	\$ 25,000.00	\$ 50,000.00
Engineering Consultant	\$ 200,000.00	Lump Sum		\$ 100,000.00	\$ 100,000.00	\$ 200,000.00
5. Other						
Public Outreach- Venue Rental	\$ 750.00	Each	20	\$ 7,500.00	\$ 7,500.00	\$ 15,000.00
TOTAL PROJECT COSTS				\$ 432,000.00	\$ 400,000.00	\$ 832,000.00
PERCENTAGE OF COSTS				51.92%	48.08%	

Budget Narrative

Salaries and Wages

The Program Manager that is assigned to the project is Jeremy Barroll, who is employed as the Assistant Engineer. Mr. Barroll will be responsible for the administration of the grant along with other project administration components. The General Manager will provide project oversight. Staff representatives from the three Groundwater Sustainability Agencies will serve on the Water Marketing Strategy Committee.

Fringe Benefits

The fringe benefits for District employees involved in the Water Marketing Strategy total about 60% of the average hourly rate per employee. Fringe benefits that are available to District employees and will be used on this Project are included in **Table 3**.

Table 3. District Fringe Benefits as a Percentage of Wages.

Description	Percentage (%) of Wages
FICA	6.20%
Medicare	1.45%
ETT/SUI	0.48%
Workers Compensation Insurance	4.34%
Health Insurance	34.40%
Dental Insurance	2.29%
Vision Insurance	0.33%
Life Insurance	0.60%

Long-Term Life Insurance	0.67%
Retirement	8.15%
Employee Equipment	0.63%
Total	59.54%*

**The total fringe benefits represents an average for all employees. Benefits vary based upon retirement contributions and health benefit plans chosen by each employee. The fringe benefits are those that are paid by the District. Costs/benefits that are paid by individual employees are not included in the fringe benefits.*

Materials and Supplies

The sole material cost in the Kaweah Subbasin Water Marketing Strategy is for the software to automate the individual water exchanges. This cost estimate will be verified at a later date.

Contractual/Construction

A consultant will be hired to assist in conceptual development of the Water Marketing Strategy and especially to analyze existing water markets and how they may provide insight for ours as well as impact/benefit analysis. This cost estimate is based on a preliminary discussion with an expert in water marketing activities. An engineering consultant will also be hired primarily for groundwater modeling and water budget purposes. This cost estimate is based on the cost of water budget analysis for the GSPs and historic experience. Additionally, legal consultation will be necessary to develop the legal framework of the water rights exchanges. This cost estimate is also based on the GSP cost.

Environmental and Regulatory Compliance Costs

The District does not anticipate any environmental or regulatory compliance costs for the Kaweah Subbasin Groundwater Marketing Strategy.

Indirect Costs

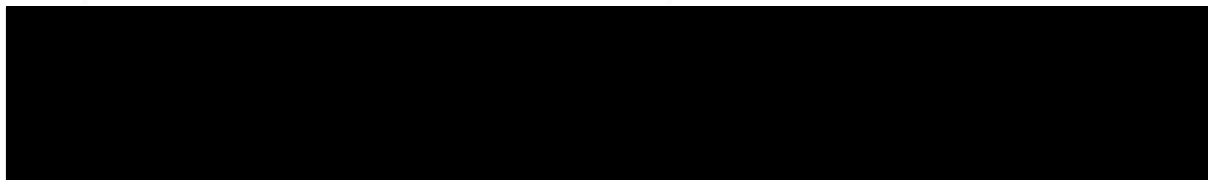
The District does not have an indirect cost agreement and will not be seeking reimbursement.

Environmental and Cultural Resources Compliance

The Kaweah Subbasin Water Marketing Strategy includes the conceptual framing, legal analysis and software creation to create an exchange market for groundwater pumping allocations. The District does not anticipate impacts to the surrounding environment, cultural resources, protected or endangered species, facilities, communities (including low income), buildings or wetlands.

Required Permits or Approvals

The District does not anticipate the need for any permits or approvals given the Kaweah Subbasin Water Marketing Strategy does not include any construction activities.



Unique Entity Identifier and SAM

The District is currently registered with SAM and our Unique Entity Identifier is 441J3.

Appendix B

Large Format Tables and Figures

Figure 1: Kaweah Subbasin GSAs

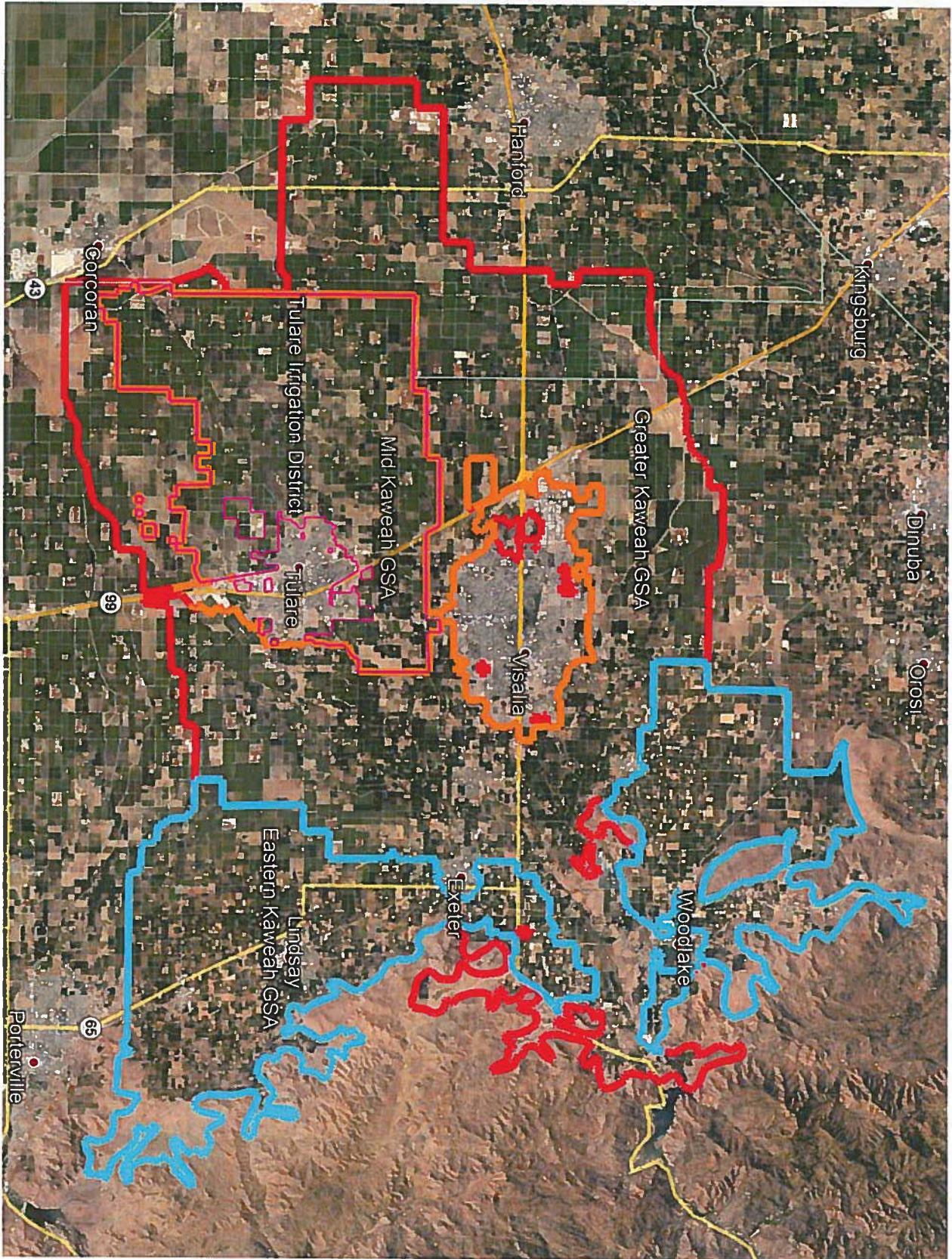
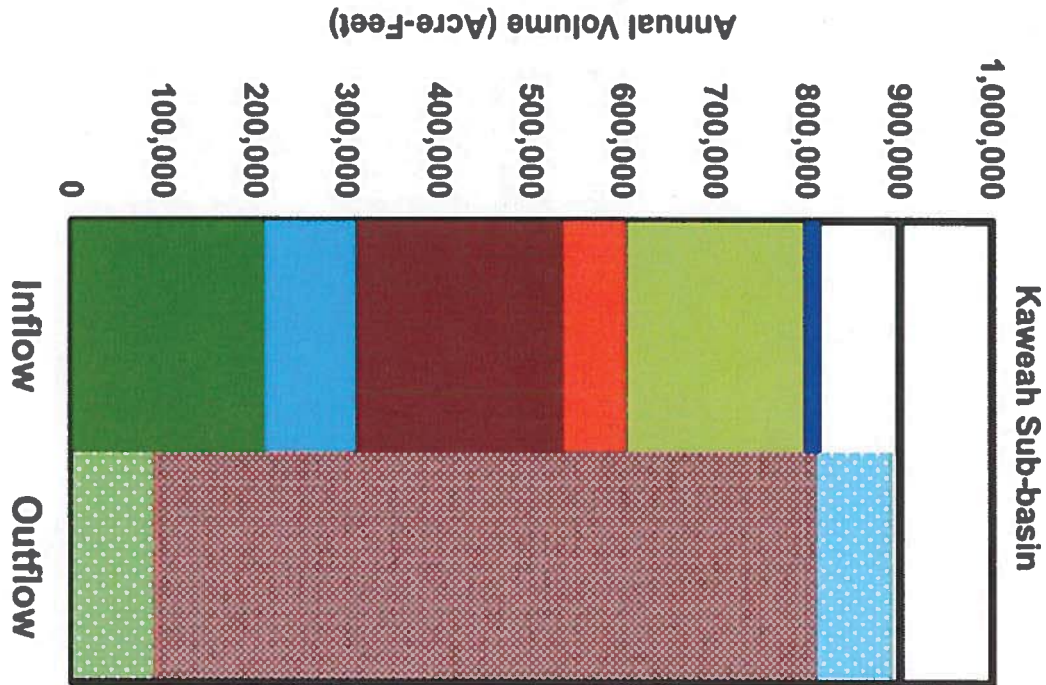


Figure 2: Kaweah Subbasin Water Budget



}Overdraft = 77,600 AF

Figure 3: Tulare Irrigation District Map

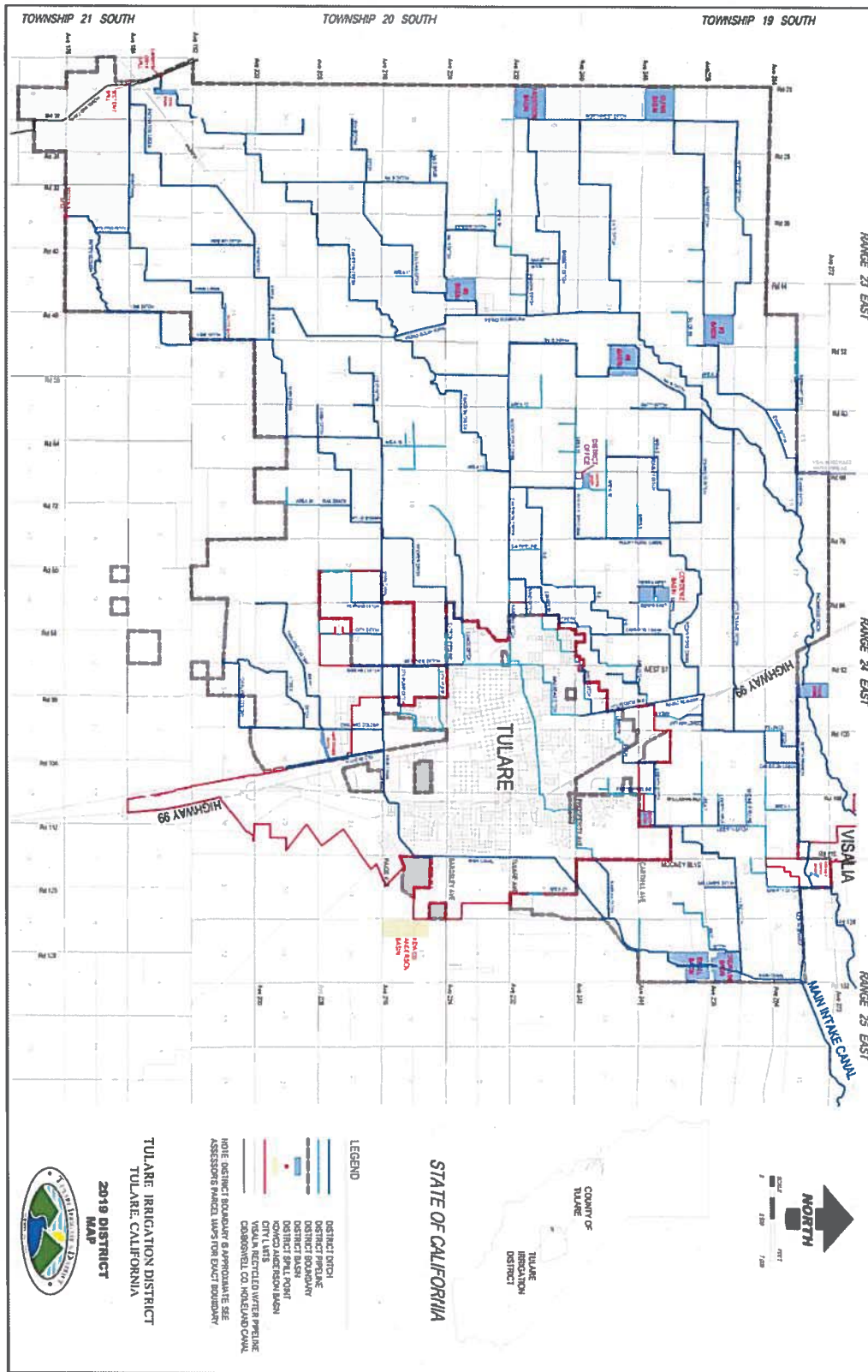
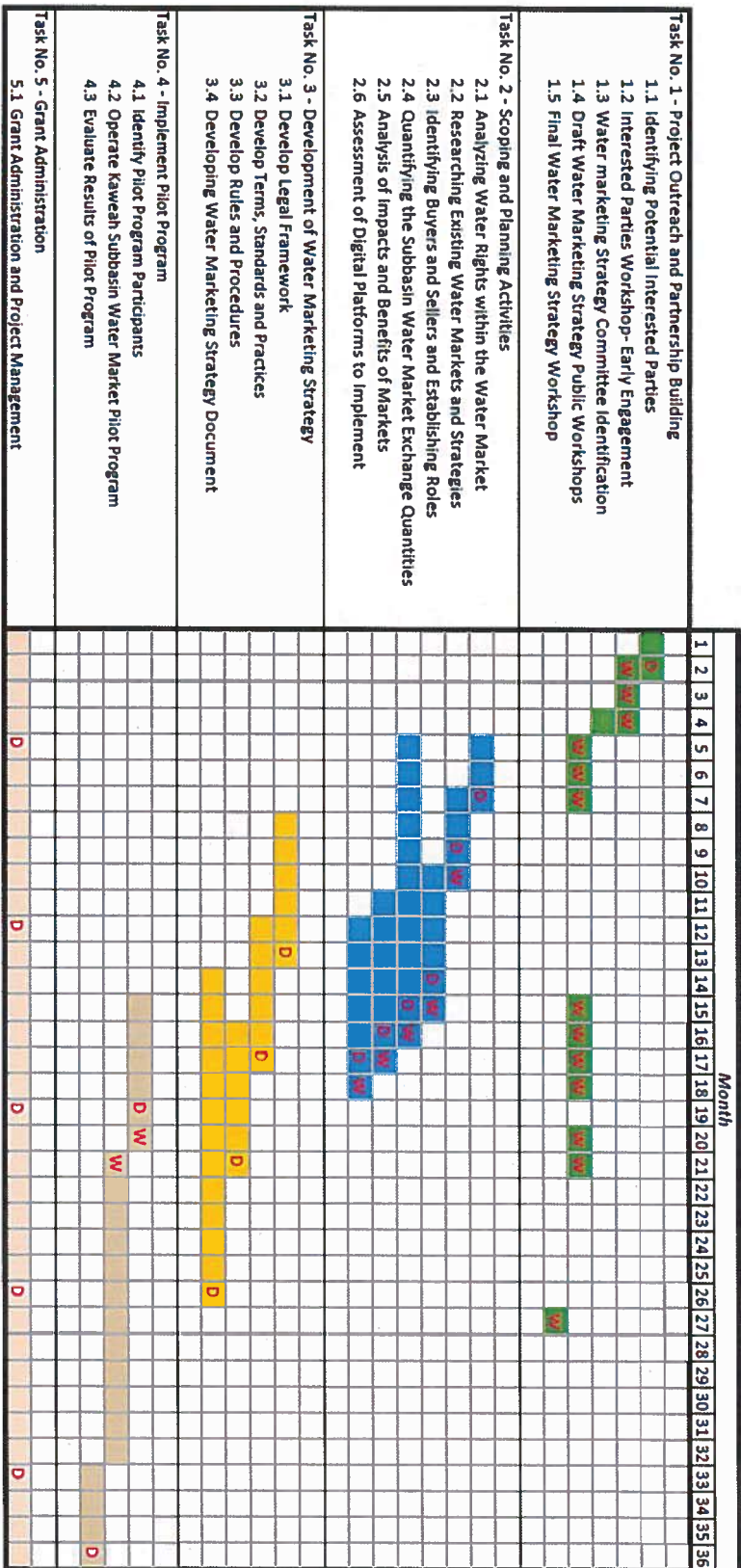


Figure 4: Project Schedule



Notes:
W Workshop/Public Meeting
D Report/Deliverable