



Turlock Irrigation District Ceres Main Regulating Reservoir

R22AS00020

WaterSMART Drought Response Program: Drought Resiliency Project Grants for FY2022 Funding Group 2

Prepared For:

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CA 80225

Submitted By:

Turlock Irrigation District
333 E. Canal Drive
Turlock, CA 95381
Phil Govea, Civil Eng. Dept. Manager
pdgovea@tid.org
209) 883-3447

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SECTION 1: TECHNICAL PROPOSAL

A. Executive Summary

Date: October 5, 2021

City: Turlock

County: Stanislaus

State: California

Located on a Federal Facility: No

Applicant Name: Turlock Irrigation District

Category: A

Project Length of Time: 12 months

Estimated Completion Date: February 2023

The Turlock Irrigation District (TID) proposes to construct the Ceres Main Regulating Reservoir Project “Project” adjacent to the confluence of the Ceres Main and Lower Lateral 3 (LL3) Canals, in the vicinity of the township of Keyes, California. The reservoir would function as a surface water regulating and storage facility, capturing operational fluctuations in the Ceres Main Canal during periods when supply exceeds demand and returning these flows back into the Ceres Main and Lower Lateral Canals during water shortages. TID is a Category A applicant and the Project is consistent with TID’s 2020 Agricultural Water Management Plan (AWMP (Appendix B) and Drought Management Plan (DMP (Appendix C). Additionally, the Project satisfies one of the sixteen critical Efficient Water Management Practices (EWMPs) of the California Water Code (CWC); i.e. **“Evaluating the installation of regulating reservoirs when locally cost effective or deemed necessary...and installing regulating reservoirs along its distribution system.”** (CWC 10608.48 c(6)). The Project is also consistent with TID’s 2019 Draft Irrigation Facilities Master Plan (Draft IFMP) which identifies and evaluates potential modernization projects for the water distribution infrastructure, including the construction of regulating reservoirs. The Project area is currently experiencing "Exceptional Drought" D4 status (the highest category on the U.S. Drought Monitor) and has been declared as a Drought Emergency Area by the Governor of California. The Project will help to achieve drought resilience and support water conservation through an anticipated average water savings of **10,000** acre feet per year (AFY), as well as reducing groundwater pumping, improving water quality and operational flexibility, and improving customer service with more stable flows, increased water supply reliability and faster operations response times. Engineered plans and specifications are complete, California Environmental Quality Act (CEQA) clearance has been obtained, the property for the reservoir location has been acquired, and the project is ready to start construction in July 2022 with an estimated 28-week construction duration.

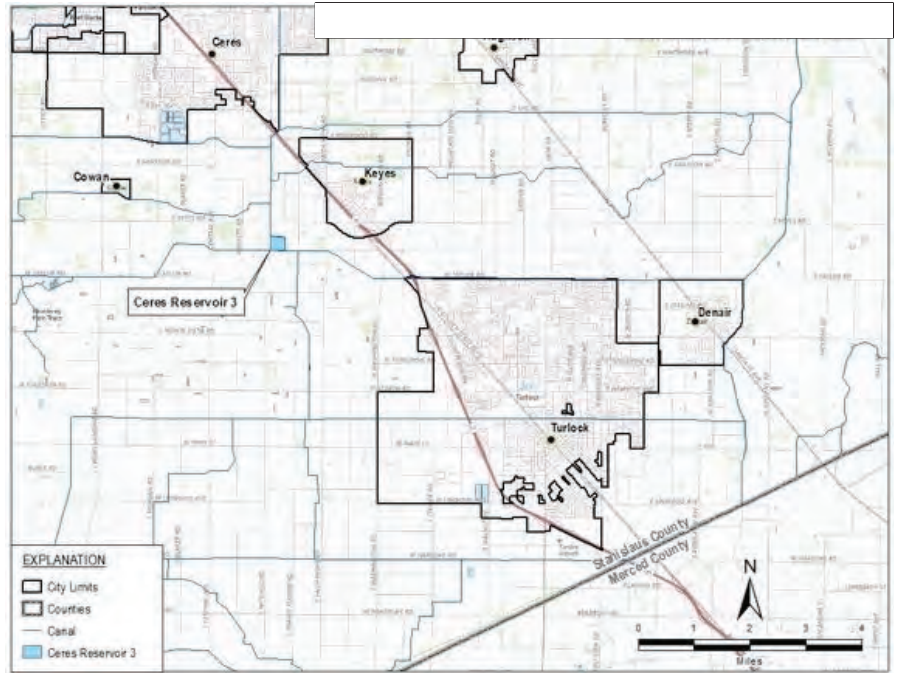
B. Project Location

The proposed Ceres Main Regulating Reservoir is to be constructed on a 38-acre (TID owned) parcel adjacent to the Ceres Main Canal and the Lower Lateral 3 (LL3) Canal, a quarter of a mile south of Keyes Road and a half mile west of Prairie Flower Road, east of the Township of Keyes in Stanislaus County, California. The region is largely agricultural and subdivided into approximately 40-acre parcels and are planted with primarily almond trees. The approximate centroid of the Project site is latitude 37°32’37.61” North and longitude -120°56’11.49” West. Figure 1 below shows a Project Map relative to the surrounding region.

C. Technical Project Description

The Project site is a 38-acre parcel owned by TID, and the Project proposes to construct an open regulating reservoir (and related supporting facilities) to serve as a surface water regulation and storage facility. The Project will capture operational fluctuations from the Ceres Main Canal during periods when supply exceeds demand and returning these flows back into the Ceres Main and LL3 Canals during water shortages in the downstream canal system.

TID had a geotechnical engineering investigation performed at the project site and completed a reservoir operations model and design plans that recommend the following scope of work: The Project will include removal of the previous property owner's irrigation facilities, and the top one foot of native soil. After clearing and grading the entire site, the reservoir will be constructed by creating compacted earthen fill embankments (using a portion of the native cut material) near the site perimeter. The interior banks and floor of the reservoir will be lined with 3-inch thick fiber reinforced concrete. A 30 foot (ft) x 40 ft (electrically powered) pump station will be constructed at the southeast corner of the site, adjacent to and partially over a 12,400 square foot (sq. ft.) depressed sump area in the reservoir interior. One 72-inch diameter reinforced concrete inlet pipe will run from the adjacent 18-ft by 41-ft reinforced concrete inlet/outlet structure on the Ceres Main Canal to the north side of the pump structure and discharge water into the depressed sump area. Four 30-inch diameter steel and PVC pump lines will carry water from the pump station and discharge water into the Ceres Main Canal on the south side of the inlet/outlet structure. A separate 30-inch diameter steel and PVC pump line will run approximately 130 ft south from the pump station to an existing reinforced concrete canal structure below Drop 1 on the LL3 Canal at the southern border of the parcel. Four existing in-canal level control structures, known as drop structures, will also be automated with flume gates, and telemetry to facilitate Project operations. A copy of the Design Plans for this project is included in Appendix D. The entire site will be secured by the construction of an approximately 5,000 ft long chain link perimeter fence. The Project proposes to have a design operational storage capacity of 220 AF, a maximum storage capacity of 253 AF, and a design inflow/outflow capacity of 100 cubic feet per second (cfs). The inlet/outlet structure includes a broad crested spillway capable of passing 100 cfs from the reservoir to the Ceres Main Canal if design water storage levels are exceeded by more than 1 foot.



D. Performance Measures

The main performance measure chosen for the Project is the water savings benefit quantified through spillage reduction using the Agricultural Water Management Council (AWMC)

guidelines prepared for the CALFED Bay Delta Water Use Efficiency program (AWMC, 2007)¹. This methodology quantifies spillage reduction by comparing the average “without-project” spillage to the average “with-project” spillage from canals benefitted by the reservoir. Average “without-project” spillage represents the estimated future spillage that would occur if the project were not constructed, while average “with-project” spillage represents the estimated future spillage that would occur (all else the same) after the project is constructed. The reduction in spillage thus denotes water savings results from only the effects of the Project. More details regarding the methodology for this calculation are provided in Appendix E. This performance measure will utilize spillage data from TID’s existing measurement devices and sophisticated Supervisory Control and Data Acquisition (SCADA) system. Hourly or daily spillage data are available at all spillage sites in recent years, and will be available to monitor and quantify future project benefits.

After the project is implemented, water savings will be quantified at spill sites benefitted by the Project (Ceres Main and Lower Lateral Canals) as the difference between the average without-project spills (reported in Table 1 (below) by year type, whether normal or dry) and the with-project spills measured that year (expected to vary by year type).

An additional benefit that could be realized after the construction of the Project is operational **cost savings to TID**. The expected operational cost savings is the difference between the operating cost of the Project and the avoided cost to pump an average of **10,000 AFY** of groundwater annually, which would no longer be required with Project implementation. TID will monitor the actual water savings realized by the Project to calculate the avoided expenses of pumping additional groundwater during times of drought. TID will then subtract the Project’s actual operating costs from the actual avoided groundwater pumping costs to determine the Project’s overall operational cost savings.

E. Evaluation Criteria

E.1.1. Evaluation Criterion A — Project Benefits

How will the project build long-term resilience to drought? How many years will the project continue to provide benefits? The Project is expected to provide multiple benefits that support TID’s long-term drought resilience by (1) capturing and conserving spillage of surface water for beneficial uses in TID, including irrigation and recharge, and (2) enhancing the operation of TID’s canal system, thereby enhancing irrigation service and promoting surface water use by TID’s irrigation customers. These benefits are each expected to support direct and in-lieu groundwater recharge and sustainable operation of the underlying groundwater subbasin.

TID’s conjunctive management of surface water and groundwater supports drought resilience in all years by promoting the use of surface water to enhance groundwater recharge in wet and “normal” years when TID’s surface water supplies are sufficient to deliver a full quantity of available water to customers (48 inches per acre), and offsetting pumping during “dry” years when surface water supplies are constrained and available water is reduced (less than 48 inches of water per acre). When surface water supplies are constrained, TID and its customers rely on groundwater pumping to meet irrigation demands. Approximately 18% of TID’s supplies are

¹ Agricultural Water Management Council, 2007. Spillage Reduction Monitoring and Verification, August 2007.

provided by groundwater pumping (1991-2019 average; see Table 4.2 in Appendix B). During drought conditions, when surface water supplies are more constrained, this percentage increases. For example, in 2015 (a historically dry year) groundwater comprised 38% of TID's annual water supply portfolio. Past droughts in the 1970s and 1980s have seen groundwater pumping account for as much as 56% and 67% of TID's water supply portfolio. TID developed its drought conjunctive management plan in response to these increased volumes of groundwater used in the 1976-1977 and the 1987-1992 droughts.

TID's drought resilience is impacted by increased groundwater pumping in neighboring areas, including Eastside Water District, that has led to a decline in groundwater levels along TID's eastern boundary over the last few decades. As part of local groundwater sustainability planning, the Eastside Water District is looking to TID to supply much needed groundwater recharge to stabilize their portion of the local groundwater basin. Every drop of surface water that can be saved and used for direct or in-lieu groundwater recharge is important to achieving and maintaining groundwater sustainability and supporting local drought resilience.

It is worth noting that in 2015, TID self-performed construction of the Lateral 8 Regulating Reservoir to conserve water normally spilled from the Highline Canal and use it to improve customer service along the Lateral 8 Canal. The reservoir, along with the Lateral 8 Total Channel Control Project, was so successful at capturing spillage and improving irrigation service to agricultural producers that TID expanded the storage capacity from 29 AF to 130 AF in 2016 to allow even more water to be captured and utilized on both the Lateral 8 and Lateral 7 Canals. The Lateral 8 Regulating Reservoir has, to date, saved an average of 6,400 AFY since 2015. As stated in the 2020 AWMP, "TID continues to work to accommodate agricultural producers' evolving needs. Real-time SCADA monitoring of canal system flows, water levels, and spillage by Water Distribution Operators has allowed TID to improve flexibility to water users while maintaining distribution system efficiency."

By recovering operational fluctuations in surface water from the Ceres Main Canal and storing those in a regulating reservoir, the Project is estimated to save an average of **10,000 AFY**. This translates to an average reduction of **10,000 AFY** of groundwater pumping and water surface diversions needed every year, providing this magnitude of benefit to support drought resilience. Some water saved by this Project would be stored and used to support deliveries and enhance surface water supply availability during prolonged drought, offsetting some demand for groundwater pumping downstream of the Project. Some water savings would also reduce surface water diversions, retaining that water in other TID storage facilities, like Don Pedro Reservoir, and allowing that water to be used later for beneficial purposes.

The Project is expected to continue to provide this benefit every year of its expected life. According to TID's 2019 Draft IFMP, the expected life of the reservoir lining is 50 years; pumps and appurtenances approximately 25 years. Therefore, with proper maintenance (and pump replacements as needed), the Project can be expected to provide benefits for up to 50 years.

Will the project make additional water supplies available? Yes, the Project is expected to save an average of **10,000 AFY** by capturing and storing spillage from the Ceres Main and Lower Lateral Canals (Table 1). The Project is strategically located along the Ceres Main Canal, where

much of the system's operational fluctuations converge and where more than half of TID's spillage occurs (58%, 1991-2019 average). Spillage from the canal system is no longer available for beneficial use within the TID irrigation service area; thus, conserving spillage makes additional water supplies available for TID's customers and other beneficial uses.

While the Project will potentially reduce spillage from all Lower Lateral Canals, the **10,000 AFY** estimate conservatively assumes that the Project will operate only during the irrigation season and that, at minimum, the Project would only conserve spillage from the Ceres Main and two Lower Laterals downstream of the reservoir (Lower Lateral 4 and Lateral 4.5). The actual annual benefits would be determined through monitoring following Project implementation using TID's existing SCADA-integrated measurement sites at all spills.

The **10,000 AFY** estimated average volume of additional water supply made available by this project was quantified and validated through two approaches, both summarized in Table 1:

- 1) **AWMC Spillage Reduction Methodology:** Comparison of "without-project" spillage (over representative conditions without the project) versus "with-project" spillage (over the same representative conditions, but with the project), as described in **Performance Measures**, following AWMC guidelines prepared for the CALFED Bay Delta Water Use Efficiency program (AWMC, 2007) and the related verification-based planning methodology developed by Burns, et al. (2000)². Spillage reduction at each spill site was estimated based on historical flow analyses and typical spillage reductions for a regulating reservoir as identified by AWMC (2007) and Burns, et al. (2000) (70-95% reduction along the canal containing the reservoir, 30-50% for downstream canals). Estimated reductions in this analysis (85% average reduction on Ceres Main, 12% average reduction on Lower Lateral 4 and Lateral 4.5) are within this range or lower.
- 2) **TID Reservoir Operations Model:** Development of a reservoir operations water balance model based on the actual project design criteria and proposed project operations. Please refer to Appendix F for the 2021 Reservoir Operations Model and supporting documentation provided by TID.

All estimates are calculated based on measured and recorded spills between 2010-2020, a recent period that contains both wet (2011 and 2017) and dry years, including a significant multi-year drought (2012-2016). The canal operations during this period are also representative of future canal operations. Confidence in the **10,000 AFY** savings estimate is supported by the close agreement between these two independent estimates of average annual projected savings. Further support is provided by analyses reviewing actual spillage reduction data for the TID Lateral 8 Reservoir and Total Channel Control Project. As described above in the "Performance Measures" section, the average without-project spillage values in Table 1 also provide a basis for quantifying actual, future with-project benefits once the project is implemented.

² Burns, J.I., G.G. Davids, A.K. Dimmitt and J. Keller. 2000. Verification-based planning for modernizing irrigation systems in Irrigation and Drainage in the New Millennium. USCID. Denver. pp. 51-63.

Table 1. Ceres Main Regulating Reservoir Operations Model Results Summary

Summary Analysis Period ¹	Year Type TID Available Water ²	AWMC Spillage Reduction Methodology			TID Reservoir Operations Model
		Without-Project Spillage (AFY)	With-Project Spillage (AFY)	Projected Savings (AFY)	Projected Savings (AFY)
Average 2010-2020) ¹	All Years	15,500	5,500	10,000	10,200
	Normal Years	24,200	8,300	15,900	13,400
	Dry Years	8,200	3,100	5,100	7,600

¹ Analysis Period considers spillage only during the irrigation season. Period from 2010-2020 is considered to be representative of a 10-year period containing both wet and dry years, and years of significant drought that are expected to provide a realistic estimate of potential Project water savings under future drought conditions.

² In “normal” years, 48 inches per acre of “available water” are available to TID’s customers. In “dry” years when surface water supplies are constrained, less than 48 inches per acre of “available water” are available to customers.

What percentage of the total water supply does the additional water supply represent? How was this estimate calculated? Table 4.3 of the TID 2020 AWMP (Appendix B) shows that the average total surface water supply between 1991-2019 was 480,000 AFY, a period representing wet and dry years. Since the Project is expected to generate an additional water supply of an average of **10,000 AFY**; simple mathematics (10,000/480,000) reveals that the additional water supply represents over 2% of the total surface water supply.

Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies. According to the Project Mitigated Negative Declaration (MND , AWMP and other documents; in addition to supporting water conservation by saving an average of **10,000 AFY** in surface water spillage that is otherwise not available for use in the TID service area; the proposed Regulating Reservoir Project will:

- Reduce groundwater pumping and surface water diversions in the drought stricken areas of Central California
- Improve Water Quality
- Improve operational flexibility
- Improve customer service through stable flow rates

Will the project improve the management of water supplies? Yes, the project will improve the management of water supplies by increasing efficiency and operational flexibility. It will also facilitate water marketing by improving the ability to deliver water during drought or access other sources of supply. The Project is expected to:

- Reduce TID’s dependence on groundwater pumping, particularly in dry years, thereby reducing negative impacts to the environment and the community
- Provide increased flexibility in the distribution system for more timely water delivery to agricultural producers
- Increase surface water supplies for water delivery during drought

If so, how will the project increase efficiency or operational flexibility?

Due to persistent drought conditions in the area, the ability to create any additional water supplies is extremely significant to TID, and the Central Valley. The proposed reservoir would serve as a surface water regulating and storage facility; capturing operational fluctuations in the canal system, that would otherwise be unavailable for use in the TID service area. The Project captures these operational fluctuations, stores them in the Reservoir, and returns them back into the Ceres Main and Lower Lateral Canals for downstream users during water shortages in the canal system.

The temporary storage of these operational fluctuations in a regulating reservoir allows for greater operational flexibility by allowing the TID to control the release of this supply to maintain a more consistent and reliable irrigation flow downstream of the Reservoir without utilizing groundwater pumping to make up deficits. Historically, the predominant irrigation practice in the TID service area has been a basin-check flood irrigation system. However, in the last decade, the trend has been to adopt micro sprinkler and drip irrigation systems which produce better yields for orchard crops.

According to Section 2.2.1.3 of the AWMP, this “recent shift in irrigation methods is expected to continue and presents some challenges for TID operations. Drip and micro sprinklers generally require lower flow rates and longer irrigation durations in comparison with flood irrigation systems. With a large number of these systems operating concurrently in a canal system the severity of the operational fluctuations in the canal increases enormously over large individual flood irrigations. Regulating reservoirs, such as the proposed project, offer an effective method of reducing fluctuations in the canal caused by the increase in sprinkler and drip systems and thus reducing the associated operational spills.”

What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated? The estimated water savings resulting from the Project is an average of **10,000 AFY**, allowing for better management of this quantity. As stated previously, this estimate was calculated based on two methodologies the AWMC Spillage Reduction Methodology, and the TID Reservoir Operations Model (Appendix F)) using the actual project design criteria and proposed Project operations models, and measured and recorded spills between 2010-2020. This period represents both wet and dry years, significant drought, and TID operational procedures that are expected to be typical of future 10-year periods. This is as realistic an estimate as it is possible to make, not knowing future water conditions over the next 10 years. In addition, the project will allow TID to better manage water deliveries to several thousand acres of farmland that together receive a ten-year average of 93,000 AFY. Specifically, the Project will allow TID to provide a more consistent and more reliable delivery of 93,000 AFY to its customers. As a result, TID’s customers can more effectively plan for and more efficiently use their water deliveries.

Will the project make new information available to water managers? If so, what is that information and how will it improve water management? Since 1998, the TID has utilized a sophisticated SCADA system to monitor and record measurements of system flow and water quality to better understand the quantity and quality of water within the canal system. The data is also useful in determining how canal water quality changes as a result of different operational scenarios. The SCADA system has been continuously updated/improved with current

technology; today TID collects water measurement data from 397 SCADA collection points including flows at the heads of most laterals, main diversion points, intermediate points in the distribution system, 137 customer turnouts and at 14 operational spill sites.

Through SCADA, the Project will make new information available to and shared by water managers, including real time water levels and flow rates at 4 new locations on the Ceres Main Canal as well as information on water resource availability in the Reservoir itself. This will give water managers quicker and more accurate control over the Ceres Main Canal and the Lower Lateral Canals, which have also had their headings automated in recent years to allow for remote operation. This level of real time information on the canal system, coupled with the flexibility of local storage provided by the reservoir, will allow managers to respond quickly to unplanned water surpluses and deficits. This will enable more consistent and reliable water deliveries as well as reducing spillage.

E.1.2. Evaluation Criterion B — Sustainability and Supplemental Benefits

1. Climate Change:

In addition to drought resiliency measures, does the proposed project include other natural hazard risk reductions for hazards such as wildfires or floods? By constructing a regulating reservoir TID will have the ability to not only store water in the event of operational fluctuations but will also be able to reduce the impacts of a flooding event by diverting excess flows into the Ceres Main Regulating Reservoir. Additionally, increased water conservation can be utilized for firefighting purposes as needed.

Does the proposed project include green or sustainable infrastructure to improve community climate resilience such as, but not limited to, reducing the urban heat island effect, lowering building energy demands, or reducing the energy needed to manage water? Does this infrastructure complement other green solutions being implemented throughout the region or watershed? The majority of agricultural producers in TID's service area rely on a combination of surface water supplemented by groundwater pumping when surface water flows are reduced or not available. Given the ongoing drought conditions in California and specifically the TID's service area, TID agricultural producers are having to rely more and more on groundwater pumping through primarily electric powered wells. The Project will provide an average of **10,000 AFY** of water that would otherwise be lost due to operational spills. This conserved water would be able to reduce the need for groundwater pumping or additional surface water diversions during drought events which would reduce the energy needs from pumping. TID is also considering installing floating solar panels over the reservoir upon completion of the Project, which will help reduce evaporative losses as well as produce green energy.

Will the proposed project establish and use a renewable energy source? TID is also considering installing floating solar panels over the reservoir to help reduce evaporative losses as well as produce green energy upon completion of this Project.

Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution? As noted in the AWMP, TID practices resource stewardship as one of strategies to mitigate climate change impacts. TID supports stewardship of surface water and groundwater supplies, as evidenced through its comprehensive conjunctive management program, watershed

monitoring programs, development of the Tuolumne River Management Plan, and active engagement in Groundwater Sustainability Plan (GSP) development for the Turlock Subbasin, among other efforts. The proposed Project in one of the listed strategies to support the goals of the AWWP. The water savings from this project will offset the need for additional surface water diversions, which will help prevent potential increase in salinity and algal production, less dilution and reduced oxygen levels.

In addition, this project will reduce groundwater pumping to the canal system and replace it with better quality surface water such that will be better quality than what is currently observed from groundwater testing.

Will the proposed project reduce greenhouse gas emissions by sequestering carbon in soils, grasses, trees, and other vegetation? Yes, the Project will save an average of **10,000 AFY** of surface water for irrigation purposes that would otherwise be lost from the canal system. This water will go to agricultural uses which grow carbon sequestering trees and crops.

Does the proposed project have a conservation or management component that will promote healthy lands and soils or serve to protect water supplies and its associated uses? Yes, the

proposed project will protect water supplies by saving an average of **10,000 AFY** of surface water for irrigation that would otherwise be lost from the canal system. This conserved water will be used for agricultural production and will ultimately reduce groundwater pumping in the groundwater basin. In September of 2014, the State of California voted to implement the Sustainable Groundwater Management Act (SGMA) in response to groundwater depletion and the destruction of aquifers due to subsidence caused by over-pumping. SGMA requires that all local Groundwater Sustainability Agencies (GSAs) adopt Groundwater Sustainability Plans (GSP) by January 31, 2022. GSPs will serve as the guiding planning documents for all groundwater sustainability project planning. As part of the strategies noted in the AWWP, TID practices resource stewardship as one of strategies to mitigate climate change impacts. As part of this measure, the District intrinsically supports the stewardship of agricultural lands within and surrounding its service area through its irrigation operations and resulting groundwater recharge.

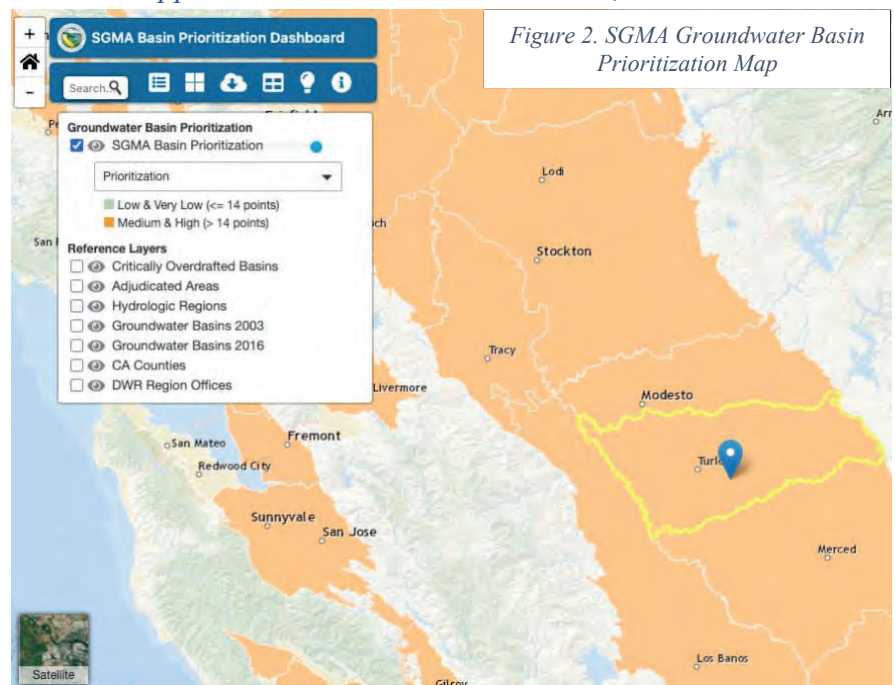


Figure 2. SGMA Groundwater Basin Prioritization Map

As depicted in Figure 2, TID overlies the San Joaquin Valley Basin which is identified as a High-Priority Basin by the California Department of Water Resources' Sustainable Groundwater

Management Basin Prioritization Model. This means that groundwater resources are being rapidly depleted in the San Joaquin Valley Basin and irrigation districts that overly the basin must reduce groundwater pumping to reduce subsidence that is currently threatening local aquifers. Although the GSP and its identification of groundwater management practices is not yet finalized, the Project directly benefits the local groundwater basin by conserving local groundwater resources.

Does the proposed project contribute to climate change resiliency in other ways not described above? Both the TID DMP and AWMP discuss Climate Change. In fact, the AWMP devotes an entire section to climate change which is found in Section 6 of the AWMP. The proposed project provides benefits that are consistent with many TID “Strategies to Mitigate Climate Change Impacts” identified in the AWMP including: 1) Reduce water demand, 2) Improve operational efficiency and transfers, 3) Increase water supply, 4) Improve water quality, 5) Practice resource stewardship: agricultural lands, aquatic life and habitat, surface and groundwater supplies, 6) Support long term/ regional water management planning, 7) Aggressively increase water use efficiency, and 8) Expand water storage and conjunctive management.

2. Disadvantaged or Underserved Communities:

Will the proposed project serve or benefit a disadvantaged or historically underserved community? The Project will provide significant benefits resulting from an estimated average water savings of **10,000 AFY** including establishing a new water supply, generating economic savings, creating economic growth opportunities and reduced environmental impacts. The project will positively impact all customers of the TID, including those that are considered a disadvantaged community, which is ~ 37% of the population within TID’s service area.

If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the applicable state criteria or meets the definition in Section 1015 of the Cooperative Watershed Act.

The proposed Project will supply more economical, efficient and environmentally friendly irrigation water to serve and benefit a disadvantaged or historically underserved community, as well as creating economic growth opportunities. Below is a list of cities served by the TID, their average [median household income](#) and their populations as of 2020.

Table 2. TID Local City Populations

City Name	Population	MHI
Turlock	74,101	\$59,681
Ceres	49,038	\$58,667
Keyes	6,548	\$51,494
Denair	5,101	\$71,277
Hughson	7,619	\$79,455
Delhi	12,301	\$71,277
Modesto	216,810	\$59,287
Hickman	712	\$54,028
Hilmar-Irwin	5,755	\$67,426
Total Population	377,985	

Note only south Modesto is served by TID, but for convenience, the entire Modesto population is included below).

In 2020; the annual median household income for the State of California was \$75,235 as per the [U.S. Census Quickfact Tool](#). As you can see in the chart above, the average median household income of each of the above cities (communities) in the TID service area, with the exception of Hughson, is less than the annual median household income for the state. Hughson, with a population 7,619, represents just 2.1% of the total population). **Therefore,**

approximately 37% of the TID service area is considered a disadvantaged community.

3. Tribal Benefits:

Does the proposed project support tribal resilience to climate change and drought impacts or provide other tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities? While there are no tribal communities in the immediate vicinity of the project site, reduced groundwater pumping and water surface diversion will allow increased sustainability of water resources that could benefit other tribal communities using these resources.

Does the proposed project support Reclamation's tribal trust responsibilities or a Reclamation activity with a Tribe? This is not applicable to this Project.

4. Ecological Value:

Does the project seek to improve ecological climate change resiliency of a wetland, river, or stream to benefit to wildlife, fisheries, or habitats? Do these benefits support an endangered or threatened species? Yes, the Project will implement a regulating reservoir which will allow TID to conserve an average of **10,000 AFY** of water that would otherwise be lost to operational spills. This will allow TID to reduce its groundwater pumping or divert less surface water during times of drought when wildlife, fisheries, and habitats need the water the most. Rivers in the Central Valley are home to several endangered species such as the Chinook Salmon and Steelhead Trout and their survival depends on maintaining a sustainable hydrologic system. Water generated from this project could potentially be used for this purpose.

What are the types and quantities of environmental benefits provided, such as the types of species and the numbers benefited, acreage of habitat improved, restored, or protected, or the amount of additional stream flow added? How were these benefits calculated? As noted in the AWMP, TID practices resource stewardship as one of strategies to mitigate climate change impacts. As part of this measure, TID participates in studies of aquatic life and habitat to better understand potential impacts of climate change. While this Project is not directly implementing environmental measures, conserving water resources will have significantly positive impact on preserving the long-term habitats for fish and wildlife by optimizing water management.

Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status? This Project will conserve water resources allowing TID reduce groundwater pumping or reduce surface water diversions. Any reduction in water waste from TID will ultimately benefit the species in the San Joaquin River and Tuolumne River. The Project will indirectly benefit endangered species like the Chinook Salmon and Steelhead Trout. Additional water will help preserve the habitat for endangered species that they depend on for survival and improvements in their status.

5. Other Benefits:

Will the project assist States and water users in complying with interstate compacts? This is not applicable to this Project as TID does not maintain any interstate agreements.

Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)? The Project will provide direct benefits to TID's agricultural producers that rely on consistent water resources to irrigate their crops. Considering California is the largest agricultural producing state in the [United States](#), ensuring that agricultural producers have adequate water supplies has a number of economic and health benefits for the entire United States. Therefore, any additional water savings within TID will provide agricultural producers in TID's service area more reliable water supplies and thus more reliable agricultural output.

In addition, California's water systems are widely interconnected. Many municipalities throughout California rely on water resource from the Central Valley from the State Water Project (SWP) and other canals. Considering the interconnectedness of California's water systems, TID works in coordination with the City and County of San Francisco, San Joaquin Tributaries Authority (SJTA) and the East San Joaquin Water Quality Coalition (ESJWQCL) as well as various water committees and groups forming at the county and state levels. Each authority and association are involved in activities that relate to different aspects of TID's water management activities. TID has been leading the collective efforts by coordination with other regions to ensure availability of water resources for agricultural and other users. Therefore, any water savings within TID's service area will result in benefits to a variety of users throughout the region and California. Additionally, TID coordinates with various local state and federal agencies as outlined in the DMP.

Will the project benefit a larger initiative to address sustainability of water supplies? TID is a member of the West Turlock Subbasin Groundwater Sustainability Agency (WTSGSA). As a member of this agency, TID works with other agencies and stakeholders within the Turlock subbasin to comply with the SGMA. TID and other agencies in the sub basin work together to develop the tools needed to achieve long term groundwater sustainability by identifying additional ways to maximize local water supplies, enhance conjunctive management practices and recharge the water system. Surface water supplies are also a crucial component of the district's conjunctive use program. Section 10608.48 of the CWC describes sixteen Efficient Water Management Practices (EWMPs), including one to "construct regulatory reservoirs."

E.1.3. Evaluation Criterion C — Drought Planning and Preparedness

Since its formation in 1887 and as the first irrigation district formed in California, TID has faced variability in surface water supplies due to drought. This variability in supply availability led to the development of TID's current water shortage allocation policies. These policies have been developed in response to the 1976-1977 drought (the most severe two-year drought in TID) and to the 1987-1992 and 2012-2016 droughts (the most severe and longest droughts in California's recorded history). Given the severity of the 2012-2016 drought and the continued impacts, drought is considered to be the archetypal for planning purposes in TID. A key aspect of TID's drought management policy is to plan for carryover storage and strategic, conjunctive management of surface water and groundwater supplies for a period of forecasted consecutive dry years. DMP Drought Resilience Opportunities and Constraints Section (page G-7 of the AWMP) refers to the AWMP Section 7 - Efficient Water Management Practices that describes the actions that TID is planning to take to accomplish more efficient water management. The actions are organized in EWMPs. The proposed project is listed as Item 10608.48.c(5).

Attach a copy of the applicable drought plan, or sections of the plan, as an appendix to your application. These pages will not be included in the total page count for the application. The 2020 TID Drought Management Plan (DMP) is included in this application as Appendix C.

Explain how the applicable plan addresses drought. Proposals that reference plans clearly intended to prepare for and address drought will receive more points under this criterion. Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process? As noted in the Introduction, the DMP “builds upon TID’s longstanding shortage allocation policies and describes drought resiliency planning actions undertaken to prepare for drought, along with a broad range of actions undertaken during that drought to manage available water supplies and to meet customer demands to the maximum extent possible. The TID 2020 DMP describes actions and measures taken to manage water demand during drought conditions.

The 2020 DMP includes all components that are required by CWC 10826.2 and recommended by the Dept. of Water Resources (DWR) in its 2020 AWMP Guidebook. Additionally, the 2020 DMP reflects the impacts of the 2012-2016 California drought. The DMP describes TID’s drought resilience and drought response planning efforts organized as follows: 1) Drought Resilience Planning, 2) Drought Response Planning, and 3) Evaluation of the 2012-2016 drought and its impact on TID water supply and demand.

TID holds joint water rights and ownership of Don Pedro Reservoir with the Modesto Irrigation District (MID). As such, the districts (TID and MID) continuously work together to coordinate and manage the shared resource. Additionally, TID maintains close relationships with irrigation districts on other tributaries of the San Joaquin River and, through those relationships, is able to share information regarding successes and challenges to help shape irrigation programs. TID works and coordinates with the City and County of San Francisco, SJTA, the ESJWQC, as well as various water committees and groups forming at the county and state levels. Each authority and association is involved in activities that relate to different aspects of the District’s water management activities. The DMP was developed through a collaborative process which is detailed on page G-16 of the DMP.

In addition, TID has created a dedicated webpage for Drought Resources ([Drought Resources - Turlock Irrigation District \(tid.org\)](http://DroughtResources-TurlockIrrigationDistrict.tid.org)) that communicates updated information about water supply and reservoir conditions, and current agency projects to deal with drought that lists Ceres Regulating Reservoir.

Does the drought plan include consideration of climate change impacts to water resources or drought? On April 1, 2015 Governor Brown issued Executive Order B-29-15, mandating agricultural water suppliers to include a detailed DMP describing actions and measures taken to manage water demand during drought in the 2015 AWMP update. Analysis of climate change impacts and its effect on future water supplies is fully discussed in Section 6 of the AWMP and continues to Drought Management Plan in Appendix C. This section discusses potential impact of climate change on water supply, demand, quality and discusses strategies to mitigate the

impacts and on-going preparedness efforts. The DMP provides guidance to TID to plan for more frequent drought conditions due to climate change.

Describe how your proposed drought resiliency project is supported by and existing drought plan. Does the drought plan identify the proposed project as a potential mitigation or response action? DMP Drought Resilience Opportunities and Constraints section provides information about its successful projects including the Lateral 8 project along with others. In this section, DMP utilizes Section 7 of the AWMP- Efficient Water Management Practices that describes the actions that TID is planning to take to accomplish improved and more efficient water management. These actions are organized in EWMPs. Item 10608.48.c(5) refers to completion of land purchase, environmental and design processes of the Ceres Reservoir and “Potentially constructing the reservoir, depending on funding”. Submittal of this application is in direct alignment with the action plan for implementation of the Project.

Does the proposed project implement a goal or need identified drought plan? The DMP’s evaluation of prior efforts emphasize several effective best practices including:

- Conjunctive management of surface water and groundwater supplies in all years: that this project supports.
- Affordable irrigation water rates, and tiered pricing based on water supply availability: This projects allows for an efficient use of additional water supply, assisting in operational efficiency to benefit the TID’s customers.

The Project is directly in line with both of these goals as it provides additional water savings thereby enabling TID to maintain affordable water rates.

Describe how the proposed project is prioritized in the referenced drought plan? The DMP utilizes the AWMP and the EWMP to reference the projects to mitigate drought related impacts and as noted the Ceres Main Regulatory Reservoir has been on the EWMP list of priority projects prior to 2015 with specific goals for completion of its environmental and design documents that have now been accomplished. As noted in the EWMP item 10608.48.c(5), the current priority for this project is funding for construction of the project.

E.1.4. Evaluation Criterion D — Severity of Actual or Potential Drought Impacts to be addressed by the Project

Describe the severity of the impacts that will be addressed by the project:

What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken and how severe are those impacts? According to the [U.S. Drought Monitor](#), Stanislaus County (project area) is currently experiencing an "Exceptional Drought Area" D4 status, the highest category on the Drought Monitor and is now on the 2021 declared Drought Emergency Area by the Governor of California. This current drought began as a D1 Moderate Drought in January 2020; less than 3 years after California’s historic 2012-2016 drought (which included the driest period in California’s recorded history) and has continued in progressive severity since that time. “Exceptional Drought Area” is characterized as widespread water shortages or restrictions; widespread crop and pasture losses; shortages of water supply in reservoirs, streams and wells.

The proposed Project is intended to help provide drought resilience to the project area. If no such action is taken, we have a reasonable expectation of what these impacts might be, based on what the project area actually experienced during the 2012-16 drought. Those impacts were severe, and included the following:

Agriculture: The climate and soils in the TID service area are suitable for a wide variety of crops and approximately 40 different crops were grown during the 29 years from 1991 through 2019. The TID service area covers a gross area of 197,261 acres, with approximately 148,000 acres that can currently be irrigated with surface water. Water supply reliability is required to support permanent crops and crops supplying local dairies that require a steady water supply year after year. Permanent crops and crops that could be used to support local animal production together span approximately 130,000 acres, or approximately 96% of irrigated land within the TID service area. Table 3.1 of the AWMP provides detailed information about crop receiving TID surface water.

The Tuolumne River provides the principal water supply for irrigation within TID. Don Pedro Reservoir is located on the Tuolumne River and is TID's principal storage reservoir, with a total capacity of 2,030,000 AF and a dead pool storage of 309,000 AF. Don Pedro Reservoir is jointly owned by TID and MID (68.46 percent TID and 31.54 percent MID), providing 1,178,197 AF of usable storage capacity to TID. TID operates the reservoir for the two districts.

Faced with a worsening drought emergency, the State Water Resources Control Board (SWRCB) announced moving ahead with curtailment orders to stop some diversions from rivers and deal with severe water shortages that is highly protest. This fact alone, indicates the severity of drought impacts on the service area and its customers. California drought has had a devastating impact on all aspects of the state. In 2015 alone, the economic impact of the drought to agriculture in California was an estimated \$2.7 billion and 21,000 total job losses, according to a study from the University of California-Davis. **Agricultural losses from the historic 2012-2016 drought were in excess of \$3.8 billion in California.** As it is demonstrated, the livelihood of the service area depends on careful drought planning measures such as the proposed project. Drought impacts on the agricultural customers will have dominating effects on the cost of crop and inflation in food prices for the State.

Hydropower: Hydroelectric power from dams usually provides about 15% of California's electricity needs. In 2015, at the zenith of the worst drought in California's recorded history, it supplied only 6%. That loss in electricity generation during the 2012-16 drought cost PG E and other California utilities about \$5.5 billion, a new study says. As California's climate becomes more prone to severe droughts, the findings point to future costs that utilities and ultimately ratepayers will likely be forced to bear. The hefty price tag highlights two effects of last decade's drought: the decreased supply of cheap power and the increased consumer demand for electricity. Several consecutive years of below-average Sierra Nevada snowpacks and parched reservoirs resulted in hydroelectric dams operating far less than normal, as high temperatures associated with the drought caused energy use to skyrocket when [Californians demanded more energy to combat the high temperatures](#). Reduced energy usage for water pumping of an average 10,000 AFY will save the energy for the high demand needed to respond to drought impacts.

Recreation and Tourism: Tuolumne River and the Turlock Lake, provide an ideal setting for water-oriented outdoor activities. The recreation area features the lake with its 26 miles of shoreline and the foothill country leased from the TID in 1950. The City of Turlock Economic Development Strategic Plan states that there is no natural local attraction to draw visitors, other than the Turlock Lake. These recreational opportunities have been providing ideal destinations for visitors that has been an economic vehicle for the disadvantaged community of TID. Drought impacts on water levels and consequent management of the lake will result in reduction of recreational and tourism activities with a direct economic impact on the local community.

Environment: The lost hydropower (mentioned above) was made up with the purchase and combustion of additional natural gas. The electricity ratepayers spent nearly an additional \$2 billion to purchase natural gas over the drought period, which resulted in an additional 13 million tons of CO₂ emitted into the air— about a 10 percent increase in total annual CO₂ emissions from California power plants, thus having a detrimental impact on the state’s **air quality**. The impact on the environment due to recent drought conditions has been tremendous. According to the Pacific Institute, many of the state’s environmental flows went unmet during the drought period, **affecting aquatic ecosystems** and decreased protections for endangered species. The recent drought has **caused losses or destruction of fish and wildlife habitat, loss of wetlands, more wildfires and lower water levels in reservoirs, lakes, and ponds**. Dry creeks and rivers led **18 fish species to diminish to near extinction**. Wildlife that has historically thrived in urban habitats also struggled to adapt as state and local conservation regulations forced California homeowners to let their lawns and gardens dry and die. A December 2016 study from The Ecological Society of America stated that declining streamflow and the accompanying rising stream temperatures have immediately threatened the provision of drinking water, hydropower generation and **health of ecosystems** that rely on water.

Whether there are public health concerns or social concerns associated with current or potential drought conditions. According to the Centers for Disease Control and Prevention (CDC), severe drought conditions can negatively affect **air quality**. During drought, there is an increased risk for wildfires and dust storms. Particulate matter suspended in the air from these events can irritate the bronchial passages and lungs. This can make chronic **respiratory illnesses** worse and increase the risk for respiratory infections like bronchitis and pneumonia. Some drought-related health effects are experienced in the short-term and can be directly observed and measured. However, the slow rise or chronic nature of drought can result in longer term, indirect health implications that are not always easy to anticipate or monitor.

Other potential **public health and social concerns associated with drought** include:

- Compromised quantity and quality of drinking water
- Diminished living conditions related to energy, air quality, and sanitation and hygiene
- Compromised food and nutrition
- Increased incidence of illness and disease

In addition, reduced water usage in the service area will result in higher dust and related particles impacting respiratory complications.

Whether there are ongoing or potential environmental impacts (e.g., impacts to endangered, threatened or candidate species or habitat). The Tuolumne is one of the State’s premier recreation destinations and a vital wildlife resource. Efforts to revitalize the watershed and to

expand a riparian corridor and restore endangered species such as Chinook Salmon and Steelhead Trout, are now hindered by the drought impacts on the river. The low water levels in CA rivers under the drought conditions, are warmer than the ideal temperature range to fertilize Chinook eggs.

There has been a tremendous environmental impact from the recent drought conditions in California. According to the Pacific Institute, many of the State's environmental flows went unmet during the past drought period, **affecting aquatic ecosystems** and decreased protections for endangered species. The recent drought has caused losses or destruction of fish and wildlife habitat, loss of wetlands, more wildfires and lower water levels in reservoirs, lakes, and ponds. Dry creeks and rivers led **18 fish species to diminish to near extinction**. Wildlife that had thrived in urban habitats also struggled to adapt as state and local conservation regulations force California homeowners to let their lawns and gardens dry and die.

Implementation of the proposed project will allow an average of **10,000 AFY** to be saved by TID thereby reducing the impacts on these fragile species.

Whether there are local or economic losses associated with current drought conditions that are ongoing, occurred in the past, or could occur in the future (e.g., business, agriculture, reduced real estate values). The primary direct economic impact of drought in the agricultural sector is crop failure and pasture losses. These costs are often passed on to consumers through increased prices. Drought, coupled with high temperatures, may expand the distribution and incidence of pests and diseases that affect crops, forage, and livestock. The depletion of water availability in soils causes significant declines in crops and livestock productivity. In addition, surface and groundwater supplies may decline during drought, affecting water availability and increasing costs to access water for crop or forage irrigation and watering livestock. In 2015, drought impacts to California's agricultural sector resulted in \$1.84 billion in direct costs, a loss of 10,100 seasonal jobs, and surface water shortages of 8.7 million AF. **Agricultural losses from the historic 2012-2016 drought were in excess of \$3.8 billion in California.**

Most specialty crops (such as fruits, vegetables, tree nuts, and medicinal herbs) are more vulnerable to drought than field crops and have a higher value per unit of land and water. Therefore, almond orchards may be experiencing a higher risk of economic loss in drought if the crop water demand exceeds water supply.

Additionally, during the recent drought, the state imposed mandatory water restrictions. Ironically, the water rationing measures imposed by the state made the per-unit cost of water higher since the "fixed costs" of the pipes and pumps did not change, but the amount of water sold went down. In order for water districts to recover their costs, they needed to charge the ratepayers more per unit for water, so customer suffered an added economic impact as a result.

Whether there are other drought-related impacts not identified above (e.g., tensions over water that could result in a water-related crisis or conflict). As a result of extreme drought conditions present in California and particularly along the San Joaquin River's tributaries, the SWRCB issued a curtailment order to various water agencies and water districts restricting the amount of

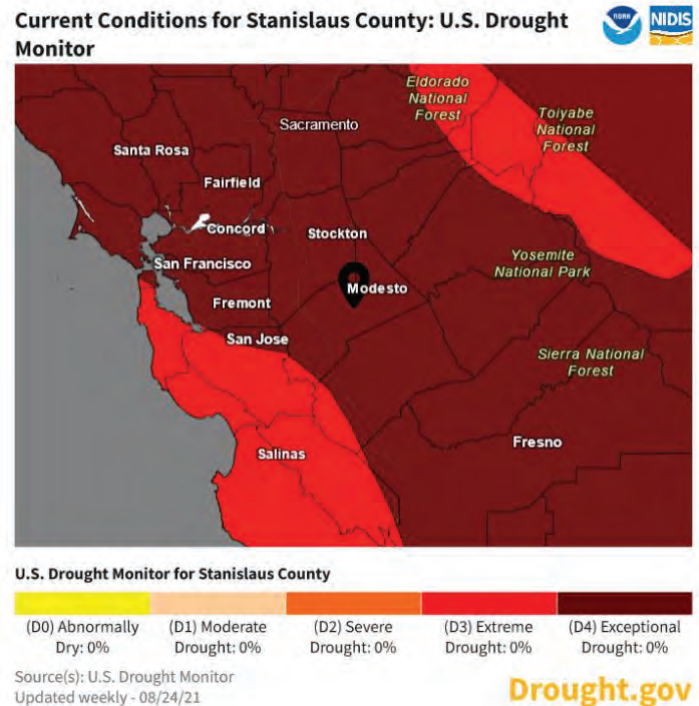
water diverted from the Tuolumne and other San Joaquin river tributaries. This curtailment order severely impacts many water users throughout the State (from Turlock to San Francisco).

Describe existing or potential drought conditions in the project area.

Is the project in an area that is currently suffering from drought, or which has recently suffered from drought? As noted in the AWMP Climate Change section, in the last 25 years, the District has experienced record breaking droughts, floods, and temperature periods compared with the last 100-year record. The Project is located in an area that is currently suffering from severe drought, much like it as has endured for the vast majority of the past nine years. As of May 2021, 93% of the Southwest and California was in drought, with 38% of the State (including Stanislaus County) experiencing Exceptional (D4) Drought. This follows California's historic five-year drought which ended just three years ago, in April 2017. The years 2012- 2015 marked the driest four-year period in 120 years of historical records, along with historic high temperatures.

According to the U.S. Drought Monitor [Stanislaus County](#)) is currently experiencing a D4 "Exceptional Drought", the most severe category on the Drought Monitor. The current drought began 1/28/2020 as a D1 Moderate drought, continued in progressive severity, and is now an "Exceptional Drought Area". Annual trends toward earlier spring melt and reduced snowpack are already affecting water resources in the western United States. These trends are expected to continue. Long-duration hydrological drought is increasingly possible before the [end of this century](#).

Figure 3. Current Drought Conditions for Stanislaus County



Describe any projected increases to the severity or duration of drought in the project area resulting from changes to water supply availability and climate change.

The August 19, 2021, Seasonal Assessment from the National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center predicted that widespread severe Exceptional (D4) Drought will continue across much of the West and will be intensified for parts of California due to above-normal temperatures and lack of sufficient rainfall (i.e. reduced water supply availability). Drought is expected to persist through the end of November 2021. Broad-scale persistence is the most likely outcome since long-term drought impacts are likely to continue beyond November and a drying climatology begins later in the outlook period.

TID actively monitors forecasted precipitation and snow, accumulated precipitation and snow, runoff, reservoir storage, groundwater levels, availability of rented pumps, and instream flows.

Key programs that TID implements to monitor and forecast water supply availability are described in Section 6 of the AWMP and include: Airborne Remote Sensing for Snowpack (ARSS) Program Forecast-Coordinated Operations (F-CO) for the San Joaquin River watershed, and the TID Forecast-Informed Reservoir Operations (FIRO) Program Hydrologic Modeling of the Tuolumne River Watershed using the Hydrocomp Forecast and Analysis Model (HFAM). Additional information sources include DWR snow surveys and other streamflow and groundwater level measurements. These data are incorporated in forecast operations and inform decisions related to water supply availability. Real time flows, water levels, and storage data are also available on the TID website for various sites operated or used.

Snowpack accounts for nearly a third of the state’s water supply. This year, California’s snowpack is at 0% of average for June 1 after a historically dry winter. The most important 154 reservoirs in California are at 67% of capacity, according to the California [Department of Water Resources](#). The reservoirs in Northern California are all below half capacity. Climate change is having a profound impact on California’s water resources, as evidenced by greater weather extremes, reduced snowpack, higher sea level, and changes in river flows. According to annual trends toward earlier spring melt and reduced snowpack are already affecting water resources in the western United States. These trends are expected to continue. Long-duration hydrological drought is increasingly possible before the end of this century. Models predict that more precipitation will fall as rain instead of snow, exacerbating flood risks and creating additional challenges for water supply reliability and are expected to intensify in the future. The drought is primarily a consequence of natural climate variability. Scientists have added that the likelihood of any drought becoming acute is rising because of climate change.

The Intergovernmental Panel on Climate Change (IPCC) has concluded that the warming of the climate system is unequivocal. The period from 1983 to 2012 was likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere (IPCC, 2014). California’s temperature record reflects global temperature trends. The NOAA Climate Divisional Dataset is a long-term dataset used to generate historical (1895-2016) climate analyses for the contiguous United States. In a recent report covering California, within Climate Division 2 (Sacramento Drainage), the long-term record depicts a dramatic shift in annual average temperature. The three years (2014-2017) are [depicted as being some of the warmest and driest years on record](#).

E.1.5. Evaluation Criterion E — Project Implementation

Describe the implementation plan of the proposed project.

This project has completed the preliminary studies, environmental process and preparation of the construction documents. Permit process for the project will be secured prior to July 2022. TID plans to complete the construction of the project by in-house workers and will therefore be ready to start the project as soon as the required NEPA clearance has been obtained.

Table 3. Project Schedule

Estimated Project Schedule			
No.	Task/Milestone	Start Date	Completion Date
1	Environmental Review		May 2021
2	Plans/ Specs Complete shovel ready		Jul. 2021
3	Funding Award Announcement		Jan. 2022

4	Procure Permits	Feb. 2022	Apr. 2022
5	Process NEPA Environmental	Feb. 2022	Jul. 2022
6	Construction Period (28 weeks)	Aug. 2022	Feb. 2023
7	Complete Project		Feb. 2023

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

It is anticipated that the following permits will be required:

- Grading Permit from Stanislaus County. TID has already initiated this process and been advised that simple review and approval is likely, due to location and scope.
- Electrical Permit from TID. Simple process (self-issuance) provides use of licensed electricians and field inspections for construction.
- General Permit (NPDES) from SWRCB for discharges of stormwater. TID has internal QSD staff and will generate and submit the required documentation to SWRCB.
- Permit from the San Joaquin Valley Air Pollution Control District. TID staff are skilled in submitting these applications.

Identify and describe any engineering or design work performed specifically in support of the proposed project. TID conducted Environmental Site Assessments and Limited Subsurface Survey for the proposed reservoir property. TID consultants also performed an AWMC Spillage Reduction Study and completed a Reservoir Operations Model to estimate water savings of the Project. In August 2020; a geotechnical investigation and a groundwater study was prepared by Krazan Associates, Inc. in support of the proposed Project. It is titled “Geotechnical Engineering Investigation/Proposed Basin Sites 3B and 3C/ Warner Road and Prairie Flower Road/Ceres, California and is attached in Appendix G. Engineering Design Plans for the proposed Project were completed in July 2021 and are attached in Appendix D.

Describe any new policies or administrative actions required to implement the project. Prior to project Implementation, the TID Board of Directors are required to approve the project and adopt the CEQA IS/MND that was completed on 5/12/2021.

E.1.6. Evaluation Criterion F — Nexus to Reclamation

Does the applicant have a water service, repayment, or O&M contract with Reclamation? No, TID does not have a water service, repayment, or O M contract with Reclamation.

If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means? No, TID is not a Reclamation contractor, nor does it receive Reclamation water through a Reclamation contractor or by any other contractual means.

Will the proposed work benefit a Reclamation project area or activity? No, the proposed work will not benefit a Reclamation project area or activity.

Is the applicant a Tribe? No, the applicant is not a Tribe.

SECTION 2: PROJECT BUDGET

Standard Form 424 Budget Information C

Submitted separately with all other relevant SF-424 forms.

A. Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.

As it is demonstrated by the prior efforts on this project to complete the feasibility study and preliminary engineering, the Ceres Main Regulating Reservoir is a key project for TID as its implementation will result in water savings for the region. There has been substantial expenditure to date to complete the Project and TID is eager and committed to complete the construction of this project upon award of this grant funding.

TID will provide its cost share in monetary contributions. The source funds for the contribution are from TID reserves and/or bond financing.

As shown in the Turlock Irrigation District Board Resolution approved on September 28, 2021, TID is committed to providing the remaining matching fund to complete this project immediately.

Commitment letters from third-party funding sources should be submitted with your application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or State grants), should be secured and available to the applicant prior to award.

TID will be providing the match funding with its own fiscal resources and no third party funding will be required.

Please identify the sources of the non-Federal cost share contribution for the project, including:

- Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments).*
- Any costs that will be contributed by the applicant.*
- Any third-party in-kind costs (i.e., goods and services provided by a third party).*
- Any cash requested or received from other non-Federal entities.*
- Any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.*

Table 4. Project Funding Sources

SOURCE	AMOUNT	%
Costs to be reimbursed with the requested Federal funding	\$2,000,000	22.9%
Costs to be paid by the applicant	\$6,723,332	77.1%
Value of third-party contributions	\$0	-
Totals	\$8,723,322	100%

Table 5. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT	%
Non-Federal Entities		
Turlock Irrigation District	\$6,723,332	77.1%
Non-Federal Subtotal	\$6,723,332	77.1%
Other Federal Entities		
None	\$0	-
Other Federal Subtotal	\$0	-
REQUESTED RECLAMATION FUNDING	\$2,000,000	22.9%

In addition, please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

- *The project expenditure and amount*
- *The date of cost incurrence*
- *How the expenditure benefits the project*

TID is not seeking any pre-award costs.

B. Budget Proposal

Table 6. Project Budget

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				\$ 10,997
Project Manager (Matt Hazen)	\$68.73	160	Hours	\$ 10,997
Fringe Benefits				\$ 11,658
Project Manager (Matt Hazen)	\$72.86	160	Hours	\$ 11,658
Travel				\$ -
N/A				
Equipment				\$ -
*Included under Contractual/Construction				
Supplies/Materials				\$ -
*Included under Contractual/Construction				
Contractual/Construction				\$ 8,690,678
Reservoir Construction				\$ 5,131,804
Clearing of Site and Demolition of Existing Irrigation Facilities	\$ 100,000.00	1	LS	\$ 100,000
Earthwork and Grading	\$ 7.00	151,000	yd	\$ 1,057,000
Dirt Hauling to Offsite Locations	\$ 10.00	101,000	yd	\$ 1,010,000
Concrete Side Lining	\$ 2.30	177,330	sf	\$ 407,859
Concrete Bottom Lining	\$ 1.60	1,331,950	sf	\$ 2,131,120
Bank Road Construction Using Aggregate Base	\$ 1.50	220,550	sf	\$ 330,825
Fencing and Security	\$ 19.00	5,000	ft	\$ 95,000
Reinforced Concrete Pump Station				\$ 1,148,812
Reinforced Concrete Structure	\$ 351,000.00	1	LS	\$ 351,000
72" RCP Inlet/Outlet Pipe	\$ 643.50	152	ft	\$ 97,812
25 cfs Variable Speed Lift Pumps	\$ 50,000.00	4	LS	\$ 200,000
Pump Discharge Components (Valves, Fittings, VFD Panels, Enclosures)	\$ 75,000.00	4	LS	\$ 300,000
Flow Meters and Level Sensors	\$ 10,000.00	5	LS	\$ 50,000
Electrical, Electronics, Communications, Networking	\$ 150,000.00	1	LS	\$ 150,000
Reinforced Concrete Inlet Structure				\$ 330,000
Reinforced Concrete Structure	\$234,000.00	1	LS	\$ 234,000
Rubicon Flume Gates (Model FGB 1370-1804)	\$38,000.00	2	LS	\$ 76,000
Aluminum Slide Gate	\$10,000.00	1	LS	\$ 10,000
Steel Walkway, Steel Handrails, Telemetry	\$10,000.00	1	LS	\$ 10,000
Rehabilitation of Ceres Main, Drop 21				\$ 330,000
Reinforced Concrete Structure Modifications	\$1.00	200,000	LS	\$ 200,000
Rubicon Flume Gates (Model FGB 1675-1804)	\$3.00	40,000	LS	\$ 120,000
Steel Walkway, Telemetry	\$1.00	10,000	LS	\$ 10,000
Rehabilitation of Ceres Main, Drop 22				\$ 330,000
Reinforced Concrete Structure Modifications	\$1.00	200,000	LS	\$ 200,000
Rubicon Flume Gates (Model FGB 1675-1804)	\$3.00	40,000	LS	\$ 120,000
Steel Walkway, Telemetry	\$1.00	10,000	LS	\$ 10,000
Rehabilitation of Ceres Main, Drop 23				\$ 330,000
Reinforced Concrete Structure Modifications	\$1.00	200,000	LS	\$ 200,000
Rubicon Flume Gates (Model FGB 1675-1804)	\$3.00	40,000	LS	\$ 120,000
Steel Walkway, Telemetry	\$1.00	10,000	LS	\$ 10,000
Rehabilitation of Lower Lateral 3, Drop 1				\$ 300,000
Reinforced Concrete Structure Modifications	\$1.00	200,000	LS	\$ 200,000
Rubicon Flume Gates (Model FGB 1180-1587)	\$2.00	35,000	LS	\$ 70,000
Aluminum Slide Gates	\$2.00	10,000	LS	\$ 20,000
Steel Walkway, Telemetry	\$1.00	10,000	LS	\$ 10,000
Contingency (10%)		1	LS	\$ 790,062
Other				\$ -
TOTAL DIRECT COSTS				\$ 8,713,332
Indirect Costs				\$ 10,000
Reclamation Environmental Review	\$ 10,000	1	LS	\$ 10,000
TOTAL ESTIMATED PROJECT COSTS				\$ 8,723,332

C. Budget Narrative

Salaries and Wages

Matt Hazen will be the Project Manager for the Project. Matt will oversee all components in the Project schedule detailed in Table 3. Mr. Hazen's hourly wage is \$66.73 per hour. From February 2022 to July 2022, it is expected he will spend two, eight-hour days per month on permitting and preparation. From August 2022 to Feb 2023, it is expected he will spend 2, eight-hour days per week, performing construction inspections, answering field questions and troubleshooting with TID's construction crews. This totals to 160 hours during the project development and construction.

Fringe Benefits

As mentioned, Matt Hazen will be the Project Manager for the Project and will oversee all components in the Project schedule detailed in Table 3. Mr. Hazen's fringe benefits is \$72.86 per hour which includes insurance, pension, and benefits. From February 2022 to July 2022, it is expected he will spend two, eight-hour days per month on permitting and preparation. From August 2022 to Feb 2023, it is expected he will spend 2, eight-hour days per week, performing construction inspections, answering field questions and troubleshooting with TID's construction crews. This totals to 160 hours during the project development and construction.

Travel

Not Applicable.

Equipment

All equipment purchases are included under the Contractual/Construction section.

Materials and Supplies

All materials and supplies purchases are included under the Contractual/Construction section.

Contractual/Construction

As noted previously, TID self-performed construction of the Lateral 8 Regulating Reservoir in 2015. TID will self-perform construction of the Project, except for construction of the concrete pump station. Procurement of all equipment, materials, supplies, goods and services will be done in accordance with TID's procurement procedures.

Third-Party In-Kind Contributions

Not Applicable.

Environmental and Regulatory Compliance Costs

TID has allocated an estimated \$10,000 for Reclamation to complete its environmental review of the Project which is represented under "Indirect Cost" in the table above.

Other Expenses

All the required expenses for implementation of the project have been identified as part of the cost estimate.



Indirect Costs

TID has allocated an estimated \$10,000 for Reclamation to complete its environmental review of the Project.

Total Costs

The total cost for the Project is \$8,723,332

SECTION 3: ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

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

The Project involves removing existing facilities, almond trees and the top 1 foot of native soil from the 38 acre project site. Then the site will be graded and the regulating reservoir will be constructed with compacted earth and some of the native cut material, and lined with concrete. A 30 ft by 40 ft pump station powered by electricity will be constructed at the southeast corner of the Project site.

As stated in Section 2.16, Mandatory Findings of Significance of the approved MND, impacts related to the potential of the proposed project to substantially degrade the environment would be less than significant with incorporated mitigation measures.

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

A list of regionally occurring special status species in the vicinity of the proposed project site was compiled based on data identified in the California natural diversity database (CDFW 2020) and the 2020 United States Department of Fish and Wildlife (USFWS) and California Native Plant Society (CNPS) databases. A table documenting special status species identifying their general habitat requirements and assessing their potential to occur at the proposed project site was included in Appendix A of the Project's approved M&D.

The MND concluded that no special status plants or wildlife species have the potential to occur within the proposed Project site because of a lack of suitable habitat. Although the Project site does not occur within designated critical habitat for any federal listed species, portions of the site in the immediate vicinity have the potential to support nesting birds, which are regulated by the Federal Migratory Bird Treaty Act and California Fish and Game Code. In response, Project Mitigation Measure BIO-1 was adopted to "protect special-status birds and nesting birds" during their nest season: Feb 1 to Aug 31. (Although construction during this season could be mitigated with the involvement of a qualified biologist as described in detail in the Mitigation Measure, the project schedule intentionally avoids any construction during the nesting season).

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.

There are no identified wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States. As stated in the MND, "The man made cement lined canals are aquatic features that were constructed in uplands to

transfer irrigation water to the proposed project site and surrounding orchards. The canals are not likely considered waters of the U.S.”

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

The man-made, cement lined canals of the TID irrigation system are aquatic features that were constructed between 1900 and 1914 in Stanislaus, Merced and Tuolumne Counties to convey irrigation water from the Tuolumne River to the District’s service area in the Central Valley. They experience artificial hydrology as a result of controlled transport of irrigation water to agricultural land throughout the region and are hydrologically disconnected from downstream rivers streams or lakes. Impacts to the existing cement lined irrigation district is unlikely to require a Lake and Streambed Alteration LSAA notification.

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

Pursuant to Section 2.5.2 of the MND, the proposed project site is undeveloped, without any buildings or structures that could be considered historical resources as defined by CEQA Section 15064.5. Because no historical resources are located on or adjacent to the project site, no impact on historical resources of the built environment would occur.

Staff members at the Central California Information Center CIC of the California Historical Resources Information System completed a record search of the proposed project site and surrounding 1/2 mile area on December 20th, 2020. Two historic area structural resources have been recorded adjacent to the site: the TID Ceres Main Canal and the Lateral 3. Various segments of the canals have been recorded and have been evaluated as not eligible for listing in the National Register of Historic Places or the California Register of Historical Resources and are therefore not considered historical resources.

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

Based on the results of the CCIC records search mentioned above, no prehistoric or historic-archaeological resources have been previously recorded within the project site or within a 1/2 mile radius of the site.

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

The Project is expected to affect all populations equally. Further, it is not anticipated to have adverse effects on any populations, including low income and minority populations.

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

Based on the results of the CCIC records search mentioned above, the proposed Project would not affect any known archaeological resources that could be considered tribal cultural resources,

listed or determined eligible for listing in the California Register of Historical Resources, or included in the local Register of Historical Resources as defined in PRC Section 50 20.

In December 2020, the Native American Heritage Commission was contacted to request a search of its sacred lands file and a list of local Native Americans who might have knowledge of cultural resources in the vicinity of the proposed project. A response letter was received indicating that a record search of the sacred lands file had been completed and the results were negative. TID did not determine any resource with potential to be affected by the proposed project to be a significant tribal cultural resource pursuant to criteria set forth in PRC Section 5 024. However, MND Mitigation Measure CU L-1 will be implemented that requires that work halt in the vicinity of a find until a qualified archaeologist can make an assessment and provide additional recommendations if necessary, including contacting Native American tribes should any unrecorded archaeological resources be identified during ground disturbing construction activities.

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

No, the Project will clear the site of any existing vegetations by removing the top one-foot of soil and construction of a concrete lined reservoir. Appendix A of the MND identifies milkweed as a “regionally occurring special status species”, however, it further states that the potential for occurrence within the project site is unlikely because the site does not provide habitat for the species.

SECTION 4: REQUIRED PERMITS OR APPROVALS

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals. Note that improvements to Federal facilities that are implemented through any project awarded funding through this NOFO must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see P.L. 111-11, Section 9504(a)(3)(D). Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR Section 429, and that the development will not impact or impair project operations or efficiency.

As previously noted, the only permits anticipated for the Project are the following:

- Grading Permit from Stanislaus County.
- Electrical Permit from TID.
- General Permit (NPDES) from SWRCB for discharges of stormwater.
- Permit from the San Joaquin Valley Air Pollution Control District.



SECTION 5: EXISTING DROUGHT CONTINGENCY PLAN

The latest (2020) TID Drought Management Plan (DMP) is included in this application as Appendix C.



SECTION 6: LETTERS OF SUPPORT

Please refer to Appendix A for the Project Letters of Support.

SECTION 7: OFFICIAL RESOLUTION

RESOLUTION NO. 2021 - 57

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE TURLOCK IRRIGATION DISTRICT
AUTHORIZING AN APPLICATION FOR GRANT FUNDING BY
THE BUREAU OF RECLAMATION'S WATERSMART DROUGHT RESPONSE
PROGRAM FOR THE CERES MAIN REGULATING RESERVOIR PROJECT**

WHEREAS, the Turlock Irrigation District (the "District") proposes to implement the Ceres Main Regulating Reservoir Project (the "Project") located on District-owned property adjacent to the Ceres Main Canal and Lower Lateral 3 (LL3) Canal approximately a quarter of a mile south of Keyes Road and a half mile west of Prairie Flower Road; and

WHEREAS, the District has the legal authority and is authorized to enter into a funding agreement with the United States Department of the Interior Bureau of Reclamation; and

WHEREAS, the District completed Plans and Specifications for the Project; and

WHEREAS, the District completed an Initial Study / Mitigated Negative Declaration (IS/MND) for the Project, which was adopted by the District's Board of Directors on May 12, 2021; and

WHEREAS, the Project will capture flows from the Ceres Main Canal and will deliver the stored water back into the Ceres Main and LL 3 Canals to enhance deliveries to the canal system downstream of the Project; and

WHEREAS, the United States Department of the Interior offers financial assistance in the form of grant funding through its Bureau of Reclamation's WaterSMART (Sustain and Manage America's Resources for Tomorrow) Drought Response Program (DRP): Drought Resiliency Projects Program for this type of project. The WaterSMART DRP provides two levels of funding up to a maximum of \$2,000,000 in grant funding for longer term projects and \$500,000 for other projects, but not to exceed 50% of the total project cost; and

WHEREAS, the District desires to fund part of the cost of the Project with grant funding from the WaterSMART DRP Program; and

NOW, THEREFORE, the Board of Directors of the Turlock Irrigation District hereby finds, determines, declares and resolves as follows:

1. The Board hereby supports a grant application to the WaterSMART DRP Program for the Project; and
2. The Board hereby authorizes and directs the District's General Manager, or his or her designee, to complete, review, sign and submit, for and on behalf of the District, a grant application for the Bureau of Reclamation's WaterSMART DRP Program for the Project up to the amount of \$2,000,000, and to take such other actions as necessary or appropriate to obtain this grant funding; and

3. The District's General Manager, or his or her designee, is hereby authorized and directed to execute a grant agreement with the United States Department of the Interior Bureau of Reclamation and amendments thereto, and is designated to represent the District in carrying out the District's responsibilities under such grant agreement, including certifying disbursement requests on behalf of the District and compliance with applicable state and federal laws; and
4. If a grant award is made by the Bureau of Reclamation, the District commits to providing a minimum of 100% in matching funds (\$2,000,000) for the Project, and up to the balance of funds needed to complete the construction of the Project; and
5. This Resolution shall take effect immediately.

Moved by Director Alamo, seconded by Director Frantz, that the foregoing resolution be adopted.

Upon roll call the following vote was had:

Ayes:	Directors Frantz, Alamo, Macedo, Santos
Noes:	Directors - None
Absent:	Director Fernandes


The President declared the resolution adopted.

I, Tami Wallenburg, Executive Secretary to the Board of Directors of the TURLOCK IRRIGATION DISTRICT, do hereby CERTIFY that the foregoing is a full, true and correct copy of a resolution duly adopted at a regular meeting of said Board of Directors held the 28th day of September, 2021.



Executive Secretary to the Board of
Directors of the Turlock Irrigation District

SECTION 8: PROOF OF SAM REGISTRATION

 **Please verify your identity:** As an entity administrator, you should verify your identity to register, update, or deactivate your entity's registration in SAM.gov. This will become mandatory in FY 2022.

[Verify Your Identity](#)

Show Workspace For Non-Federal Entities

Non-Federal Entities

BioPreferred Reporting

Service Contract Reporting

Filter By

Search by Keyword

Entity

Registration Status

Results per page

1 of 1

25

Sort by

Expiration Date Ascending

TURLOCK IRRIGATION DISTRICT

DUNS Unique Entity ID:

046004933

Purpose of Registration:

Federal Assistance Awards

Registration Status:

Active

Expiration Date:

Aug 9, 2022

SAM Unique Entity ID:

LK3EXNEPLMD9

Address:

333 E CANAL DR

TURLOCK, CA 95380-3946 USA

CAGE/NCAGE:

3N3J3



APPENDICES

Appendix A: Letters of Support

Appendix B: Turlock Irrigation District 2020 Agricultural Water Management Plan

Appendix C: Turlock Irrigation District Drought Management Plan

Appendix D: Ceres Main Regulating Reservoir Project Plans

Appendix E: Performance Measure Methodology Additional Details

Appendix F: Ceres Main Reservoir Operations Models

Appendix G: Phase I Environmental Site Assessment Proposed Reservoir Site 3C Property

APPENDIX A: LETTERS OF SUPPORT



PUBLIC WORKS DEPARTMENT
2220 HACKETT ROAD
CERES, CA 95307-3600
(209) 538-5732
FAX (209) 538-5605

CITY COUNCIL
Javier Lopez, Mayor
Vacant, Dist. 1 Linda Ryno, Dist. 2
Bret Silveira, Dist. 3 Couper Condit, Dist. 4

Date: September 22, 2021

To: Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

From: Jeremy Damas, Director of Public Works

Subject: Turlock Irrigation District Ceres Main Regulating Reservoir Project

To whom it may concern:

It is with great enthusiasm that the City of Ceres offers its strong support to the Turlock Irrigation District (District) in its application for a **WaterSMART Project Grant** for the implementation of the Ceres Main Regulating Reservoir Project (Project).

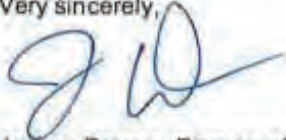
A needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational

flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, the City of Ceres offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at (209) 538-5717.

Very sincerely,



Jeremy Damas, Director of Public Works



**Utilities
Department**

1010 Tenth Street
Suites 4500 & 4600
P.O. Box 642
Modesto, CA 95353

Administration
(209) 577-5213
(209) 577-5477 Fax

**Engineering
Services
Division:**

Capital Planning
(209) 577-5424
(209) 522-1780 Fax

**Construction
Administration**
(209) 577-5452
(209) 577-4302 Fax

**Engineering
Design**
(209) 571-5105
(209) 522-1780 Fax

**Hearing and Speech
Impaired Only**
TDD 1-800-735-2929

September 08, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

RE: Turlock Irrigation District Ceres Main Regulating Reservoir Project

To whom it may concern:

It is with great enthusiasm that the City of Modesto offers its strong support to the Turlock Irrigation District (District) in its application for a **WaterSMART Project Grant** for the implementation of the Ceres Main Regulating Reservoir Project (Project).

A needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, the City of Modesto offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at (209) 577-5348.

Very sincerely,

Miguel Alvarez, Associate Engineer



DAN MADDEN
INTERIM DIRECTOR
Dmadden@turlock.ca.us

MUNICIPAL SERVICES DEPARTMENT
ADMINISTRATION

156 S. BROADWAY, SUITE 270 | TURLOCK, CALIFORNIA 95380 | PHONE 209-668-5590 EXT 4407 | FAX 209-668-5695

September 9, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

RE: Turlock Irrigation District Ceres Main Regulating Reservoir Project

To whom it may concern:

It is with great enthusiasm that the City of Turlock offers its strong support to the Turlock Irrigation District (District) in its application for a WaterSMART Project Grant for the implementation of the Ceres Main Regulating Reservoir Project (Project).

A needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, the City of Turlock offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at 209-668-5590.

Very sincerely,

Dan Madden
Interim Director

CC: HANLEY, BOB; HANLEY, CHRISTOPHER; HANLEY, JAMES

JIM COSTA
16TH DISTRICT, CALIFORNIA
WEB PAGE: www.costa.house.gov
COMMITTEE ON AGRICULTURE
CHAIR – SUBCOMMITTEE ON LIVESTOCK AND
FOREIGN AGRICULTURE
COMMITTEE ON NATURAL RESOURCES
SUBCOMMITTEE ON WATER, OCEANS AND
WILDLIFE



Congress of the United States
House of Representatives
Washington, DC 20515

COMMITTEE ON FOREIGN AFFAIRS
SUBCOMMITTEE ON EUROPE, EURASIA, ENERGY
AND THE ENVIRONMENT
**TRANSATLANTIC LEGISLATORS'
DIALOGUE**
CHAIR
NATO PARLIAMENTARY ASSEMBLY
MEMBER

September 14, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

To whom it may concern:

It is with great pleasure that I write this letter to express my support for the Turlock Irrigation District grant application for a **WaterSMART Project Grant** for the implementation of the **Ceres Main Regulation Reservoir project**.

Sadly, in California, we are once again experiencing a drought crisis, and the San Joaquin Valley is a region heavily affected. Farmers, ranchers, and farming communities are experiencing severe water shortages to grow food and feed the world. It is essential that we invest in water infrastructure in California to help weather the effects of this crisis. Local projects facilitating regional water resiliency is a good approach to combat this crisis and increase water efficiency for future years to come.

The Ceres Main Regulation Reservoir project would construct an essential regulatory reservoir to serve as a surface water control and storage facility. It would capture excess water flows from the district's main canal during high flows and return water into multiple canals during water shortages in the canal system downstream of the reservoir. This project would annually conserve nearly 10,000 acre-feet of water. As such, it would support water conservation by reducing the district's reliance on limited and expensive groundwater, thus abiding by the Turlock Subbasin's plans under the Sustainable Groundwater Management Act. In addition to capturing excess water, this project would expand water supply and reduce supplemental groundwater pumping. It is expected to increase operational flexibility, improve customer service through stable flow rates and operational response times.

Thank you for giving Turlock Irrigation District's application your full consideration. As the representative of California's 16th District, I am pleased to offer my support for this essential project. If you would like further input from me regarding this project, please do not hesitate to contact my Washington D.C. Office at (202) 225-3341.

Sincerely,

JIM COSTA
Member of Congress

Primary Office
333 M Street, Suite 900
Fresno, CA 93721
Phone: (559) 495-6436
Fax: (559) 495-1627

Merced Office
2222 M St., Suite 200
Merced, CA 95340
Phone: (209) 384-1618
Fax: (209) 384-1625

Washington, DC Office
2081 Rayburn HCB
Washington, DC 20515
Phone: (202) 225-3341
Fax: (202) 225-8388



JOSH HARDER
10TH DISTRICT, CALIFORNIA
COMMITTEE ON APPROPRIATIONS
LABOR, HEALTH AND HUMAN SERVICES,
EDUCATION, AND RELATED AGENCIES
INTERIOR, ENVIRONMENT, AND RELATED AGENCIES
COMMITTEE ON AGRICULTURE
BIOTECHNOLOGY, HORTICULTURE, AND RESEARCH
LIVESTOCK AND FOREIGN AGRICULTURE

Congress of the United States
House of Representatives
Washington, DC 20515

209 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-4540-PHONE
(202) 225-3402-FAX
4701 SISK ROAD, SUITE 202
MODESTO, CA 95368
(209) 579-5458-PHONE
(209) 702-6569-FAX
harder.house.gov

September 8, 2021

Camille Calimlim Touton
Deputy Commissioner, External and Intergovernmental Affairs
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

RE: Turlock Irrigation District Ceres Main Regulation Reservoir Project

Dear Deputy Commissioner Touton:

I write to express my support of Turlock Irrigation District's application for the WaterSMART Project Grant to fund the implantation of the Ceres Main Regulation Reservoir Project (Project).

In California's drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The proposed project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals systems during water shortages downstream of the reservoir.

The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational flexibility and improve customer service through stable flow rates and faster operational response times.

Turlock Irrigation District Ceres Main Regulation Reservoir Project is necessary for future water supply reliability and conservation efforts. Thank you for your full and fair consideration of the Turlock Irrigation District's WaterSMART Project Grant application. If you have any questions, please do not hesitate to contact me.

Sincerely,

Josh Harder
United States Representative CA-10



EASTSIDE WATER DISTRICT

Board of Directors

Tim Johnson
Chairman
874-5345

Ty Angle
883-0404 ext. 202

Ward N. Burroughs
874-9400

Dexter Long
874-1875

Nonk Naraghi
551-4545

Al Rossini
874-3739

Wes Sperry
620-1884

Karen Whipp
Secretary
Office: 626-5523
Cell: 285-8907

September 16, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

RE: Turlock Irrigation District Ceres Main Regulation Reservoir Project

To whom it may concern:

It is with great enthusiasm that Eastside Water District offers its strong support to the Turlock Irrigation District (District) in its application for a **WaterSMART Project Grant** for the implementation of the Ceres Main Regulation Reservoir Project (Project).

A needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, Eastside Water District offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at 209-874-5343.

Sincerely,

Tim Johnson
Board Chairman

731 East Yosemite Avenue, Suite B #147, Merced, CA 95340



*Ceres Main Regulating Reservoir
WaterSMART FY2022- Drought Resiliency Projects*



Keyes Community Services District
5601 7th Street, P O Box 699
Keyes, Ca. 95328
Office (209)669-8341 Fax (209)668-8396

September 13, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

RE: Turlock Irrigation District Ceres Main Regulating Reservoir Project

To whom it may concern:

It is with great enthusiasm that Keyes Community Services District offers its strong support to the Turlock Irrigation District (District) in its application for a **WaterSMART Project Grant** for the implementation of the Ceres Main Regulating Reservoir Project (Project).

A needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase



operational flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, Keyes Community Services District offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at 209-535-5887

Very sincerely,

Ernie Garza
KCSD General Manager

Cc: Keyes Board of Directors



DELHI COUNTY WATER DISTRICT
9738 STEPHENS STREET
P.O. BOX 639
DELHI, CA 95315
PHONE: 209) 632-8777, FAX 209 632-3870

September 20, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

RE: Turlock Irrigation District Ceres Main Regulating Reservoir Project

To whom it may concern:

It is with great enthusiasm that Delhi County Water District offers its strong support to the Turlock Irrigation District in its application for a WaterSMART Project Grant for the implementation of the Ceres Main Regulating Reservoir Project .

Needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much-needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000-acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, Delhi County Water District offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at 209-585-3003.

Very sincerely,

Leandro Maldonado

Leandro Maldonado, General Manager, Delhi County Water District

EAST TURLOCK SUBBASIN GROUNDWATER SUSTAINABILITY AGENCY
PO BOX 25007, MS 84-27133
DENVER, CO 80225

September 30, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

RE: Turlock Irrigation District Ceres Main Regulation Reservoir Project

To whom it may concern:

It is with great enthusiasm that East Turlock Subbasin Groundwater Sustainability Agency offers its strong support to the Turlock Irrigation District (District) in its application for a **WaterSMART Project Grant** for the implementation of the Ceres Main Regulation Reservoir Project (Project).

A needed Project: In California's drought-prone, drought-stricken Central Valley, water shortages are becoming more frequent and more severe. Local projects facilitating regional water resiliency are one such way to combat the effects of drought, as well as increase water efficiency in all water year types. The Project will construct a much needed regulating reservoir to serve as a surface water regulating and storage facility. The Project will capture excess flows from the District's Ceres Main Canal during high flows and return them back into multiple canals during water shortages in the canal system downstream of the reservoir.

Benefits of the Project: The anticipated average annual water savings resulting from the Project is approximately 10,000 acre feet. As such, the Project would support water conservation by reducing the District's reliance on limited and expensive groundwater, thus supporting the Turlock Subbasin's Sustainable Groundwater Management Act goals. In addition to capturing excess water, increasing water supplies, and reducing supplemental groundwater pumping, the Project is expected to increase operational flexibility and improve customer service through stable flow rates and faster operational response times.

For these reasons, East Turlock Subbasin Groundwater Sustainability Agency offers its strongest support for the District's grant application. If you have any questions, please do not hesitate to contact me at 209-874-3739.

Sincerely,



Albert Rossini
Board Chairman

287688042 / 20822.0005

731 East Yosemite Avenue, Suite B #318
Merced, CA 95340
Voice 209.626.5523 Email kareneastsidewater@att.net



APPENDIX B: TURLOCK IRRIGATION DISTRICT 2020 AGRICULTURAL WATER MANAGEMENT PLAN

This document has been included in the application package on grants.gov via the “Attachments” section and is located under Attachment 2.



APPENDIX C: TURLOCK IRRIGATION DISTRICT DROUGHT MANAGEMENT PLAN

This document has been included in the application package on grants.gov via the “Attachments” section and is located under Attachment 3.



APPENDIX D: CERES MAIN REGULATING RESERVOIR PROJECT PLANS

This document has been included in the application package on grants.gov via the “Attachments” section and is located under Attachment 4.

APPENDIX E: PERFORMANCE MEASURE METHODOLOGY ADDITIONAL DETAILS

1. Average without-project spillage is estimated from spillage measurements over a recent historical period that is considered to be representative of anticipated future TID operational procedures and other factors that impact spillage. Average without-project spillage thus forms a baseline from which future project benefits can be measured.

As described in Section E.1.1, average without-project spillage for the Project is calculated between 2010-2020, a recent period that contains both wet (2011 and 2017) and dry years, including a significant multi-year drought (2012-2016). The canal operations during this period are also representative of expected future canal operations. Recognizing that spillage varies significantly between “normal” years (when TID’s surface water supplies are sufficient to deliver 48 inches of “available water” per acre to TID customers) and “dry” years (when surface water supplies are constrained and available water is reduced to less than 48 inches per acre), average without-project spillage is calculated separately for “normal” years and “dry” years to accommodate project performance evaluation in normal and dry years.

2. Average with-project spillage is quantified at the same spill sites under the same conditions, except for the addition of the project. During project planning (prior to construction), with-project spillage is estimated using spillage reduction factors based on historical flow analyses and typical spillage reductions identified for similar projects in TID (Lateral 8 Regulating Reservoir) and elsewhere (AWMC, 2007). After project implementation, with-project spillage will be measured using TID’s existing SCADA-integrated measurement devices at all spill sites.
3. After the project is implemented, water savings benefits will be quantified at spill sites benefitted by the Project (Ceres Main and Lower Lateral Canals) as the difference between the average without-project spills (reported in Table 1, by year type) and the with-project spills measured that year.



APPENDIX F: 2021 CERES MAIN REGULATING RESERVOIR OPERATIONS MODELS

This document has been included in the application package on grants.gov via the “Attachments” section and is located under Attachment 5 & 6. Attachment 5 is an excel file of the model and Attachment 6 provides the spill reduction methodology.



APPENDIX G: PHASE I ENVIRONMENTAL SITE ASSESSMENT PROPOSED RESERVOIR SITE 3C PROPERTY

This document has been included in the application package on grants.gov via the “Attachments” section and is located under Attachment 7.