Tulare Irrigation District

Geographical Information System Water Dashboard - Hydrologic Data Management and Forecasting Tool Project

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Date	10/16/2023
Applicant Name	Tulare Irrigation District
City	Tulare
County	County of Tulare
State	California

a. Executive Summary

The Tulare Irrigation District (District) aims to enhance water management and ensure water supply flexibility and reliability through the development of an advanced online Geographic Information System (GIS) data management, modeling, and forecasting tool called the Tulare Irrigation District Water Dashboard (Dashboard). This initiative seeks to elevate the efficiency of District surface water and groundwater operations, fostering improved water resource management. The Water Dashboard is envisioned as a hydrologic information and water management tool designed to enhance modeling and forecasting capabilities and bolster water supply reliability while facilitating more informed decision-making. The Dashboard would be a singular place to enter and track District water supply and operations data to allow for the District to perform automated and efficient Quality Assurance and Quality Control (QA/QC) measures. The District proposes to set a standardized methodology to collect all data and coordinate that data into an GIS system with a coordinated database system. The District intends to utilize the information in the Dashboard by developing decision support tools to help District water operations staff to forecast, allocate, and manage water in an effective and efficient manner. The decision support tools will help connect the many different facets that must be analyzed and managed at the District such as surface water, groundwater, water quality, subsidence and lake levels. The Dashboard will be overseen by the District Watermaster, granting senior-level staff access for analysis and decision-making purposes, and daily data input will be carried out collaboratively by District field operators and the Watermaster to ensure accurate and up-to-date information. Through the aggregation of accurate and comprehensive data in a centralized repository, the District aims to leverage the Dashboard for informed decision-making across various facets of water management. The objective is to proactively avert conflicts in decision-making, optimize water deliveries management, ensure water supply reliability, adeptly address drought situations, and efficiently oversee both conjunctive use operations and District water rights.

The District anticipates that the Dashboard will take approximately 24-months to complete. Upon award, the District will solicit a Request for Proposal (RFP) from GIS and programming experts to help develop the Dashboard. Upon securing a consultant, the District will establish the parameters of the Dashboard and work with the consultant to develop the complexities of the Dashboard. We anticipate the development of the code for the Water Dashboard will take approximately 18-months to complete. The District bases this estimate based upon work that the District participated in with local groundwater sustainability agencies to create an online Kaweah Subbasin Water Dashboard tool for growers to track groundwater allocations and consumption.

In the last 6-months of the project, the District anticipates running the Dashboard to find any errors or adjustments that need to be made.

The Tulare Irrigation District is a special district that was formed prior to any Federal project in California. Because this project does not include any construction, it will not be located on any Federal Facility. The Dashboard will be housed on the District owned and operated server, or a cloud server not owned by the Federal government.

b. Technical Project Description

b.a. Applicant Category

The Tulare Irrigation District is an eligible, Category A applicant as one of the early irrigation districts formed in the state of California under the Wright Act in 1889.

b.b. Detailed Project Description

The District anticipates that the Dashboard project will take approximately 24-months to complete with 18 months developing the software and 6 months troubleshooting and perfecting the software. The District aims to establish a standardized methodology for gathering data and integrating it into a GIS alongside a coordinated database system. This methodology will ensure uniformity, reliability, and repeatability in the execution of tasks, making it easier to compare and analyze results across different contexts.The District intends to utilize the information in the Dashboard by developing decision support tools to help District water operations staff to forecast, allocate, and manage water in an effective and efficient manner. The decision support system will help connect the many different facets that must be managed at the District such as surface water, groundwater, water quality, and subsidence.

To develop the Dashboard project, the District envisions the following tasks:

Task 1 - Secure Water Dashboard Development Consultant

Schedule: Months 1-3

The District intends to utilize the services of a consultant that specializes in online programming and utilization of GIS platforms. The District will prepare a Request for Proposals (RFPs) from consultants with the ability to assist the District in developing the Water Dashboard. Upon receiving the RFPs, the District will choose the applicant with the highest expertise and capability, while also considering the lowest bidder, to ensure the achievement of the Dashboard's goals and objectives within the allocated budget and project schedule. We anticipate that this process will take approximately three months and will be the first project task.

Task 2 - Identify Current and Needed Data

Schedule Months 3-6

The District has a long history of water management, adeptly collecting and overseeing a diverse array of data pertaining to the management of both surface and groundwater resources in the region. One of the District's first steps of the process is to identify the specific elements of surface water and groundwater management that are measured and tracked. The District will begin collecting the historical data and organizing in a way that can be handed to the consultant selected in Task 1. We anticipate that this initial data identification and organization will take approximately 3 months.

Upon onboarding the consultant from Task 1, the District will begin by meeting with the consultant to identify what elements of water management will be included in the Water Dashboard and how it will need to be visualized. The data collected for the various elements will be turned over to the consultant for development of the Dashboard.

Task 3 - Develop Data Management System of the Water Dashboard
Schedule Months 6-12

After the District and the consultant have identified the elements and data to be incorporated into the Dashboard, the subsequent phase involves the development and design of the Data Management System (DMS). This DMS will determine the procedures for data collection, input, and housing within the Dashboard. As an example, daily flows in the District are currently collected by field staff and reported to the District office in the morning via two-way radios. The data is hand written and then later in the day is inputted into template spreadsheets by the District Watermaster that are housed on the District server. The Dashboard would streamline this process by allowing field staff to enter the data on field tablets and the data is remotely updated in the DMS of the Dashboard in the mornings without multiple reporting events and data entry events. The DMS will also facilitate data entry and modifications, recording these events to provide the District with a comprehensive log. This ensures a documented history of events, minimizing the risk of accidental errors.

The DMS is a critical foundation of the Dashboard. Explicit guidelines for data collection, entry, management, and corrections will be established as a part of the DMS. The DMS will also be developed with a very specific Quality Assurance / Quality Control (QA/QC) protocol. The DMS will be designed with an automated QA/QC process along with a human-interface QA/QC. The automated QA/QC will look for apparent errors in data collection such as a magnitude difference in data, or summation error (the sum of the pieces do not equal the total reading). The human-interface QA/QC will allow District staff to visually see the data on the GIS platform to spot any anomalies or errors in the incoming data. For example, the District intends to have a GIS map that shows the daily readings in the District. The Watermaster can regularly open the Dashboard and have visualization of the daily flows in the various canals throughout the District. If one canal reading seems to be off, the Watermaster can address that issue by contacting the field staff to verify the reading.

Task 4 - Develop Decision Support Tools of the Water Dashboard
Schedule: Months 12-18

Once the DMS has been developed the District shall work with the consultant to determine and develop the various decision support tools needed to support the District water management goals and objectives. The District currently develops several tools to help make decisions, however these tools/reports are always developed several months after the data has been collected, inputted, and put through a QA/QC process. Often this decision process is in the following year after the data was collected. The goal of developing decision support tools that use the data collected, inputted and stored in the DMS is to have instant access to quality data to make quicker and more meaningful decisions. As an example, depth to groundwater readings are taken bi-annually in the District (typically in the Spring and the Fall of each year). The District monitors over 100 wells in the field, where field-collected data is brought into the office, entered into spreadsheets, and subsequently transformed into AutoCAD contours for reporting to District staff and landowners. This process takes approximately three months and data is often inputted and managed several times. The goal of the Dashboard and the decision support tools is to allow

field staff to conduct field measurements of depth to groundwater and enter the measurements into field tablets that put the data in the DMS. Once in the DMS, the District would develop a decision support tool that drives the automated development of a depth to groundwater (or a groundwater elevation) report and groundwater contour maps showing depth to groundwater, groundwater elevation, and groundwater elevation changes. That decision support tool would ultimately be producing these reports immediately upon completion of the collection of the groundwater data. This would make the information available immediately, instead of three months after the data is collected. This would allow the District to make water management decisions quicker, which in the realm of climate change and extreme weather would mean better managing groundwater recharge efforts.

For this process, District staff will need to work with the consultant to identify the individual decision support tools needed by the District. This will involve all of the District management staff developing lists of reports, charts, and analysis they would need to manage their divisions of the District. A master list of decision support tools will be created along with what data and information is requested in each tool. That list will be delivered to the consultant who will then provide a decision support tool design, which will lay out the design and outcome of each of the tools. With the DMS and decision support tools completed, the consultant will finalize the Dashboard by uploading up to 100 years of historic data into the Dashboard.

Task 5 - Input Data and Test Decision Support Tools

Schedule - Months 18-23

Upon completion of the DMS and the decision support tools, the consultant will input up to 100 years of historical data into the Dashboard. The District believes that inputting historical data will allow the decision support tools to be used in a way to inform ongoing and future water management tools. Upon completion of the data import, the District will then produce the decision support tool reports and evaluate them to find any common water management elements that could be implemented in the future.

Task 6 - Final Report

Schedule Months 23-24

The District will develop a final report for the Dashboard. The final report will summarize the process used to develop the Dashboard, the costs associated with the project, and discuss the anticipated benefits of the project. This Final Report will be made available to the Bureau of Reclamation and any other Districts who wish to pursue their own Water Dashboard.

b.c. Goals

The District aims to enhance water management and ensure water supply flexibility and reliability through the development of an advanced online GIS data management, modeling, and forecasting tool called the Tulare Irrigation District Water Dashboard. The objective of the tool is to be a modeling, forecasting and water management tool used by water managers at Tulare Irrigation District. The tool will allow District management and staff to collect quality data and create timely reports to make effective water management decisions to support surface water and groundwater resiliency. The tool will be used to analyze the data in a way that allows District management to make forecasts and water management decisions in realtime to support the ongoing need to manage surface water and groundwater collaboratively to meet our region's water demands.

c. Project Location

The Tulare Irrigation District is located in the middle of California, approximately 45-miles south of Fresno, California and approximately 65-miles north of Bakersfield, California. The District is approximately 65,000 acres of irrigated agriculture and the service area is bounded by the City of Visalia to the north, the City of Tulare to the east, the Kings County/Tulare County line to the west, and City of Corcoran to the southwest. The District receives water from Lake Kaweah to the east of Visalia in the foothills of the Kaweah Watershed and Millerton Lake, which is northeast of Fresno. Below in Figure 1, is a location map and key facilities utilized by the District for water management.

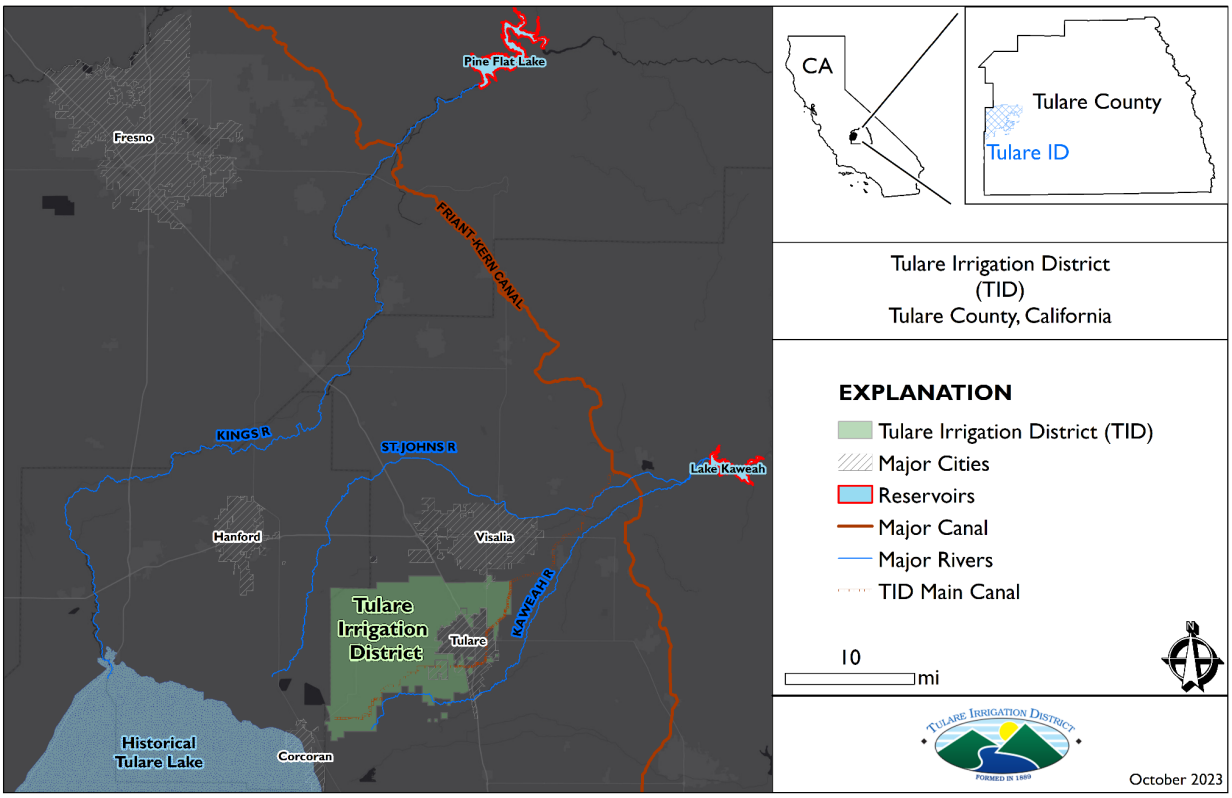


Figure 1. District Location and Key Facilities

d. Data Management Practices

The Dashboard will be an online geographic information system (GIS) data management, modeling, and forecasting tool that will be compatible with Geographic Information Systems, and developed in industry standard formats.

e. Evaluation Criteria

A. Water Management Challenge (30 points)

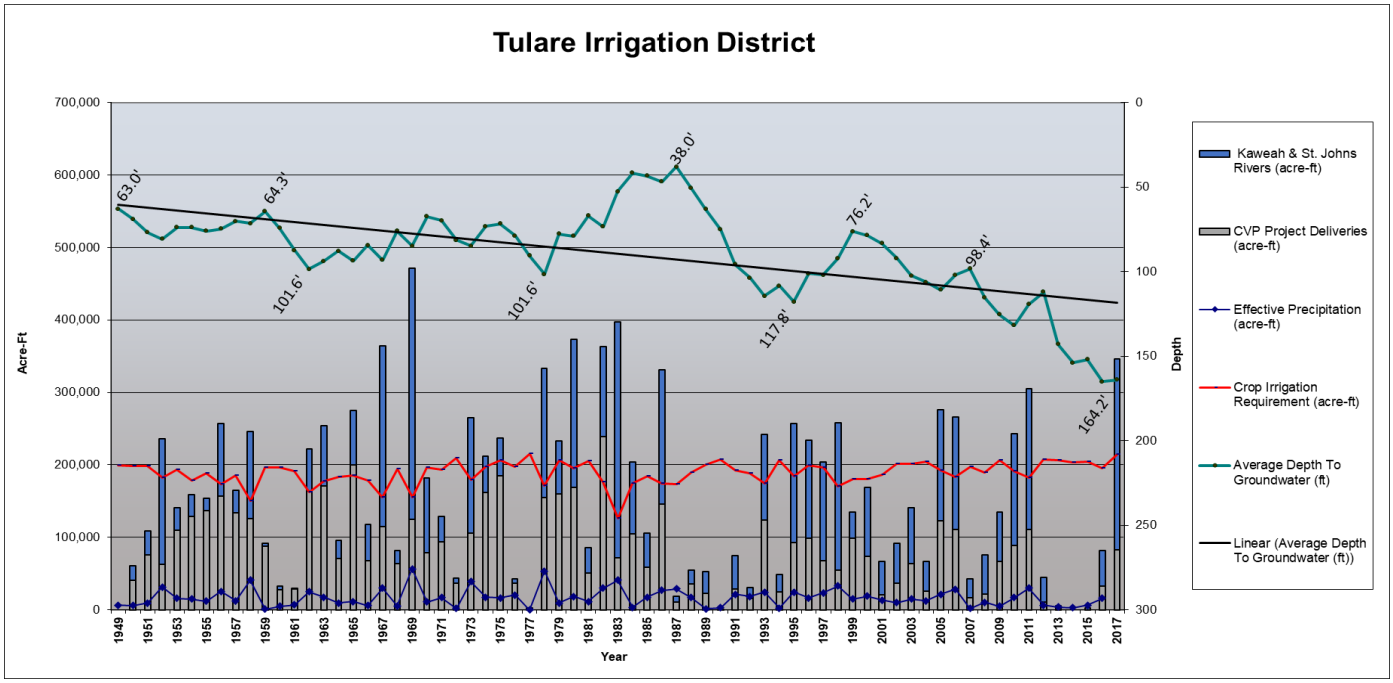
Up to 30 points may be awarded based on the water management challenge. Applicants that demonstrate a water management challenge and the immediacy of the need will receive the most points under this criterion. Please respond and provide support for your responses to each of the following sub-criteria.

1. Describe the water management challenge(s). Describe in detail the water management challenge is occurring within your project area. Describe the severity

of the challenge to be addressed with supporting details. For example, will your project address water supply shortfalls or uncertainties, the need to meet competing demands for water and the lack of reliable water supplies for municipal, agricultural, tribal, environmental or recreational water uses, complications arising from drought, conflicts over water, or other water management issues?

The Tulare Irrigation District was one of the first irrigation districts formed in California in 1889. The District has a long history of securing and managing surface water and groundwater for agricultural irrigation. While our history is extensive and the amount of water that has been diverted and used for irrigation and recharge basins is in the millions of acre-feet, the District faces challenges in the management of both surface water and groundwater in the face of climate change. The District has been developed and operated as a conjunctive use irrigation district relying heavily on surface water in average and above-average water years and turning to groundwater in below-average and critically dry years. Due to the ongoing challenges faced by climate change and the changes in hydrology, the District has seen reductions in surface water, coupled with increases in the use of groundwater. This scenario has put our region under social and economic stress. Growers have had to endure several years without surface water, turning to groundwater to meet their agricultural needs. Agricultural wells have gone dry, crops have been lost, and growers have had to stretch their limited resources to keep our economic engine going, which for Tulare County, is agriculture. As groundwater levels have declined, our region has witnessed numerous domestic and community wells go dry, predominantly serving the residents in our area, a majority of whom qualify as members of Disadvantaged Communities.
Below in Figure 2, is a chart showing the ongoing surface water and groundwater issues faced in the district. The chart shows declining surface water availability which has led to declining groundwater levels.

Figure 2. Tulare ID Historic Surface Water and Groundwater Trents



Although the District has a rich history in surface water delivery and groundwater management, the current data collection and storage systems are inefficient. They hinder real-time analysis, and impede the effective management of surface water and groundwater to address contemporary hydrological fluctuations. Currently, many of the different measurements and data that are collected by field and management staff are all done in different formats and housed on the District server in different systems and platforms. This process of collecting the data is often collected by hand and then inputted digitally into programs such as Microsoft Excel. This requires a great deal of time and effort associated with the initial input and further quality control review that must be done. Often, by the time data is collected and entered into the various systems, months can transpire and effective use of the data is no longer possible because the District has moved beyond the usefulness of the data to make meaningful, management decisions.

2. Describe the concerns or outcomes if this water management project is not addressed?

An observed concern in wet water years highlighted the heightened risk of errors in the field due to flood scenarios along with the loss of groundwater recharge opportunities. In years with above-average rainfall, the risk intensifies as the system reaches full capacity, leading to uncontrolled spills, potential levee breaks, and water orders being placed under constraints such as limited staffing or adverse outdoor conditions. Water orders during the off-season historically have not been common, but District growers took the Sustainable Groundwater Management Act (SGMA) concerns head on by changing their off-season practices. District growers have begun to order surface water during winter and early spring to recharge on their ground. Failing to create a Dashboard tool could result in a failure to identify swift and effective solutions and an ongoing reliance on seasonally, overburdened staff to handle tasks such as water orders and monitoring of potential maintenance emergencies, diversions, lake inflow and outflow, uncontrolled spills, system spills, recharge basin levels, Friant Kern Canal flows, and more. The District will most likely continue to collect data in an inefficient way which will keep us from making informed management decisions leading to missed opportunities to better manage surface water and groundwater.

3. Explain how your project will address the water management issues identified in your response to the preceding bullets and provide support for your response. For example, will your project improve water management by supporting:

a. water supply reliability for municipal, agricultural, tribal, environment or recreational water uses,

The District supplies irrigation water to agricultural customers. However, the District does have exchange programs with the City of Tulare and the City of Visalia for groundwater recharge activities to provide reliable groundwater supplies to those communities that are dependent upon groundwater for their needs. The Dashboard is meant to provide data management and decision support tools to help the District provide better analysis and forecasting to make key decisions in a timely manner. The goal is to make informed decisions in a timely fashion such that surface water supplies are maximized to meet grower needs and to enhance groundwater recharge capabilities. Currently the District is unable to provide timely analysis and often when we look

back we have some circumstances where decisions would have been different if timely information was available.

b. management of water deliveries,

The Dashboard will directly assist the District in managing water deliveries. Currently the District manages deliveries via a field reporting and paper system that gets digitized throughout the day and through the water year. The Dashboard will allow the District to collect data in a digitized format, rather than paper, and also visualize it on digital tablets carried by field and management staff. The goal is to allow District staff at all times to see the District and see key data points such as turnouts that are active and turnouts that are pending delivery. District staff can also pull up key measurement points in the system to make sure enough water is in the system to meet turnout needs on the various systems and canal laterals.

c. water marketing activities,

The District intends to implement a surface water allocation system within the Dashboard in the future. The allocation includes the ability of landowners to assign allocations to other parcels or landowners upon notice. The District will also be within the boundaries of an active water market in water year 2023 between the three groundwater sustainability agencies in the Kaweah Subbasin. The Dashboard generated reports and watermaster analysis, to be presented during public District Board of Directors meetings, will allow growers to know how to and when to enter the market responsibly.

d. drought management activities,

The Dashboard will include forecasting tools that are intended to help the District ensure that water supplies are being managed in a way that maximizes efficient delivery of water to grower needs. The decision support tools will also include analysis of groundwater recharge activities. As a conjunctive use irrigation district with access to over 1,300 acres of recharge basins, the District tracks groundwater recharge activities. These recharge activities help supply water for growers and communities during periods of drought. The Dashboard will integrate both surface water and groundwater tracking data into a unified platform. The development of decision support tools within the Dashboard will aim to assist in making informed management decisions that maximize the utilization of these water supplies

e. conjunctive use of ground and surface water,

The district is designed and operated as a conjunctive use irrigation district. The District has over 300 miles of canals, 1,300 acres of recharge basins, and has a new program that incentivizes on-farm recharge activities. Unfortunately, the District currently manages the surface water and groundwater data in different processes and platforms. The Dashboard will integrate both surface water and groundwater data into a unified platform to have visualizations and decision support tools that combine both. As an example, the District hopes to include on the visualization of the dashboard the groundwater elevation contours to identify areas where there are significant declines in groundwater. This will allow the District to target recharge activities to more efficiently fix problems.

f. water rights administration,

The District has Pre-1914 Water Rights on the Kaweah River and a contract with the Bureau of Reclamation. The Dashboard will assist the District in managing these supplies by the accounting and forecasting tools provided by the system. The District intends to incorporate a decision support tool that tracks pre-1914 water rights entitlements on the Kaweah River, allowing the District to know in realtime what supplies are available. On the CVP Bureau of Reclamation side, the Dashboard will be tracking the allocations made by the Bureau of Reclamation. Both on the Kaweah River, and CVP Friant supplies, the Dashboard will be tracking daily the entitlements and usage of the water supply, informing District management of the available supplies and the ongoing usage.

g. ability to meet endangered species requirements,

The District is currently not managing any endangered species within the District Service area. However, the District is a participant in the San Joaquin River Restoration Program and supplies water for the restoration of salmon in the San Joaquin River. The Dashboard will help manage supplies in a more efficient manner, making up for the contribution of approximately 20% of our CVP Friant supplies to the San Joaquin River Restoration Program.

h. watershed health,

The Dashboard will allow the District to manage surface water and groundwater supplies that are provided by the Kaweah and San Joaquin River watersheds. Recent changes in hydrology, due to Climate Change, have caused dramatic swings in water supplies. The District currently experiences prolonged drought conditions followed by intense wet years. Tracking, managing and forecasting these events is critical to ensuring a resilient supply of both surface water and groundwater. It should also be noted that trying to forecast water conditions based on historical data from several decades ago has proven challenging. Our hope is to use the most recent data in the Dashboard to create decision support tools that better reflect the current hydrologic conditions we are seeing under Climate Change.

i. restore a natural feature or use a nature-based feature to reduce water supply and demand imbalances, the risk or drought or flood or to increase water supply reliability for ecological values,

The District currently manages 1,300 acres of recharge basins and is venturing on habitat recharge and water storage projects. The District via its membership in the Mid-Kaweah Groundwater Sustainability Agency recently received a grant to pursue Multi-Benefit Land Repurposing Projects. The District is also moving forward with the reclamation of a rock quarry on the St. Johns River by turning it into a habitat surface water reservoir. Projects like these will be incorporated into the Dashboard and the supplies managed through them will be tracked, managed, and forecasted with the Dashboard.

j. Conservation and efficiency, or

The development of the Dashboard is intended to enhance existing conservation and efficiency projects. The District has implemented several measures for conservation and efficiency such as as Supervisory Control and Data Acquisition (SCADA) system, regulation basins, recharge basins, and a tertiary treated water supply exchange with the City of Visalia. As has been stated, all of these items are tracked and managed in individual activities. The goal of the Dashboard is to put all of these into one data management and decision support tools system umbrella. The intent is to enhance efficiency by integrating these components, with the goal of conserving water supplies.

k. other improvements to water supply reliability?

B. Project Benefits (30 points)
Up to 30 points may be awarded based on the extent to which the project will result in a tool or information that will benefit stakeholders and the extent to which the tool and information will be used beyond project conclusion. Applicants that demonstrate clear benefit(s) for the project, including documentation and support for those benefits, and can explain how the project tool, information, or results will be readily applied will receive the most points under this criterion.

1. Describe how the need for the project was identified. Was the proposed project identified using a collaborative process with input from multiple and diverse stakeholders?

The Dashboard was recognized as a pivotal initiative aimed at tackling the District's water challenges, shifting hydrology, unpredictable weather patterns, and our commitment to achieving water sustainability for our community. The District Watermaster manages daily water orders, water diversions, flow readings, system maintenance and compiles all data into a monthly report created prior to District Board meetings that summarizes the amount of water delivered, recharged, and spilled outside of the District. A data management system tool would make the daily data collection more efficient and allow for errors and high flows to be caught in real time in order to make critical decisions faster than ever before.
The District intends to make this information available to all District staff in real time via a system of tablets that can be assigned to employees. In this fashion all staff, field and management can have access to daily operations. Management will have the ability to fully visualize, input, and change data, while field staff will be able to visualize data and input the data necessary to inform the Dashboard. Lastly, the District has existing large monitors throughout the District facility (board rooms, management office, and shop breakroom) and these monitors will be used daily to project the Water Dashboard throughout the day.
The District also intends to make the Water Dashboard and key information to be accessed by our growers and the public via the District website. Information such as daily flows into the District, reservoir levels, weather, and groundwater conditions will be accessible to the public. The District is currently under contract to redesign the website and the intent is to have a landing page on the website for the Dashboard.

2. Describe how the tool, method, or information will be applied and when will it be applied?

a. Will the tool or information be used immediately or will additional work need to be done before the tool will be used?

Once completed, the District can immediately begin using the Dashboard for data collection and making informed decisions via the decision support tools. The District proposes to set a standardized methodology to collect all data and coordinate that data into an ArcView GIS system with a coordinated database system. The interface will be a map system of the District and the various important facilities that the District relies upon. Other statewide conditions will also be housed on the map, such as reservoir conditions at San Luis Reservoir, reservoir conditions at Shasta Reservoir, and publicly available daily conditions in the San Joaquin and Sacramento watersheds and their confluence in the Sacramento Delta. The data will be housed in the DMS and be visualized via a District GIS platform on desktops and handheld tablets distributed to field and management staff. The public will have limited access to the data. Using the historic data imported into the system, the District will utilize the decision support tools to evaluate trends to help forecast future water management decisions such as timing of water releases, delivery patterns, recharge efforts, and water rights tracking and reporting.

3. Describe, in detail, the extent of benefits that can be expected to occur upon implementation of the project, and provide support for your responses.

a. Who will use the tool of data developed under this proposal and how will they benefit from the project? Support could include but is not limited to letters from stakeholders expressing support for the project and explaining how they will benefit.

The Dashboard is meant to be implemented at three different levels, the field staff, District management, and the public. District field staff are often managing numerous data points and the Dashboard envisions the use of rugged tablets to allow the staff to input the data in the field and the Dashboard will be updated in real time. This helps field staff minimize the time needed to record and report data from the field. District managers that receive data and need to make decisions based on the data will benefit from the realtime reporting from the field (field staff using field tablets connected to the internet). The Dashboard will have automated quality control algorithms, including the ability of management to visualize the data on the GIS platform to review the data. District management and consequently the members of the District benefit the most from having the ability to rely upon the decision support tools designed into the Dashboard to make water management decisions. The public would benefit from having access to curated elements of the Dashboard. The District intends to provide access to the GIS visualization tool via our website, so that the public can see publicly available data such as groundwater elevations, weather conditions, irrigation run status and key diversion site status.

b. How will the project improve water management decisions?

One of the key features of the Dashboard is the implementation of decision support tools that will assist District management in making water management decisions. First, the ability to visualize real time data allows management to actively see the status of the various elements needed to manage water. Secondarily, the decision support tools developed in the system will help management create on-demand reports that can answer questions regarding ongoing water management decisions. In this fashion, the District hopes to improve upon water management decisions to better respond to the ongoing hydrologic swings from drought to severely wet years.

Lastly, the use of the Dashboard to streamline data input is intended to increase the quality control of the data being collected by the District. Dashboard will have automated quality assurance algorithms incorporated into it, but management will also be able to visualize the system in real time and can quickly spot any issues in the data via the GIS visualization platform.

c. Describe if the results of your project will be applicable elsewhere. What additional work would need to be done to make the project results transferable to others?

The District has talked with many other irrigation districts and ditch companies in the area. Many are excited that our District is venturing into this approach and are looking to implement a similar Dashboard. The District is intending to create a Final Report that will catalog all of the various decisions and activities used to develop the Water Dashboard. The Final Report will be made available to the public, including any other water agency interested in developing a Water Dashboard. Lastly, the District is very supportive of other entities and will make staff available at any time to discuss our experiences in developing our Water Dashboard.

d. To what extent will the project address the water management challenges described in Water Management Challenge?

As described earlier, the District continues to be challenged with extreme droughts followed by intense wet years. The proposed Dashboard aims to enable the District to gather, manage and visualize all of the various water management activities that the District currently undertakes. The decision support tools will provide information regarding historic water management decisions and ongoing decisions to better match existing water supplies, potential future water supplies with the ongoing hydrologic swings. By better managing water supplies, the District's goal is to increase the ability to meet grower and community demands with surface water and groundwater to achieve sustainability and resiliency.

e. Explain how your project complements other similar efforts in the area where the project is located. Will your project complement or add value to other, similar efforts in the area, rather than duplicate or complicate those efforts? Are there other similar efforts in the area that have used a similar methodology successfully which can be complimented? Applicants should make a reasonable effort to explore and briefly describe related ongoing projects. Consider efforts by any Federal, State, local agency or non-governmental organizations.

The District is currently a member of the Mid-Kaweah Groundwater Sustainability Agency (MKGSA), tasked with achieving groundwater sustainability. To accomplish their goals, the MKGSA implemented a program to allocate groundwater, and developed the Kaweah Subbasin Groundwater Water Dashboard, which is a groundwater allocation, tracking, and reporting tool for growers. The Dashboard being proposed by the District would complement this system and would likely have reporting between the two systems. The District also collaborates with many other organizations in the area, specifically the Kaweah Delta Water Conservation District and the Kaweah and St. Johns River Association. These two organizations manage and track surface water in the Kaweah River Watershed. Their individual tracking and reporting systems will be incorporated into the Water Dashboard and our information will be shared with them as needed or required.

C. Project Implementation (20 points)

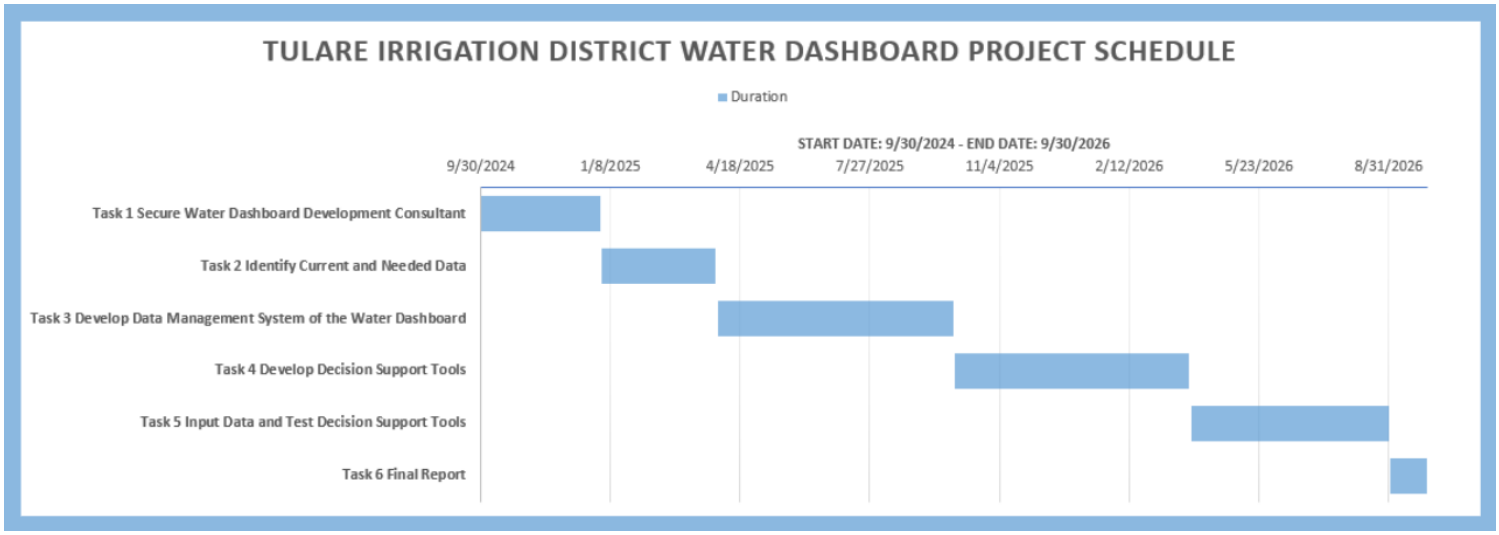
Up to 20 points may be awarded based upon the extent to which the applicant is capable of proceeding with the project upon entering into a financial assistance agreement. Applicants that describe a detailed work plan (e.g., estimated schedule that shows the stages and duration of the proposed work and identifies major tasks, milestones, and dates) and a budget that is appropriate for the work proposed and has a reasonable level of detail will receive the most points under this criterion. Your responses should reflect an understanding of the tasks required to complete the project within the required 2-year timeframe. Please respond and provide support for your responses to each of the following sub-criteria.

1. Briefly describe and provide support for the approach and methodology that will be used to meet the objectives of the project. You do not need to repeat the full technical project description included in Section D.2.2.4 under the Technical Project Description. However, you should provide support for your chosen methodology, including use of any specific models, data, or tools.

As mentioned prior, the District has been a part of the Kaweah Subbasin Groundwater Water Dashboard. District staff was integral in the development of that system and has drawn on that experience to develop the District's Dashboard. The District also currently has staff that are experienced in programming, GIS, and water management, which has led to numerous discussions about the power of combining those into a singular management system.

2. Describe the work plan for implementing the proposed scope of work. Such plans may include, but are not limited to:

a. an estimated project schedule that shows the stages and duration of the proposed work,



b. milestone for each major task,

Milestones for each task include:

Task 1 - Secure Water Dashboard Development Consultant: Contract with Water Dashboard Development Consultant.

Task 2 - Identify Current and Needed Data: Memo with the identification of current data collected by the District and data that is needed that will need to be collected in the future.
Task 3 - Develop Data Management System of the Water Dashboard: Implementation of the Data Management System and visualization of data in a GIS platform.
Task 4 - Develop Decision Support Tools: Development of a list of decision support tools and completion of the programming for the decision support tools.
Task 5 - Input and Test of Decision Support Tools: Input up to 100 years of historic data into the DMS and run decision support tools on the historic data.
Task 6 - Final Report: Development of the Final Report.

c. Start and end dates for each task and milestones, and

The District anticipates that the Dashboard project will take approximately 24-months to complete with 18 months developing the software and 6 months troubleshooting and perfecting the software. If the grant agreement is signed on September 30, 2024, then the Dashboard is proposed to be completed by September 30, 2026.

d. Costs for each task

Costs for each task include:

Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
$13,000	$39,000	$65,000	$65,000	$52,000	$26,000

3. Provide a summary description of the products that are anticipated to result from the project. These may include data, metadata, digital or electronic products, reports, and publications. Note: using a table to list anticipated products is suggested.

Task	Products
1	Contract with Consultant
2	Consolidated District Data
3	DMS, GIS Platform
4	Decision Support Tools
5	Functioning Dashboard, District staff tablets
6	Completed Dashboard, Final Report

4. Who will be involved in the project as project partners? What will each partner or stakeholder's role in the project be? How will project partners and stakeholders be engaged in the project and at what stages? If you are a Category B applicant, be sure to explain how your Category A partners will be engaged in the project.

Tulare Irrigation District is a Category A applicant and will be supporting internal staff with this project, but the project will allow for timely monthly reports to be made to the Board of Directors and the general public.

5. Identify staff with appropriate credentials and experience and describe their qualifications. Describe the process and criteria that will be used to select appropriate staff members for any positions that have not yet been filled. Describe any plans to request additional technical assistance from Reclamation or via a contract. Please answer the following:

a. Have the project team members accomplished projects similar in scope to the proposed project in the past either as a lead or team member?

As described earlier, the District has just recently developed and implemented a successful groundwater management tool called the Kaweah Subbasin Groundwater Water Dashboard. The District also has a long history of tracking and monitoring all facets of surface water and groundwater. Below is a list of project team members with their experience and responsibility:

- Aaron Fukuda - General Manager: 23 years of experience in civil engineering with an emphasis on hydraulic design and water management. In his role he has overseen numerous District projects from pipeline design, recharge basin development, and water management issues. Mr. Fukuda is now also the Interim General Manager of the MKGSA and oversees groundwater management in the region.
- Marco Crenshaw - Watermaster: 25 years of experience in water management as the District Watermaster. Mr. Crenshaw is responsible for overseeing all water operations in the District.
- James Fishers - Water Resources Engineer: 2 years of experience with the District. Mr. Fisher has a background in GIS, programming, hydrology, and geology. Mr. Fisher has been the principle architect of the Kaweah Subbasin Groundwater Water Dashboard and has guided the development of the data management and reporting system within that program. Mr. Fisher also has experience in programming and is currently developing tools for the District to evaluate data and provide forecasting for improved water management decisions.
- Diana Zegarra - Assistant Water Resources Engineer: 1 year of experience with the District. Ms. Zegarra has a background in agriculture and 2+ years of experience in groundwater and surface water management. Ms. Zegarra has been assisting Mr. Fisher in the development of the Kaweah Subbasin Groundwater Water Dashboard and has a solid understanding of data management and the development of decision support tools.

b. Is the project team capable of proceeding with tasks within the proposed project immediately upon entering into financial assistance agreement? If not, please explain the reason for any anticipated delay.

The District believes that the Dashboard will streamline the data collection, management, storage and visualization of data collected by District staff. Furthermore the decision support tools developed for the Dashboard will streamline the reporting and forecasting process used by District management. Therefore, the District holds the Dashboard Project as a priority. With the Kaweah Subbasin Groundwater Water Dashboard currently operational and in its second year of implementation, the District intends to utilize the same internal staffing to develop the Dashboard including the time commitments that were originally dedicated to the Kaweah Subbasin Water Dashboard. Therefore, the District does not anticipate any issues with staffing levels or hours committed to the project.

C. Dissemination of Results (10 points)
Up to 10 points may be awarded for proposals that can articulate how the results will be disseminated, transferred, and communicated directly with partners and resource managers within the Western United United States. Please respond and provide support for your responses to each of the following sub-criteria. Note: All applicants whose projects are selected for funding will be expected to participate in at least one Reclamation-sponsored webinar to disseminate deliverable(s) and discuss ways to apply deliverables to management questions. Under this criterion, proposals will be evaluated based on other efforts, beyond the required webinar, that they will take to disseminate the results of their project.
Explain how project results will be disseminated, including:

- Describe how the tools, frameworks, or analyses developed under the proposed scope of work will be disseminated, communicated, or made available to water resources managers who may be interested in the results.

1. If the applicant is the primary beneficiary of the project, explain how the project results will be communicated internally, and to interested stakeholders and interested water resource managers in the area, if appropriate.

The District intends to develop the Dashboard internally with staff and a contracted consultant. District staff will be regularly reporting to the District Board of Directors at public meetings about the progress of the project. One of the elements envisioned is a Final Report that will catalog the project process and outcomes, which will be shared with other stakeholders and agencies. Lastly, at the completion or during the project, if approached by other agencies or stakeholders, the District shall share any information and progress of the project.

2. If the applicant is not the primary beneficiary of the project (e.g., universities or research institutes), describe how project results will be communicated to project partners and interested water resource managers in the area.

The Tulare Irrigation District is the applicant and the primary beneficiary.

3. Describe how the project results will be shared with other water managers in the West that could use the information to support water management objectives.

The District intends to develop a Final Report that will catalog the process and details of the development of the Dashboard. The Final Report will also identify any key findings made along the way. This Final Report will be publicly available and upon review by any other agencies, the District will make staff available for presentation or questions.

C. Presidential and Department of the Interior Priorities (10 points)
Up to 10 points may be awarded based on the extent that the project demonstrates support for the Biden-Harris Administration's priorities, including E.O. 14008: Tackling the Climate Crisis at Home and Abroad and E.O. 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, and the President's memorandum, Tribal Consultation and Strengthening Nation-to Nation Relationships.

1. Climate Change: E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate

change; protect public health; and conserve our lands, waters, oceans, and biodiversity.

a. describe how the project addresses climate change and increases resiliency. For example, does the project help communities respond to or recover from drought or reduce flood risk?

The District has experienced significant Climate Change whiplash that has been taking place with climate changes such as long periods of drought to pronounced wet years. The purpose of the Dashboard is to streamline the data collection, management and reporting and to implement decision support tools to make quicker and more meaningful decisions involving water. The District will be able to visualize daily water data and have decision support tools tied with historic and real time data to manage surface water and groundwater supplies to better match the drought and wet year cycles being experienced resulting in overall water supply resiliency. The Dashboard will also help in wet years avoid flooding issues by being able to better forecast high-flow scenarios and better manage those supplies to avoid flooding.

b. How will the project build long-term resilience to drought? How many years will the project continue to provide benefits? Please estimate the extent to which the project will build resilience to drought and provide support for your estimate.

The life of the Dashboard is estimated to be approximately 10-15 years. We believe this to be the time period where the programming or visualization tools will need to be upgraded, however we believe the overall Dashboard does not have a life as it will be an integral tool. The goal of the Dashboard is to develop the data management and decision support tools to evaluate existing water management to better manage supplies for water supply resiliency. Therefore an exact estimate of abilities of resiliency are yet to be determined. However, based upon experience and District goals, the District currently has a diversion capacity of approximately 1,000 CFS during winter months. Recent wet years have shown that the District can divert approximately 750 CFS in winter months to groundwater recharge activities. The Dashboard is intended to assist the District in managing water resources and we would hope to increase that diversion rate to 1,000 CFS during the winter months. Therefore our goal would be to add 250 CFS via water management decisions to increase recharge in the winter months (January through March) of approximately 45,000 acre-feet.

c. Will the proposed project reduce greenhouse gas emissions by sequestering carbon in soils, grasses, trees, and other vegetation? Does the proposed project seek to reduce or mitigate climate pollutants such as air or water pollution? Does the proposed project contribute to climate change resiliency in other ways not described above?

The Dashboard is intended to assist the District in water management decisions to achieve water supply resiliency. The District being a conjunctive use irrigation district, there is a goal to increase groundwater recharge and consequently raise the elevation of groundwater levels. For example, the District had our historic groundwater levels decline to approximately 180’ below ground in 2022, in the wet year of 2023, those levels have come up about 25’, which reduces the energy required to lift water to the surface. The recharge done in the area reduces the demand on the energy grid which, due to the fact that California is not 100% clean energy state, this should

reduce greenhouse gas emissions. The recharge done also allows pollutants in the groundwater aquifers to dilute with more clean water.

2. Disadvantaged or Underserved Communities: E.O. 14008 and E.O. 13985 affirm the advancement of environmental justice and equity for all through the development and funding of programs to invest in disadvantaged or underserved communities.

a. Please use the Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool, available online at Explore the map - Climate & Economic Justice Screening Tool (geoplatform.gov) to identify any disadvantaged communities that will benefit from your project.

In utilizing the CEQ's tool, the Dashboard will have surface water and groundwater management benefits to the disadvantaged communities of the City of Tulare and Waukena. Other known disadvantaged communities in the area, but not marked on the CEQ tools are Okieville-Highland Acres, East Tulare Villa, Soults Tract, Lone Oak Tract and Matheny Tract.

b. Describe how the project benefits those disadvantaged or underserved communities identified using the tool. For example, does the project increase reliability of water supplies, improve water quality, provide economic growth opportunities, improve, or expand public access to natural areas or recreation, or provide other benefits in a disadvantaged or underserved community?

The District is a close partner with the Mid-Kaweah Groundwater Sustainability Agency and the other GSAs within the Kaweah Subbasin. The Dashboard will allow potentially flooding to be averted, useful groundwater recharge where the DACs need it the most, and create recreational opportunities for the community.

3. Tribal Benefits: The Department of the Interior is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. The President's memorandum, Tribal Consultation and Strengthening Nation-to Nation Relationships, asserts the importance of honoring the Federal government's commitments to Tribal Nations.

a. Describe how the project directly serves and/or benefits a Tribe, supports Tribally led conservation and restoration priorities, and/or if the project incorporates or benefits Indigenous Traditional Knowledge and practices.

The District does not have any tribal lands within the District.

b. Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?

The District does not have any tribal lands within the District.

TULARE IRRIGATION DISTRICT

RESOLUTION NO. 2023-13

AUTHORIZING APPLICATION TO THE UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION FOR WATERSMART – APPLIED SCIENCE GRANTS FOR FISCAL YEAR 2023 R23AS00446

WHEREAS, a grant funding opportunity has been presented by the United States Department of the Interior, Bureau of Reclamation (USBR). The USBR WaterSMART Applied Science Grants for Fiscal Year 2023 are meant to provide funding for the development of hydrologic information and water management tools to improve modeling and forecasting capabilities.

WHEREAS, the Tulare Irrigation District (District), a public entity established under the laws of the State of California, hereby authorizes its agent(s) to provide to the USBR all Notice of Funding Opportunity (NOFO) R23AS00446 (Grant) application materials pertaining to such Applied Science Program and agreements required.

NOW THEREFORE BE IT RESOLVED, by the Board of Directors of TULARE IRRIGATION DISTRICT as follows:

1. That the Treasurer, Kathi Artis, Official Resolutions, and the District Manager, Aaron Fukuda, are hereby authorized to execute for and on behalf of the Tulare Irrigation District this application and to file with the USBR for the purpose of obtaining certain federal financial assistance under the Applied Science Program; and

2. The District Board of Directors are in support of the Grant application and the General Manager, Aaron Fukuda, has reviewed the Grant application being submitted.

3. The District is capable of providing matching funds needed to fund the local cost share component in addition to the amount provided by the USBR, should the Grant be awarded to the District; and

4. If selected for the Grant, the District will work with the USBR to meet established deadlines for entering into a cooperative agreement.

THE FOREGOING RESOLUTION WAS PASSED AND ADOPTED upon motion of Director Rogers seconded by Director Martin, at a meeting of the Board of Directors of the Tulare Irrigation District held on this 10th day of October, 2023 by the following vote:

Ayes: Directors Bixler, Borges, Martin, Rogers, and Thomas

Noes: None

Abstain: None

Absent: None

ATTEST:

David G Bixler

David G. Bixler, President

MID-KAWEAH GSA

October 10, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Subject: **Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446**

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, the Mid-Kaweah Groundwater Sustainability Agency (MKGSA) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there has been a significant need for local water agencies to be able to manage and control water in both wet periods and drought. The ability to monitor, record, and manage water supplies is critical for historical records and to plan for future hydrology fluctuation. The MKGSA understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

The MKGSA recognizes the value of water management tools that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and the MKGSA is therefore supportive of the Project and TID's application for funding.

Sincerely,

Aaron Fukuda
Interim General Manager

EAST KAWEAH
GROUNDWATER SUSTAINABILITY AGENCY

October 13, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART` Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, East Kaweah Groundwater Sustainability Agency (EKGSA) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. EKGSA understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

EKGSA recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and EKGSA is therefore supportive of the Project and TID's application for funding.

Sincerely,

Michael D. Hagman
Executive Director

County of Tulare – City of Lindsay – Exeter ID – Ivanhoe ID – Lindsay Strathmore ID – Lindmore ID – Stone Corral ID
Mailing address: P.O. Box 908 Lindsay, CA 93247
Physical Address: 315 E. Lindmore Street Lindsay, CA 93247
Phone 559-562-2534

KAWEAH DELTA
Water Conservation
DISTRICT

October 12, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for a Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, Kaweah Delta Water Conservation District (KDWCD) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. Kaweah Delta Water Conservation District understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry years in the future.

Kaweah Delta Water Conservation District recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and Kaweah Delta Water Conservation District is therefore supportive of the Project and TID's application for funding.

Sincerely,

Shane Smith

General Manager

Kaweah Delta Water Conservation District

2975 N. Farmersville Blvd., Farmersville, CA 93223 P 559-747-5601 F 559-747-1989 www.kdwcd.com

CITY COUNCIL

October 11, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern:

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. The City of Tulare is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. The City of Tulare understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

The City of Tulare recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and the City of Tulare is therefore supportive of the Project and TID's application for funding.

Sincerely,

Terry A. Sayre

Terry A. Sayre
Mayor of the City of Tulare

City of Visalia

220 N. Santa Fe St., Visalia, CA 93292

Office of the Mayor

Tel: (559) 713-4512 Fax: (559) 713-4800

October 11, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. City of Visalia is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there has been a significant need for local water agencies to be able to manage and control water in both wet periods and drought. The ability to monitor, record, and manage water supplies is critical for historical records and to plan for future hydrology fluctuation. City of Visalia understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

City of Visalia recognizes the value of water management tools that can increase water management flexibility and water supply reliability. This Project aligns with local water management goals to achieve long-term sustainability and the City of Visalia is therefore supportive of the Project and TID's application for funding.

Sincerely,

Brian Poochigian, Mayor
City of Visalia

October 10, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, Exeter Irrigation District (EID) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. EID understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

EID recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and EID is therefore supportive of the Project and TID's application for funding.

Sincerely,

P.O. Box 846 • Lindsay, CA 93247 • Phone: (559) 562-2581 • Fax: (559) 562-3882 • www.lsid.org

October 13, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, Lindsay-Strathmore Irrigation District (LSID) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. LSID understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

LSID recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and LSID is therefore supportive of the Project and TID's application for funding.

Sincerely,

Craig N. Wallace
General Manager

23260 Round Valley Drive • Lindsay, CA 93247

Protect farmers and their water!

STONE CORRAL IRRIGATION DISTRICT
37656 ROAD 172
VISALIA, CA

GENE KILGORE
GENERAL MANAGER
e-mail
gkilgore@tdwauthority.org
Phone
OFFICE (559) 528-4408
CELL (559) 906-1402

MAILING ADDRESS
P.O. BOX 367
IVANHOE, CA 93235-0367

October 10, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, Stone Corral Irrigation District (SCID) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. SCID understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

SCID recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and SCID is therefore supportive of the Project and TID's application for funding.

Sincerely,

October 10, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

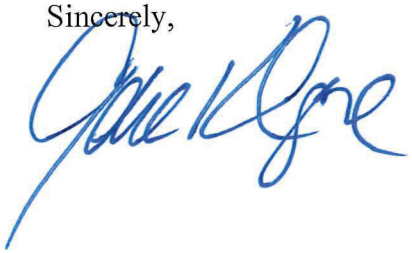
Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, Tri-District Water Authority (TDWA) is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. TDWA understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

TDWA recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and TDWA is therefore supportive of the Project and TID's application for funding.

Sincerely,



15370 Ave. 256
Visalia, California 93292

Consolidated PEOPLES DITCH COMPANY

Office 559.747.1177
Fax 559.747.0564

Est. 1874

October 11, 2023

Tulare Irrigation District
Attn: Aaron Fukuda, District Manager
6826 Avenue 240
Tulare, CA 93274

Re: Letter of Support for Tulare Irrigation District's Application for the USBR Water SMART Applied Science Grant R23AS00446

To Whom It May Concern,

This letter is to offer support for Tulare Irrigation District (TID) application for the WaterSMART Applied Science Grant for TID's proposed Geographical Information System Water Dashboard – Hydrologic Data Management and Forecasting Tool Project. Our Agency, CPDC is supportive of the proposed project as it will serve to bolster water reliability for the Kaweah Subbasin as well as provide better water resource management within the local region in the Central Valley in California. Since the passing of the Sustainable Groundwater Management Act (SGMA), there is significant need for local water agencies to be able to manage and control water in both wet periods and drought. Consolidated Peoples Ditch Company understands the critical need for a surface and groundwater management project such as this which will increase the reliability of groundwater for dry times.

Consolidated Peoples Ditch Company recognizes the value of water tool projects that can increase water management flexibility and water supply reliability in rural communities. This Project aligns with the local water management goals to achieve long-term sustainability and Consolidated Peoples Ditch Company is therefore supportive of the Project and TID's application for funding.

Sincerely,

James Silva