WATERSMART WATER AND ENERGY EFFICIENCY GRANTS FOR FY 2022
FUNDING OPPORTUNITY ANNOUNCEMENT NO. R22AS00023

ADVANCED FLOW MEASUREMENT (AFM) IMPROVEMENTS PROJECT

TOTAL PROJECT COST: $421,740
USBR GRANT REQUEST: $200,000

Applicant
El Paso County Water Improvement District No. 1
13247 Alameda Avenue, Clint, Texas 79836

Project Manager
Jesus Reyes, General Manager
13247 Alameda Avenue, Clint, Texas 79836
jreyes@epcwid1.org 915-872-4001

TABLE OF CONTENTS

I EXECUTIVE SUMMARY

Applicant Information

Date:	November 3, 2021
Applicant Name:	El Paso County Water Improvement District No. 1
City, County, State:	Clint, El Paso County, Texas
Applicant Category:	Category A
Project Name:	Advanced Flow Measurement (AFM) Improvements Project
Project Manager:	Jesus Reyes, General manager
Telephone:	915-872-4000
E-mail:	jreyes@epcwid1.org
Project Funding Request:	The total project cost is $421,740 and EPCWID1 is requesting $200,000 in federal funds.

Project Summary

The El Paso County Water Improvement District No. 1 (EPCWID1), located in El Paso County, Texas, will install 17 high-accuracy, low-cost solar powered SCADA and 5G cellular telemetry units. These new telemetry installations and upgrades will allow EPCWID1 to improve its ability to manage Rio Grande Project water and reduce end-of-system waster waste and operational losses. The project has a minimum life expectancy of 10 years and is expected to result in annual water savings of 1,143 acre-feet with a return-on-conservation investment of $36.90 per acre-foot of water. As water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

This proposal is being submitted as a Funding Group I project under the category Water Conservation Projects: SCADA / Irrigation Flow Measurement.

Estimated Completion Schedule

The project will take twenty-four months (or less) from the date of funding authorization, which is assumed to be in August of 2022 and is expected to be completed by July of 2024. The project will be accomplished within the two-year allowance.

Federal Facility

The project is not located in a federal facility.

II PROJECT LOCATION

Installations for the Advanced Flow Measurement (AFM) Improvements Project is located in El Paso County, Texas.

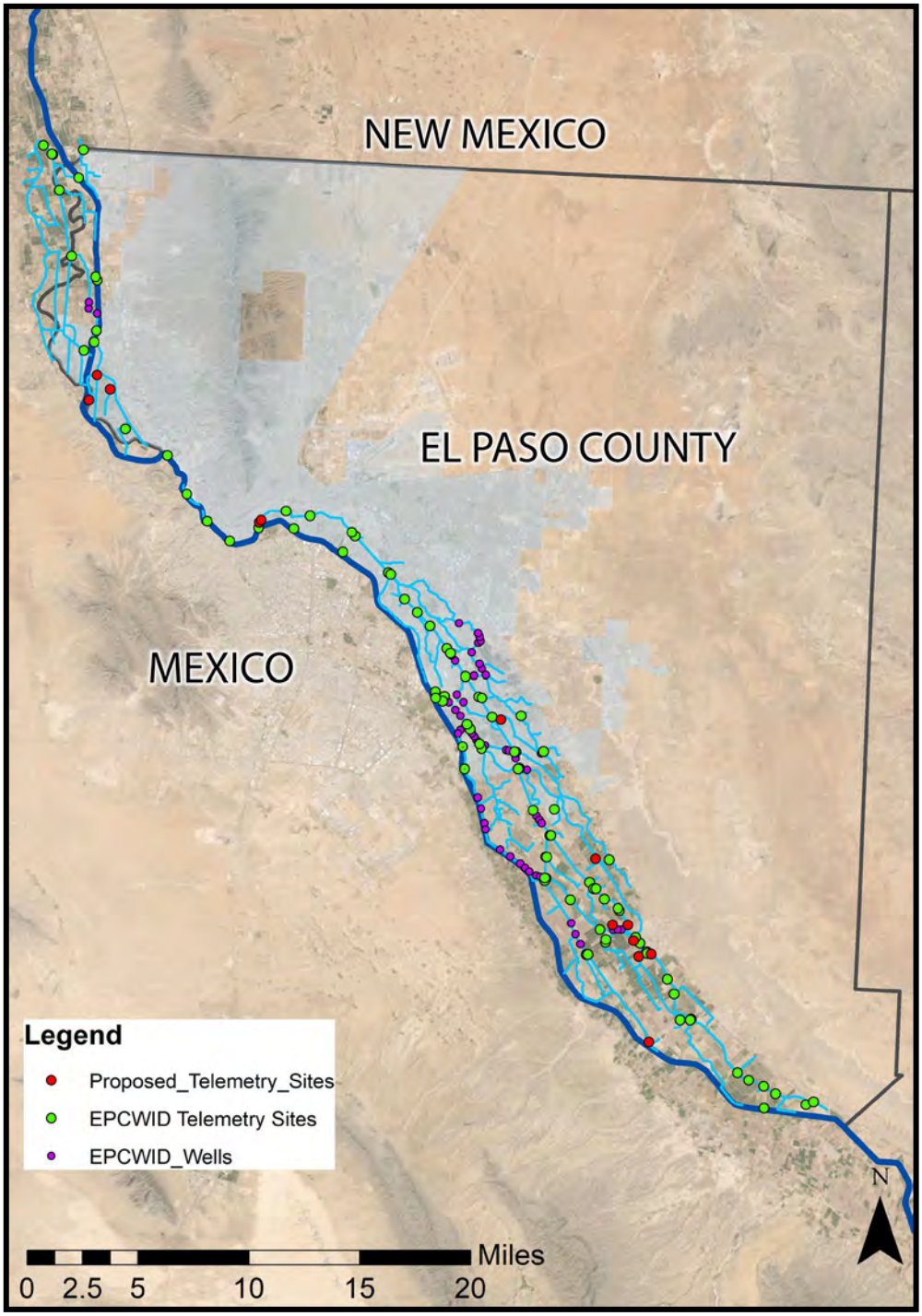

Figure 1. Project Location Map

III TECHNICAL PROJECT DESCRIPTION

Provide a more comprehensive description of the technical aspects of your project, including work to be accomplished and the approach to complete the work

Project Tasks and Milestones
The Advanced Flow Measurement (AFM) Improvements Project involves installing 17 new metering sites and with complete or partial gate automation. Project tasks are described herein:

Task 1: Environmental and Regulatory Compliance
The purpose of this task is to perform environmental review and cultural compliance work necessary to complete the project. Work includes but is not limited to:
1.1 Working with Reclamation to meet federal environmental and regulatory compliance requirements, including National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance

Expected Deliverables: [1] Categorical Exclusion (CEC)

Task 2: Purchasing Telemetry and Automation Equipment
The purpose of this task is to purchase all listed telemetry and automation equipment, which includes but is not limited to:
2.1 Bidding and purchasing equipment in compliance with 2 CFR 200 and in accordance with EPCWID1's Reclamation-approved purchasing policy

Expected Deliverables: [1] purchase and procurement records

Task 3: Installing Telemetry and Automation Equipment (50%)
The purpose of this task is to perform all necessary installation work, which includes but is not limited to:
3.1 Constructing and installing telemetry site structures (slabs, bridges, mounting, vandal boxes)
3.2 Installing telemetry equipment (solar panels, SCADA, wiring, flow meters)
3.3 Testing and calibrating telemetry equipment

Expected Deliverables: [1] Equipment installation records and photos, [2] telemetry water flow and calibration data, and [3] labor and fringe costs

Task 4: Installing Telemetry and Automation Equipment (100%)
The purpose of this task is to perform all necessary installation construction work, which includes but is not limited to:

4.1 Constructing and installing telemetry site structures (slabs, bridges, mounting, vandal boxes)
4.2 Installing telemetry equipment (solar panels, SCADA, wiring, flow meters)
4.3 Testing and calibrating telemetry equipment
4.4 Programming data transmission equipment and designing visualization portal

Expected Deliverables: [1] Equipment installation records and photos, [2] telemetry water flow and calibration data, [3] labor and fringe costs, [4] contractual programming costs and deliverables, and [5] water flow data visualization platform

Task 5: Reporting and Grant Administration (August 2022 – April 2025)
The purpose of this task is to perform grant administration, periodic reporting, and technical assistance work necessary to complete the project. Work includes but is not limited to:

5.1 Developing SF-425 Federal Financial Reports on a semi-annual basis and a final financial performance report as specified in Section F.3.1. of the FY2022 WaterSMART WEEG FOA and/or as required by a resulting award contract from Reclamation
5.2 Developing Interim Performance Reports as specified in Section F.3.2. of the FY2022 WaterSMART WEEG FOA and/or as required by a resulting award contract from Reclamation
5.3 Performing a post-installation water savings analysis to compare baseline water use and determine actual water savings
5.4 Developing a Final Performance Report as specified in Section F.3.3. of the FY2022 WaterSMART WEEG FOA and/or as required by a resulting award contract from Reclamation

Expected Deliverables: [1] inflow-outflow test data, [2] interim reports, [3] final report

The listed equipment will include all components necessary to install 17 surface water (canal) telemetry sites that meet EPCWID1's current and foreseeable needs for the next 10 years. Information on preliminary installation locations are included in Appendix C.

EPCWID1 will install high-accuracy, low-cost DC-solar powered SCADAPACK SP100 units in conjunction with non-contact ultrasonic level flow sensors that will transmit canal water level data using 5G a cellular network to a central database. All data is made publicly available at www.epcwid1.org/telemetry. Figures 2 and 3 below show a typical EPCWID1 telemetry installation.

Much of the steelwork required for the project is manufactured in-house as a cost-saving measure. Budgeted materials include base steel purchases that are then modified by EPCWID1 staff (welder). Wiring and installation are performed by EPCWID1 using EPCWID1-owned equipment. Equipment in-kind costs such as truck usage and specialized equipment is not included as part of the budget.

Figure 2. Installed Telemetry Station at an EPCWID1 Lateral (2020)

Figure 3. Solar Panel and Transmission Antenna at an EPCWID1 Lateral (2020)

Equipment also includes 8 EIM Actuators necessary for gate automation and remote operations (2 gate structures). Figures 4 and 5 below illustrate typical gate automation equipment.

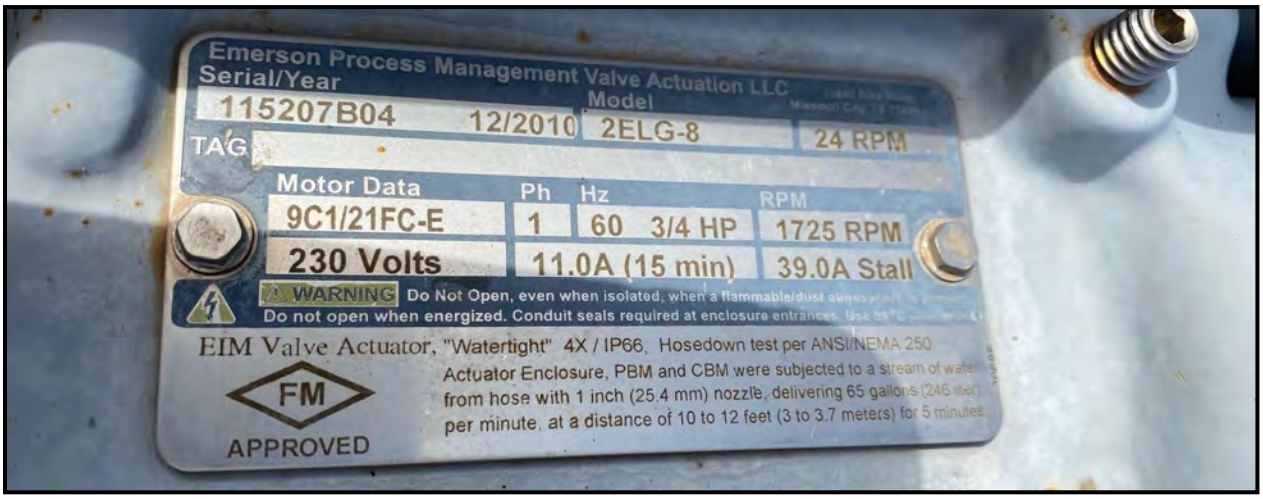

Figure 4. EIM Valve Actuator Motor Specifications (2021)

Figure 5. Automated Gates at Riverside Canal Wasteway II

IV EVALUATION CRITERIA

A. Evaluation Criterion A: Quantifiable Water Savings (28 Points)

1) Describe the amount of estimated water savings. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.*

Approximately 1,143 acre-feet of water per irrigation year (February 15 to October 15) will be conserved as a result of the proposed project.

2) Describe current losses: *Please explain where the water that will be conserved is currently going and how it will be used.*

Water conserved by the proposed project is primarily lost to end-of-system spills and inefficiencies in water delivery. Water saving will be used to address water reliability concerns in the region: as water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

a. Explain where current losses are going.

End-of-system spills and water delivery inefficiencies are wasted into the Rio Grande. A portion of this water is captured by Hudspeth County Conservation & Reclamation District No. 1.

b. If known, please explain how current losses are being used.

Water wasted into the Rio Grande that is not captured by Hudspeth County Conservation & Reclamation District No. 1 primarily seeps into the Rio Grande riverbed and is lost for productive use. Water captured by Hudspeth County Conservation & Reclamation District No. 1 is used for irrigation. Water savings achieved as a result of the project are not expected to adversely affect irrigation operations in Hudspeth County.

c. Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?

There are no fish or animal habitats at the Rio Grande that benefit from wasted water. The Rio Bosque Wetland Parks receives Rio Grande Project by allocation. Water conserved as a result of the project will benefit all water users, including the Rio Bosque Wetlands Park.

3) Describe the support / documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.*

Estimated annual water savings and estimates are included in the next question. Using the flow measurement data made available from the proposed project, EPCWID1 expects to achieve a 10% improvement in efficiency improvements from water wasted into the Rio Grande that

cannot be recaptured by EPCWID1. EPCWID1 expects to conserve approximately 1,143 acre-feet of water per year. This equates to less than 1% of EPCWID1's full Rio Grande Project annual allocation (376,860 acre-feet). I.e., the targeted water savings are not measured via full-system efficiency. Rather, the targeted water savings are a fraction of end-of-system waste.

The 10% efficiency increase of end-of-system waste used in this proposal is based on 5-year averages measured at three sites. The methodology for determining these savings is provided in the following section. The AFM Improvements Project will allow EPCWID1 to install telemetry sites where they are non-existent, update data transmission equipment to a 5G cellular network, and allow consistent and highly accurate measurements at a minimum of 5-minute intervals. These improvements will allow EPCWID1's water delivery operations team to better plan for system diversions, better plan for water deliveries to farmers, respond to canal overtoppings faster, and drop and lift check gates at major canals (using select automation improvements at 2 sites).

Although EPCWID1 will ultimately aim to conserve at least 80% of end-of-system water waste and operational losses (approximately 11,434 acre-feet of water per year), the proposed 10% estimate is considered a reasonable, conservative estimate by EPCWID1 staff and is supported by historical data. As stated in the Notice of Funding Opportunity No. R22AS00023, "pre-project flows may be difficult to estimate without a measuring device in place" (p. A-4). As such, EPCWID1 selected "quantifying waste way (spill) flows" (p. A-4) and historical data to determine pre-project water loss measurement and compared it to post-project water measurements.

4) Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

(3) Irrigation Flow Measurement: *Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills or other-deliveries to irrigators. Applicants proposing municipal metering projects should address the following:*

a. How have average annual water savings been determined? Please provide all relevant data.

Water savings from the installation of telemetry and automation equipment are calculated in terms of efficiency: total annual water use before improvements (acre-feet) and percent gain in water use efficiency. End-of-system water waste is calculated using cumulative annual water flows measured at the Fabens Waste Drain, Fabens Waste Channel, and Tornillo Wasteway #32 at Alamo Alto telemetry station. End-of-system water waste varies per year and Rio Grande Project allocation. As part of the project, EPCWID1 aims for 10% in efficiency improvements from water wasted into the Rio Grande that cannot be recaptured by EPCWID1. Table 1 below shows the 5-year average of EPCWID1's end-of-system water waste. Appendix B shows water flow data at the three waste sites (average daily cubic feet per second), second-foot day, cumulative acre-feet per day, and cumulative acre-feet per month, and cumulative water flow in acre-feet (CWF).

Table 1. EPCWID1 End-of-System Water Waste

End-of-System Waterway	2020	2019	2018	2017	2016	Average
Fabens Waste Channel	22,665	16,715	18,311	13,640	11,270	16,520.2
Fabens Waste Drain	20,495	11,552	16,159	10,621	8,079	13,381.2
Tornillo WW#2 @ Alamo Alto	8,134	7,025	8,723	12,424	5,171	8,295.4

All data is publicly available and can be accessed using the following addresses:

Fabens Waste Drain (FWD)
https://epcwid.org/telemetry/csv/?site=8
Fabens Waste Channel (FWC)
https://epcwid.org/telemetry/csv/?site=32
Tornillo Waste Way #2 at Alamo Alto (TWW2)
https://epcwid.org/telemetry/csv/?site=25

b. Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.

EPCWID1 is aiming for 10% efficiency improvements linked to end-of-system waste and operational losses. Specifically, water conserved from efficiency improvements is calculated via the following formula (in acre-feet):

(FWC – FWD)*.10) + (TWW2*.10) = water conserved from efficiency
*(16520.2 – 13381.2 * .10) + (8295.4 * .10) = 313.9 + 829.54 =* ***1,143.44 acre-feet per year***

c. Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?

In areas without telemetry, water flows are metered using manual flow meters operated by EPCWID1 ditch riders. The accuracy of these meters depends on water dispersion and the location of check structures and bridges where ditch riders can measure a canal center line. Certain canals are measured using 15-year-old metering sites operated using 3G cellular and radio transmitters. Unfortunately, 3G cellular service is being phased out in the El Paso region as 5G continues to be implemented. Radio transmission frequencies are also being deployed by law enforcement in the United States and Mexico. Additionally, interference from 3G devices from Mexico makes 3G metering sites highly inaccurate. All of EPCWID1's telemetry will be upgraded to 5G to prevent losing system functionality.

With existing telemetry installations, EPCWID1 can capture 15-minute water flow intervals. AFM Improvement Project will allow EPCWID1 to capture a minimum of 5-minute water flow intervals. This is the minimum requirement for remote gate and check automation.

d. Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.

EPCWID1 will install high-accuracy, low-cost DC-solar powered SCADAPACK SP100 units in conjunction with non-contact ultrasonic level flow sensors that will transmit canal water level data using 5G a cellular network to a central database. Flow rate and volume is determined using the Manning equation calibrated to the cross-section and other characteristics of the canal. Through careful positioning, this installation can provide an accurate 4 to 20 mA output fed back to the telemetry system for remote flow monitoring rather than metering locally. The flow measurement accuracy is determined by regular calibration and equipment maintenance. In most situations, telemetry measurements are within a deviance tolerance of 1-3% compared to manual metering. Irregular measurements are usually addressed the same day they are detected by the system through programmed communications (email and text message).

e. Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?

EPCWID1's end-of-system water waste and operational losses are linked to [1] excess diversions from Elephant Butte and Caballo Reservoirs, [2] irregular flows from as much as 40,000 acre-feet of wastewater treated to irrigation quality standards from El Paso Water Utilities, and [3] farm delivery inefficiencies. Table 2 below shows treated wastewater flows that were available for irrigation in 2020.

The AFM Improvements Project will lead to measurable improvements in delivery volumes. As water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

Table 2. Treated Wastewater from EPWU Available for Irrigation in 2020

Water quantity (acre-feet per year), month, and source

Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec [a]	Total
HS	1174	998	1373	1176	1223	1240	1348	1432	1333	1367	1273	1325	15262
RB	1729	1677	2289	2455	2254	2221	2398	2410	2287	2817	2734	0 [a]	25657
Total	2903	2675	3662	3631	3477	3461	3746	3842	3620	4184	4007	1325	**40919**

[a] Wastewater diversions were wasted into the Rio Grande or to irrigation drains due to construction

f. How will actual water savings be verified upon completion of the project?

EPCWID1 will use existing telemetry used to collect data presented in Table 1 and Appendix B of this report to document efficiency changes and calculate water savings annually. Actual water savings depend on drought conditions and actual allocations of Rio Grande Project water. In more wet years, water savings are expected to increase. In dry years, water savings will decrease. The provided water savings projections are based on 5-year averages data. Specifically, EPCWID1 will use the following formula to verify water savings:

> Pre-project water waste measurement (11,434 acre-feet per year) –
> post-project water waste measurement (~10,291 acre-feet per year) =
> ***Actual water savings (~1,143 acre-feet per year)***

B. Evaluation Criterion B: Renewable Energy (20 Points)

Subcriterion No. B1.: Implementing Renewable Energy Projects Related to Water Management and Delivery

Describe the amount of energy generated. For projects that implement renewable energy systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate

The renewable energy generation for the project is minimal but enough to allow telemetry installation to be self-sufficient. EPCWID1 will install 17 DC solar panels with a 30-watt capacity and 2 DC solar panel with 20-watt capacity. Electricity generated by this system is ruled by its rated power output. The climate in the El Paso region (a desert) is very suitable for solar power generation. I.e., with more than 300 days of sunlight per year, the average annual sum of solar radiation in the El Paso region is 2100-2300 kWh/m^2 (Annual Average Sum from 1999-2013, UTEP 2015).

> *6 average hours of sunlight per day * ((30 watts * 17 panels) + (20 watts * 2 panels) = 6*((510)+(34) = 3,264 kilowatt hours per day*
> *3,264 kW per day * 300 sunny days per year =* ***979,200 kW per year***

Describe any other benefits of the renewable energy project. Please describe and provide sufficient detail on any additional benefits expected to result from the renewable energy project, including:

How the system will combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions

Remote metering will reduce the need for EPCWID1 staff to use trucks to travel to canals to perform manual metering. EPCWID1 employs approximately 45 ditch riders with on-site metering duties. On-site metering duties vary significantly based on irrigation needs and farmer demand. It is very difficult to document and quantify actual reductions on greenhouse gas emissions produced by EPCWID1 equipment. However, it is expected that the proposed telemetry project will reduce greenhouse gas emissions and eliminate the majority of on-site metering operations for 17 telemetry sites and 2 gate automation sites.

C. Evaluation Criterion C: Sustainability Benefits (20 Points)

Enhancing drought resiliency. *Please provide information on how the project will enhance drought resilience by benefitting the water supply and ecosystem, including the following:*

- *Does the project seek to improve ecological resiliency to climate change?*

The El Paso region has an arid climate and receives an average annual rainfall of about 8 inches with net evaporation exceeding 70 inches. The region faces unique water challenges characterized by an agricultural system that is a century old, prolonged drought conditions, a

growing population and a growing sister city in Mexico with shared groundwater and surface water supplies, interstate and international treaties, and interstate litigation that may impact EPCWID1's water supply from the Rio Grande Project.

Previous construction and expansion of the U.S.-Mexico Border Fence and the Rio Grande Canalization Project led by the U.S. Section of the International Boundary and Water Commission (IBWC 2015) reduced Rio Grande riparian habitat. In the El Paso region, ecological resiliency largely means ensuring water supplies are more resilient against climate change and continue to be available for designated habitat areas, including wetlands. The Rio Bosque Wetlands Park receives Rio Grande Project water by allocation. Water conserved as part of the proposed project will benefit all water users, including the Rio Bosque Wetland Parks.

- *Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits.*

This question does not apply to the project.

- *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a listed species, or a species of particular recreational or economic importance? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).*

Water conserved as part of the project will indirectly benefit species. Rio Grande Project water conserved by the project will benefit all users, including the Rio Bosque Wetlands Park. The Rio Bosque Wetlands Park receives Rio Grande Project water by allocation. There is a record of sightings at the Rio Bosque Wetlands Park listed in the Texas Natural Diversity Database (TXNDD) for the Western burrowing owl (*Athene cunicularia hypugaea*), which is a federally endangered species.

- *Please describe any other ecosystem benefits as a direct result of the project.*

This question does not apply to the project.

- *Will the project directly result in more efficient management of the water supply? Will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?*

Water conserved as part of the project will directly benefit all water users, including environmental, municipal, agricultural, and industrial water users. As water use demand is met by a more efficient conveyance system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

Addressing a specific water and/or energy sustainability concern(s). *Will the project address a specific sustainability concern? Please address the following:*

- *Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.*

The El Paso region has an arid climate and receives an average annual rainfall of about 8 inches with net evaporation exceeding 70 inches. The region faces unique water challenges characterized by an agricultural system that is a century old, prolonged drought conditions, limited and dwindling supplies of water, a growing population and a growing sister city in Mexico with shared groundwater and surface water supplies, interstate and international treaties, and interstate litigation that may impact EPCWID1's water supply from the Rio Grande Project.

Source of Water Supply and District Water Use

EPCWID1 obtains water by annual allocation from the United States Bureau of Reclamation's Rio Grande Project. EPCWID1's diversion right of water during a full allocation year during the primary irrigation season is 376,860 acre-feet. Rio Grande Project water is released from storage in Elephant Butte Reservoir and regulated through Caballo Reservoir. The methodology for determining diversions for EPCWID1, Elephant Butte Irrigation District (EBID) in New Mexico, and the Republic of Mexico is described in the Operating Agreement and Operating Manual that the two districts and Reclamation negotiated and approved in 2008. The Operating Agreement is currently in litigation (*Texas v New Mexico and Colorado*).

EPCWID1 provides water from the Rio Grande for 69,010 acres of water rights lands divided into more than 30,000 water user accounts. Irrigation users include approximately 325 large farms and 4,500 irrigated tracts of five acres or less. Irrigated crops include cotton, alfalfa, pecan trees, sorghum, chilies, wheat, onions, corn, vegetables, pasture grass, and family gardens.

The City of El Paso currently has water rights for approximately 70,000 acre-feet per year from Rio Grande Project Water in contracts with EPCWID1. Rio Grande Project water is used to meet approximately 50% of municipal demand for a population of over 800,000. EPCWID1 delivers water for municipal use to the City of El Paso at the W.E. Robertson/Umbenhauer Water Treatment Plant located in downtown El Paso and at the Jonathan W. Rogers Water Treatment Plant located in the El Paso Lower Valley. The amount of water attainable by the City of El Paso is subject to availability and is dependent on the EPCWID1's total diversion rights and prior appropriations.

Water Conveyance Losses

The number one potential shortfall for EPCWID1 is water losses due to seepage. A report from the United States Geological Survey (USGS) investigated cumulative seepage losses along a 64-mile reach of the Rio Grande from below Leasburg Dam in Leasburg, New Mexico to above the American Dam in El Paso, Texas (USGS 2015). This report determined that the cumulative seepage losses in 2015 (a drought year) were approximately 12,524 acre-feet per year and are a result of seepage in the Rio Grande streambed, evaporation from the water surface, and transpiration by vegetation along the river banks. Measured seepage losses are higher during wet

years, and these and additional losses further upstream starting from Elephant Butte Reservoir must also be accounted as part of the EPCWID1's water delivery operations and drought planning.

Because EPCWID1 has a limited ability to address water losses upstream, the District continuously invests in projects within its jurisdiction that increase efficiency and reduce losses. EPCWID1's ability to develop water conservation projects is partially dependent on revenues derived from water orders sourced by EPCWID1's annual allocation of Rio Grande Project water. In drought years, EPCWID1 revenues decrease. When possible, EPCWID1 partners with the Texas Water Development Board, the U.S. Bureau of Reclamation, the U.S. Section of the International Boundary and Water Commission (IBWC), and other local entities to cost-share many of its water conservation and drought mitigation projects.

Water conservation estimates and implementation strategies for El Paso County listed in the 2017 Texas State Water Plan determined that approximately 50,000 acre-feet of water per year can be saved by making improvements to EPCWID1's conveyance system, which includes installing new telemetry and automation equipment. According to a Texas A&M University report sponsored by the Texas Water Development Board (TWDB), there are very limited opportunities for water conservation in Far West Texas irrigated agriculture outside of making improvements to EPCWID1's conveyance system (Michelsen et al. 2009). The reasons for this can be summarized by: the most cost-effective best management practices in irrigation have already been implemented and associated water savings realized, there are limitations to gravity flow used by the irrigation system, sediment and salinity levels limit the use of pressure piping and drip-irrigation systems, and water conservation implementation costs for a number of practices exceed the agricultural value and benefits of any water saved.

The proposed telemetry installations are among the most important projects for EPCWID1 to continue providing the water necessary to sustain agriculture and provide water to the City of El Paso for municipal use under its contracts with EPCWID1. As water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

Projected Increases in Municipal Water Demand

The 2017 Texas State Water Plan estimates that the total water demand in El Paso County is 406,422 acre-feet of water per year. By 2070, water demand is expected to increase to 476,929 acre-feet of water per year. The population in El Paso County is expected to nearly double to over 1.5 million by 2070. Irrigation currently accounts for over 60% of water use in El Paso County, and a significant portion of future municipal water needs are projected to be supplied using increasing amounts of water previously allocated for irrigation. Municipal water demand projections in the 2017 Texas State Water Plan are based on current and projected future per capita consumption and are therefore susceptible to any variations in actual population increases.

One such variation is the continued expansion of Fort Bliss as a result of the U.S. Army's Base Realignment and Closure (BRAC) program, which from 2005 to 2011 brought 24,000 additional military personnel and over 20,000 dependents (Fort Bliss Garrison 2011). Increasing the

military value of Fort Bliss is one of the top economic development priorities for the City of El Paso, opening the possibility of future increases in military personnel (City of El Paso 2012). Fort Bliss received approximately 26% of its water supply from the City of El Paso in 2017 (Gonzalez 2017) and additional water can be supplied via emergency interconnections by El Paso Water Utilities in the event that the Fort Bliss Water Supply Corporation water systems are incapable of providing sufficient supply (FBWSC 2017).

Another variable that is not entirely accounted for in water supply and use projections is the increasing water demand in Ciudad Juarez, Mexico, which is located across the Rio Grande from the City of El Paso. The City of El Paso shares the Hueco Bolson aquifer with Ciudad Juarez, which is used to meet anywhere from 28-61% of municipal and industrial water needs in El Paso, depending on the availability of Rio Grande Project water. Historical groundwater overdraft in El Paso and Ciudad Juarez has caused large groundwater drawdowns, deterioration of groundwater quality, and land subsidence in the Hueco Bolson, although some shared measures have been taken to control the groundwater use (Sheng 2013).

Ciudad Juarez is currently 100% dependent on groundwater to satisfy all of its municipal and industrial water demands, according to the *Junta Municipal de Agua y Saneamiento de Juárez* (JMAS), Ciudad Juarez's municipal water utility. In 2014, 144,213 acre-feet of water were pumped from the Hueco Bolson aquifer, following a 15-year trend of average annual increases in pumping of 1,289 acre-feet since 2000 (FWTWPG 2016). In 2018, water use in Ciudad Juarez was approximately 162,142 acre-feet and 30 additional wells were brought online to meet peak summer demand (JMAS 2019). The population of Ciudad Juarez is estimated at over 1.4 million (CONAPO 2012). Water demand projections published by JMAS recommend a series of projects necessary to meet demand for a population of 1.7 million by 2030 (JMAS 2013).

According to their 2012-2030 Master Plan (JMAS 2013), JMAS expects to begin constructing two surface water treatment plants for potable use in 2020 and 2025 to treat up to 38,375 acre-feet of Rio Grande Project water per year (delayed due to COVID-19). This project is expected to be partially funded by the North American Development Bank (NADBANK), a binational financial institution established by the governments of the United States and Mexico to provide financing to support the development and implementation of infrastructure projects along the U.S.-Mexico border. Meeting Ciudad Juarez' growing water demand via the construction of the two surface water treatment plants will depend on the United States' ability to meet treaty-obligated deliveries to Mexico. As such, significant collaboration and conservation investments are needed in both nations to address current and future challenges facing the region's limited water supplies.

To address water reliability concerns, El Paso Water Utilities (EPWU) has adopted multiple water source diversification strategies, including desalination, advanced purification, and long-distance importation of water from outside El Paso County. Reports by EPWU (Gonzalez 2017, Balliew 2019) compared drinking water quality treatment costs per acre-feet, determining that treatment costs for surface river water are the second least expensive option at $300 per acre-foot, while costs for desalination are $508 per acre-foot, costs for advanced purification are $1,370 per acre foot, and costs for long-distance importation are $2,840 per acre foot (see figure 6 below). Because surface water is one of the few renewable water resources available to the El

Paso region, both EPWU and EPCWID1 developed planning (via the 2022 Texas State Water Plan), engineering, environmental, and permitting work necessary to deliver Rio Grande Project water for the first time to the Upper Valley Water Treatment Plant. Two projects that advanced this effort were funded by Reclamation as part of the 2019 WaterSMART Water and Energy Efficiency Grants Program (R19AP00150) and 2019 Water Conservation Field Services Program (R20AP00046).

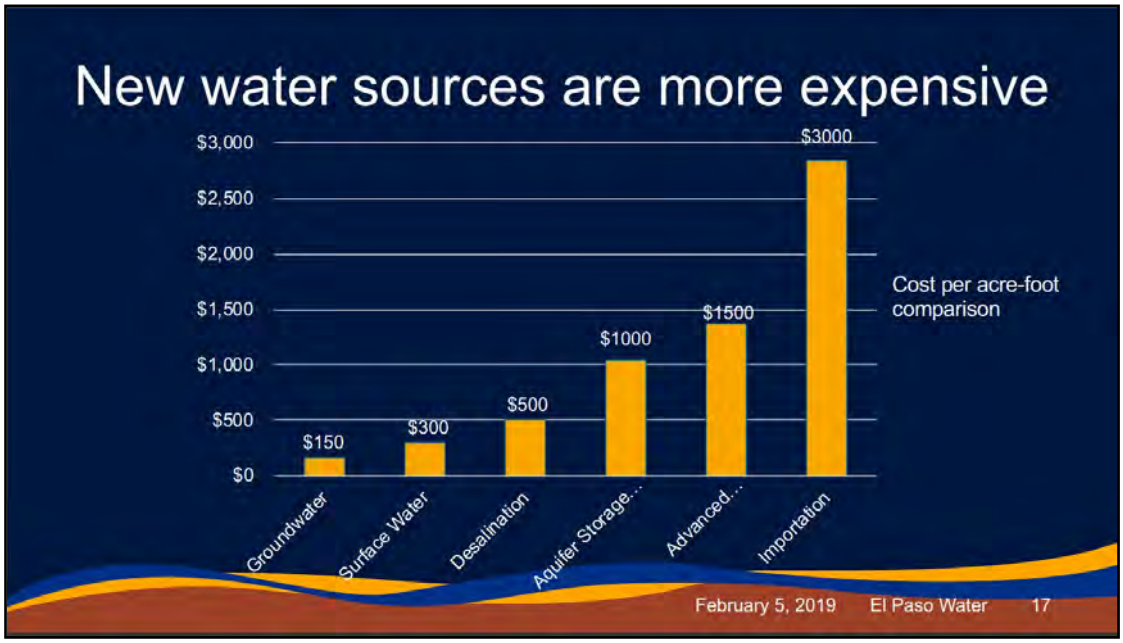

Figure 6. Cost per Acre-foot Comparison by El Paso Water (Balliew 2019)

Irrigation Water Demand Exceeds Surface Water Supply

Whereas municipal water use is priced in such a way that it allows EPWU to invest in large-scale water source diversification, there are limited, cost-effective projects available for agricultural water users outside of conservation. According to the 2017 Texas State Water Plan, there are approximately 53,202 acre-feet of annual unmet water needs for irrigation in El Paso County during drought-of-record conditions (see Figure 7 below). The growing imbalance between supply and demand is expected to lead to greater reliance on non-renewable groundwater resources used by farmers in the El Paso region.

Only a portion of the agricultural land in El Paso County has access to private irrigation wells of which a majority of the wells produce water with total dissolved solids (TDS) of greater than 1,000 mg/l (many in excess of 2,500 mg/l) with significant sodium content (see Figure 6 below). The high salt content limits the amount of groundwater that can be used to grow irrigated crops. Consequently, many farmers rely on blending surface water from the Rio Grande with groundwater to meet their water quality needs or use surface water exclusively. During years of drought, many agricultural operations are fallowed or deficit irrigated.

EPCWID1 currently operates and maintains 60 active shallow groundwater well sites that are used to provide supplemental irrigation water during drought. Recovered groundwater is used to supplement Rio Grande Project water during drought periods with an average system-wide capacity of 8,500 acre-feet of groundwater per month. The cost of pumping and delivering

supplemental groundwater costs is approximately $45 per acre-foot, which is significantly more expensive than surface water costs. As such, widespread groundwater use considered inadequate to meet irrigation water deficits.

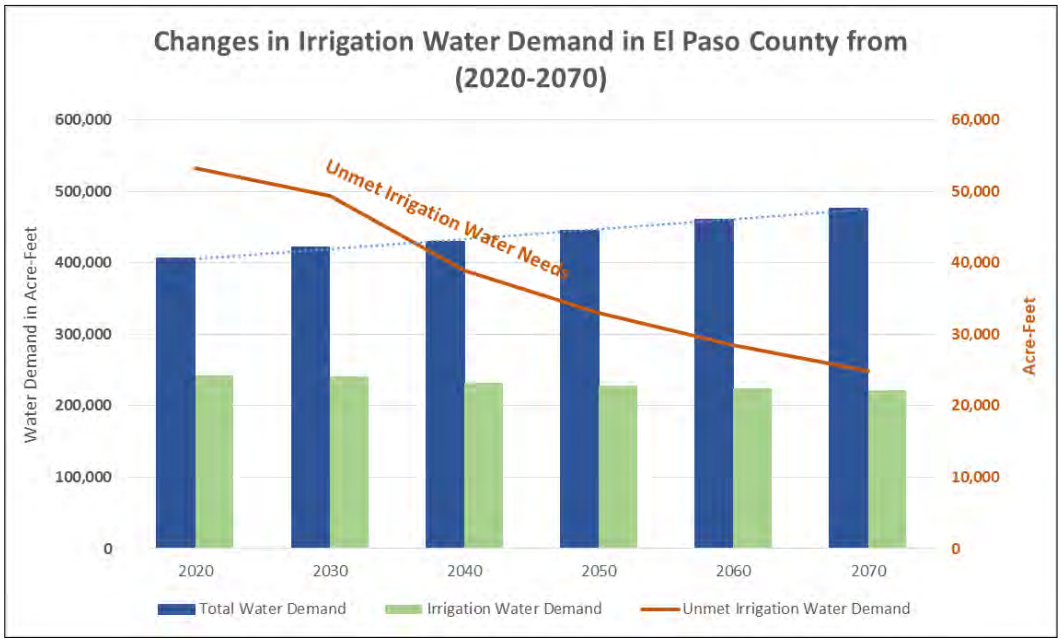

Figure 7. Changes in Irrigation Water Demand in El Paso County (FWTWPG 2016)

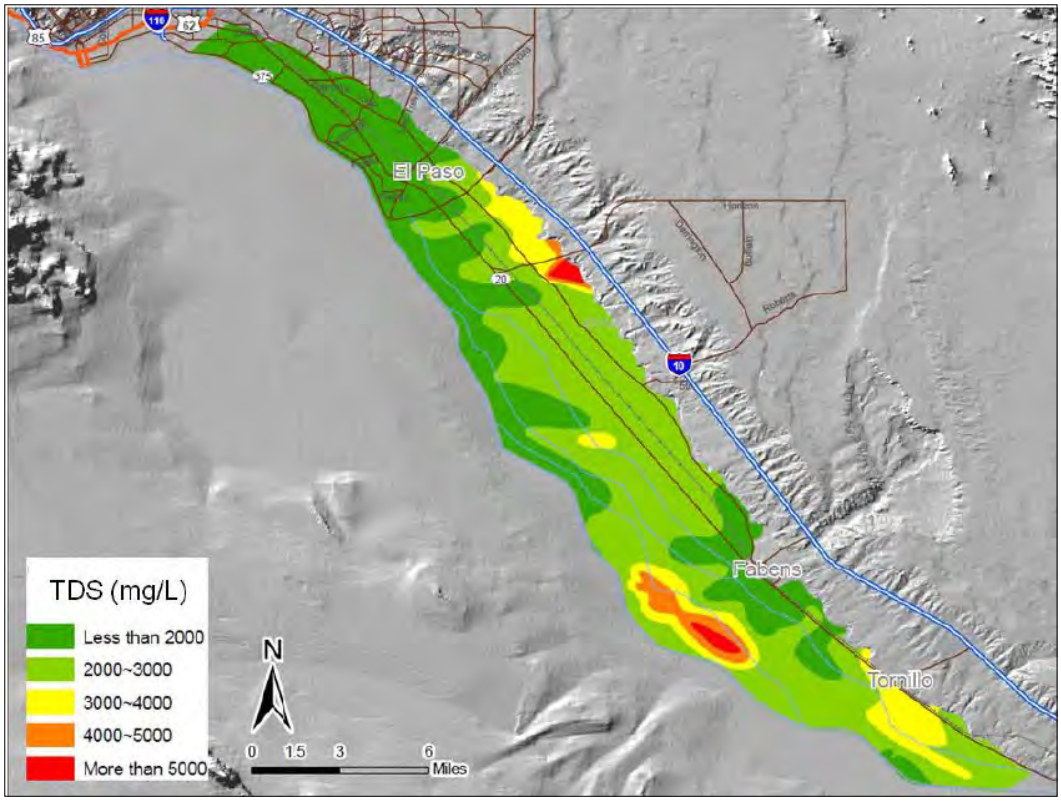

Figure 8. TDS in the Rio Grande Alluvial Aquifer (CH2MHILL 2011)

Prolonged Drought and Current Near Drought-of-Record Conditions

Surface water users in the El Paso region are currently experiencing near record-of-drought conditions. The westernmost part of Texas, as well the headwaters of the Rio Grande in Colorado and New Mexico from which the EPCWID1's water supply originates, have been in drought for much of the past two decades, with only 2005, 2008, 2016, 2017, and 2019 experiencing average or above-average spring runoff into Elephant Butte Reservoir (see Figure 10 below). In 2018, Elephant Butte Reservoir reached near record-low levels at about 3% capacity, with just 58,240 acre-feet of water in storage as of September (total conservation capacity is 1,973,358 acre-feet). Water levels at Elephant Butte Reservoir in 2021 are similar to 2018 (see Figure 11 below).

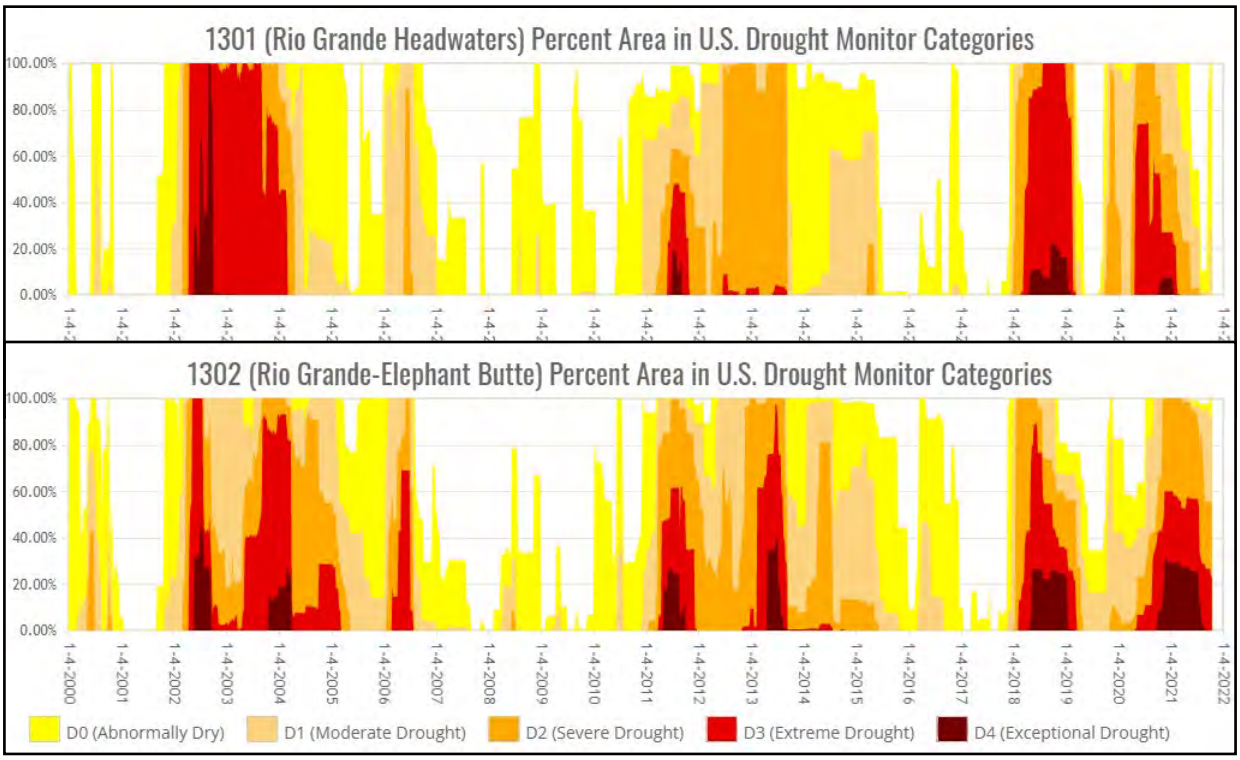

Figure 9. U.S. Drought Monitor Intensity for the Rio Grande from 2000-2021

Storage levels in Elephant Butte Reservoir in 2018 were also similar to drought conditions in 2013 (see Figure 11). 2013 was the shortest irrigation season in El Paso (less than six weeks) and supplied the least amount of water in the almost 100-year history of the Rio Grande Project. Storage levels in Elephant Butte Reservoir have only been at or below the 2013 and 2018 levels three times: during the drought-of-record from 1951-1957, in 1963-1964, and in 1971-1972.

To meet municipal water demands in 2013, the City of El Paso drilled new groundwater wells and operated its desalination plant at maximum capacity with per acre-foot costs that are higher than surface water treatment (EPWU 2014). These new near drought-of-record conditions prompted changes to water availability and supply projections modeled by the Texas Water Development Board (TWDB) for the 2022 Texas State Water Plan. Based on these changes, the projected timeline, schedule, and urgency for developing water conservation projects has been accelerated.

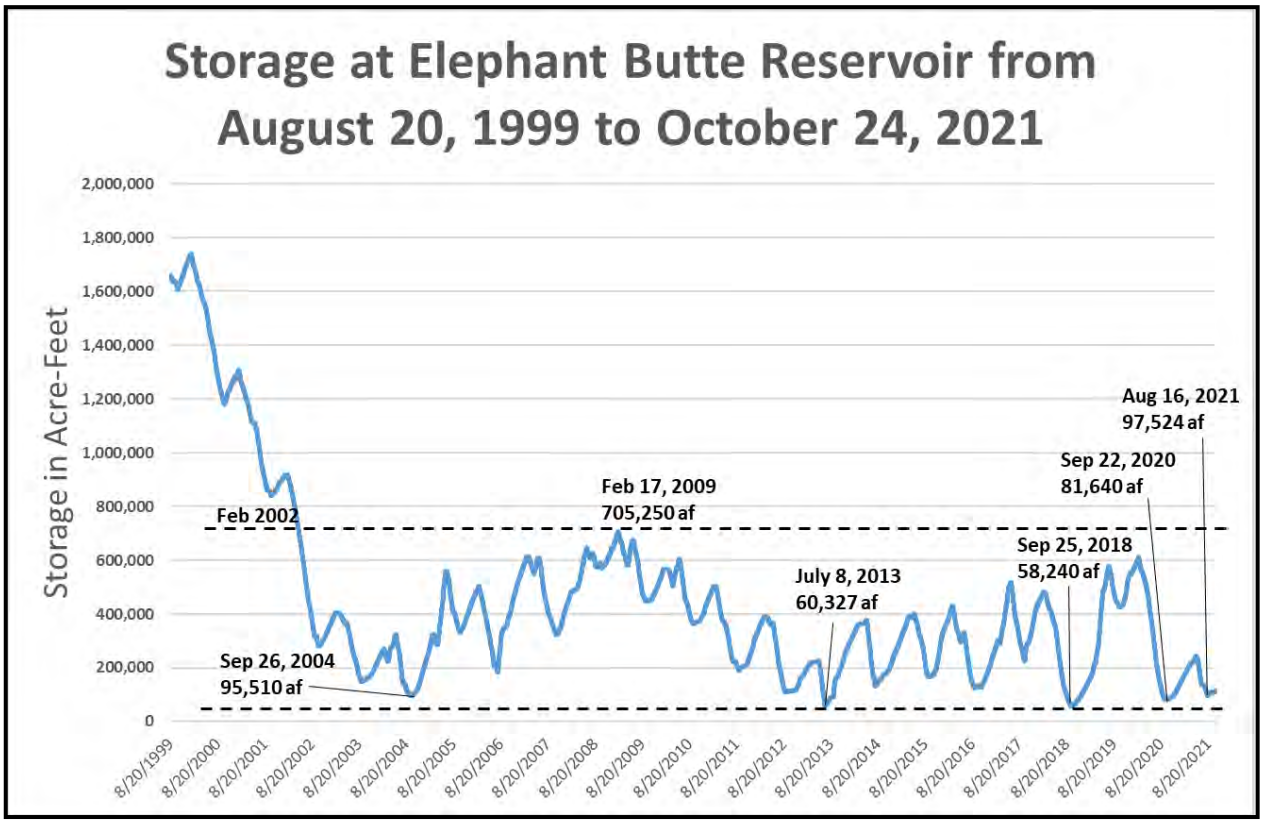

Figure 10. Storage and Level Thresholds at Elephant Butte Reservoir from 1999 - 2021

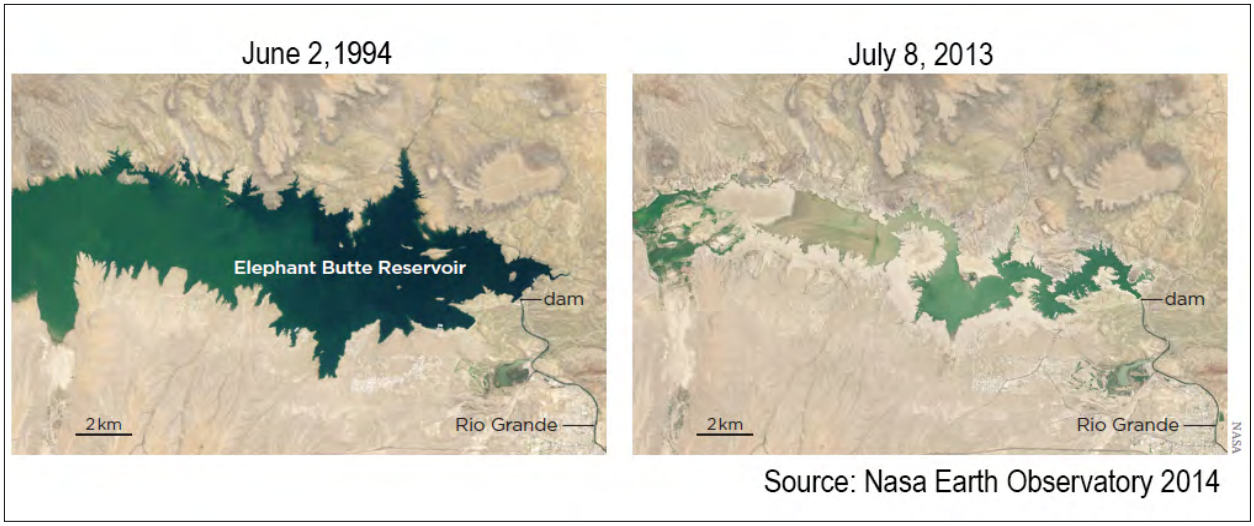

Figure 11. Images of Elephant Butte Reservoir in 1994 and 2014

By all measures, the El Paso region is currently experiencing drought. The headwaters and the lower Rio Grande Basin south of Elephant Butte Reservoir are experiencing abnormal to moderate drought conditions as of October 12, 2021 (see Figure 12). Drought is expected to continue per estimates in the August 20 U.S. Seasonal Drought Outlook (see Figure 13).

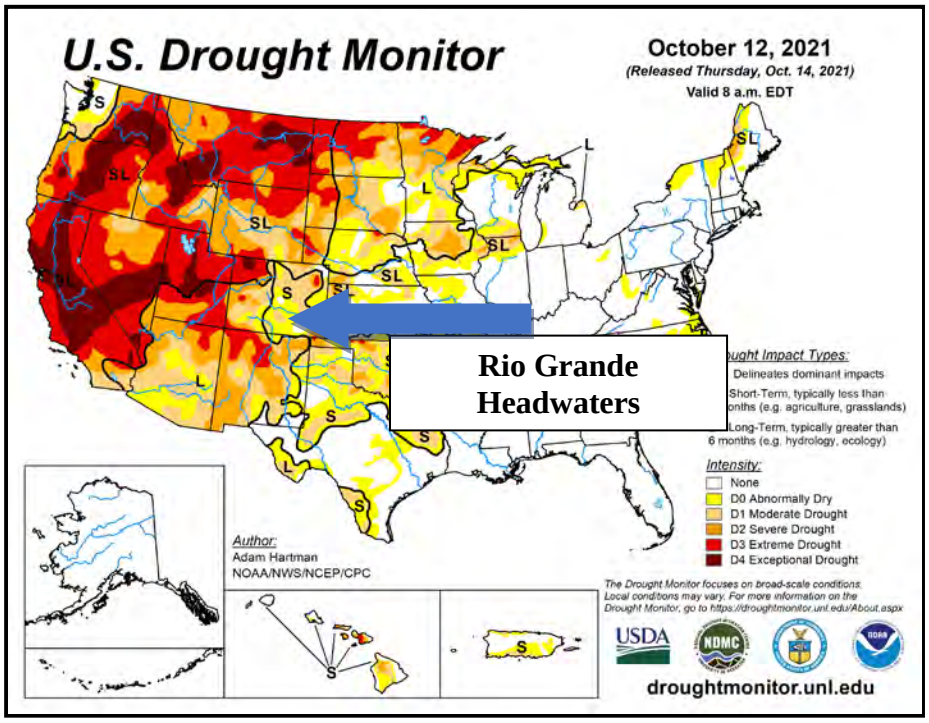

Figure 12. U.S. Drought Monitor and Rio Grande Headwaters

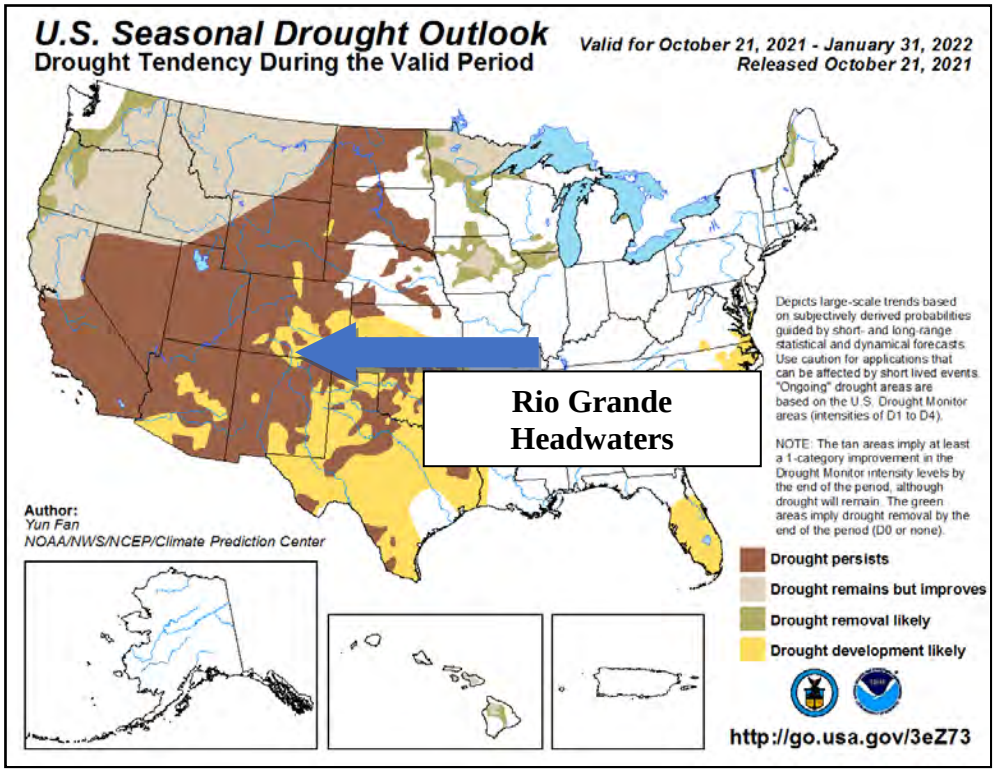

Figure 13. U.S. Drought Monitor and Rio Grande Headwaters

The Impact of Drought on the Local Economy

Beneficial use and conservation of water is critical to the El Paso economy. A TWDB study on the socioeconomic impacts of projected water shortages in El Paso County determined that, if unmet, water shortages would have a negative economic impact of $3.45 billion by 2070 and include almost 25,000 jobs lost (TWDB 2015). The economic impact of unmet irrigation water demands directly contributes to the slowing or reversal of job growth in areas where the economy benefits from agricultural revenues. Estimates from Texas A&M University determined that $150 million in agricultural sales were lost due to irrigation water reductions from drought conditions in 2011-2015 (TAMU 2015). All of the Upper Rio Grande Basin has received drought designations by the USDA, including El Paso County (see Figure 14).

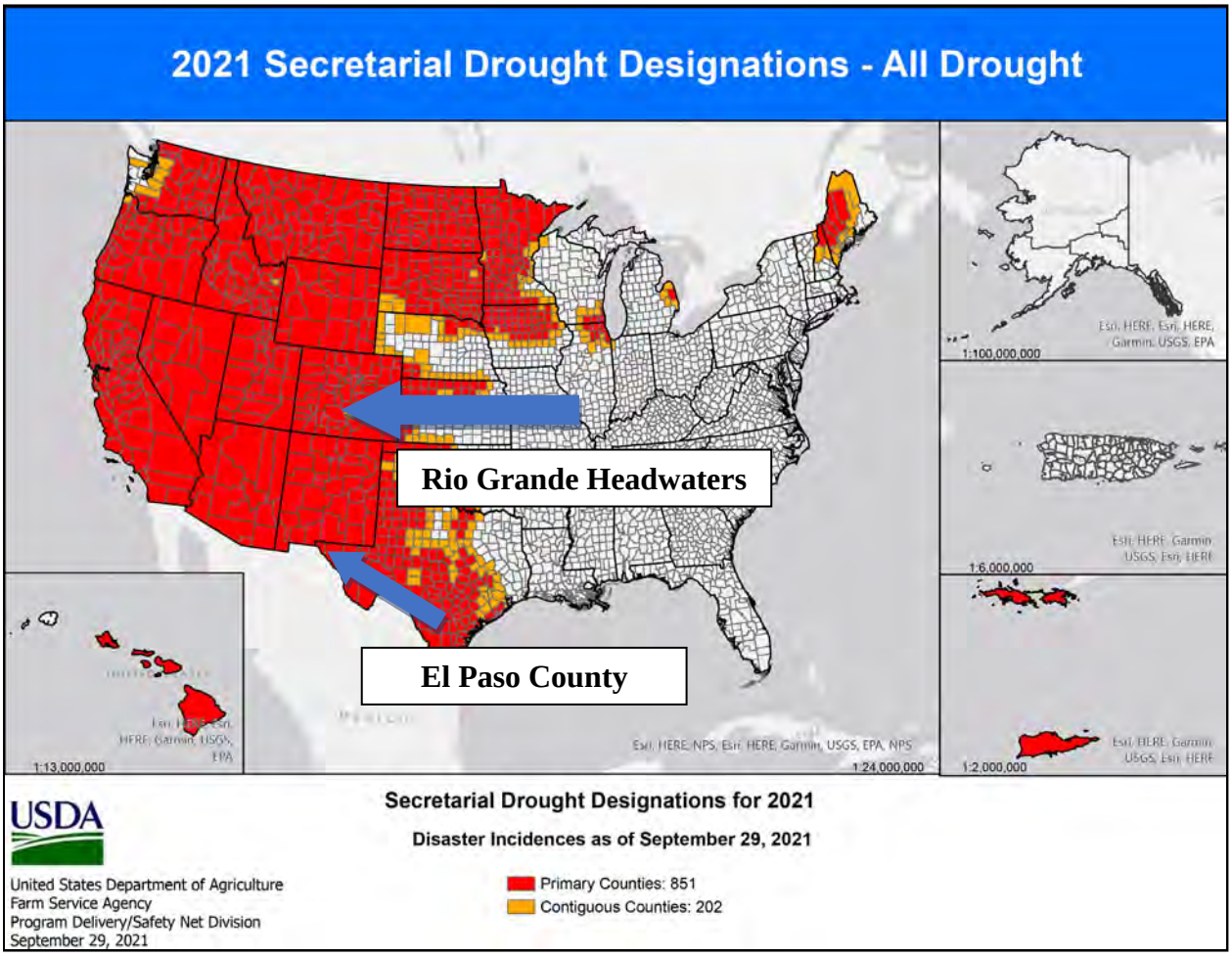

Figure 14. 2020 Secretarial Drought Designations as of September 29, 2021

Economic activity in other sectors can also be impacted by water shortages. According to the 2014 Southern New Mexico and El Paso Joint Land Use Study (JLUS 2015), water source diversification efforts have allowed Fort Bliss to augment its water supplies by purchasing water and developing emergency interconnections with the City of El Paso, thereby positively impacting the military value of the base. 1 in 5 jobs in the El Paso region are linked to military

installations. The Texas Comptroller estimates that Fort Bliss contributed $24.1 billion to the Texas economy in 2015 (Texas Comptroller 2016).

Projected Reductions in Snowpack, Snow Water Equivalence, and Overall Water Supply
In order to sustain the local agricultural economy, growing water demand, and growing population, water users in the Rio Grande watershed will need to continue making investments in water conservation to adapt to projected reductions in surface water supply.

A *Review of Observed and Projected Climate Changes* (2013) by the U.S. Bureau of Reclamation noted that projected reductions in snowpack, declines in snow water equivalence, and advanced snowmelt resulting from increased temperatures will lead to a 10% to 30% reduction of water flow in the Rio Grande in the next 50 to 70 years. The usable, manageable water supply is projected to decline in the Upper Rio Grande, where supplies over the course of the 21st century are projected to decrease by about one-fourth in the Colorado portion of the basin and by about one-third in the New Mexico portion (USBR 2016). The Rio Grande at El Paso observed flows for 2001 through 2010 that were about 23% lower than the period from 1941 through 2000 (Chavarria & Gutzler 2018). Assessed annual and monthly changes in streamflow volume and surface climate variables near the headwaters of the Rio Grande River suggest that snow water equivalent has decreased by approximately 25% from 1958 – 2015 in part due to temperature increases, although small increases in precipitation have reduced the impact of declining snowpack on streamflow (Chavarria & Gutzler 2018). Reservoir evaporation at Elephant Butte Reservoir, the reservoir with the highest evaporative losses in the Upper Rio Grande Basin, is projected to increase by up to 10 percent as a result of projected increases in temperature. Decreasing runoff and streamflow also threaten Mexican irrigation, food production, and Treaty-obligated deliveries to the Rio Grande (USBR 2016).

- *Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.*

This question does not apply to the project.

- *Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?*

Conserving water via efficiency improvements is among the most cost-effective water management strategies available in the El Paso region (Michelsen et al. 2009). As irrigation water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

- *Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

Water conserved as a result of the proposed project will continue to use Rio Grande Project storage (Elephant Butte and Caballo Reservoirs) and conveyance systems (Rio Grande and EPCWID1 irrigation system). The conserved water will be used to offset the Hueco Bolson Aquifer for municipal and agricultural use in accordance with available Rio Grande Project allocations.

The City of El Paso draws groundwater from the Hueco Bolson Aquifer to meet 28-61 of municipal and industrial water demand. When a full allocation is available, EPCWID1 delivers Rio Grande Project water to the City of El Paso to meet approximately 50% of this demand. I.e., as more Rio Grande Project water is conserved and accumulated at Elephant Butte and Caballo Reservoirs, the City of El Paso can better project available water supplies and effectively reduce groundwater pumping.

Conserved water resulting from the AFM Improvements Project will also reduce agricultural groundwater use. According to the 2017 Texas State Water Plan, there are approximately 53,202 acre-feet of annual unmet water needs for irrigation in El Paso County during drought-of-record conditions. The growing imbalance between supply and demand is expected to lead to greater reliance on non-renewable groundwater resources used by farmers in the El Paso region. The amount of groundwater used by farmers is inversely proportional to available Rio Grande Project water. As such, EPCWID1's water conservation and efficiency projects ultimately benefit the region by making more Rio Grande Project water available which will offset groundwater use.

- *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*

Water conserved as a result of the proposed project will continue to use Rio Grande Project storage (Elephant Butte and Caballo Reservoirs) and conveyance systems (Rio Grande and EPCWID1 irrigation system).

- *Indicate the quantity of conserved water that will be used for the intended purpose(s).*

All water (approximately 1,143 acre-feet per irrigation year) conserved as a result of the project will be stored or used as needed to address water reliability concerns within EPCWID1 boundaries.

Other project benefits. *Please provide a detailed explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:*

(1) Combating the Climate Crisis: Presidential Executive Order 14008: Tackling the Climate Crisis at Home and Abroad. *Please describe how the project will address climate change, including the following:*

a. Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

The AFM Improvements Project will lead to significant reductions in water losses due end-of-system spills. Making improvements to EPCWID1's remote flow measurement capabilities will improve the El Paso region's 100+ year old irrigation system operational efficiency, which is a form of future-proofing the system's conveyance capacity in preparation for a hotter, drier future climate.

b. Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

In alignment with findings from the 2021 Far West Texas Water Plan and 2022 Texas State Water Plan, agricultural water supply sustainability in El Paso will require achieving more than 25,000 acre-feet in water savings at an estimated cost of $157 million (Water Management Strategy E-37). By improving water delivery efficiency, the proposed project will make EPCWID1's irrigation system more resilient to climate change. Additional details on Water Management Strategy E-37 and regional sustainability strategies can be referenced below:

2021 Far West Texas Regional Water Plan (Page 11-18)
http://westtexaswaterplanning.org/wp-content/uploads/2020/11/2021-Far-West-Texas-Water-Plan.pdf

2022 Texas State Water Plan (Interactive)
https://2022.texasstatewaterplan.org/project/1777

c. Will the proposed project establish and use a renewable energy source?

This question does not apply to the project.

d. Will the project result in lower greenhouse gas emissions?

This question does not apply to the project.

(2) Disadvantaged or Underserve Communities: *E.O. 14008 and E.O. 13985 support environmental and economic justice by investing in underserved and disadvantaged communities and addressing the climate-related impacts to these communities, including impacts to public health, safety, and economic opportunities. Please describe how the project supports these Executive Orders, including the following:*

a. Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.

Municipal water users in El Paso County rely on the Mesilla Bolson and Hueco Bolson Aquifers to meet demand. High levels of naturally-occurring arsenic are present in the Mesilla Bolson Aquifer. Communities along the Texas-New Mexico border including the Town of Anthony,

Texas, the Village of Vinton, Texas, and multiple Census Designated Places (Canutillo, Westway) rely on water purchased from the City of El Paso to meet water quality standards.

In 2006, the Environmental Protection Agency (EPA) reduced the maximum amount of arsenic allowable in U.S. Drinking water from 50 parts per billion (ppb) to 10 ppb. In order to comply with that standard with regards to the Mesilla Bolson Aquifer, where El Paso obtains 19% of its water, El Paso Water Utilities designed and constructed the $77 million Upper Valley Water Treatment Plant.

The Record of Decision for the El Paso-Las Cruces Regional Sustainable Water Project, a planning initiative led by the Texas-New Mexico Water Commission with the U.S. Section of the International Boundary and Water Commission and El Paso Water Utilities as lead agencies (Reinert et al. 2001), selected a Preferred Alternative that called for treating up to 80 million gallons per day (MGD) (89,611 acre-feet of water per year) of Rio Grande Project Water by 2030.

Although the Upper Valley Water Treatment Plant does not currently treat surface water, El Paso Water Utilities already receives Rio Grande Project water at two other treatment plants which rely on interconnections. El Paso Water Utilities and EPCWID1 are developing a strategy to decrease reliance on non-renewable groundwater resources in the Mesilla Bolson Aquifer and allow Rio Grande Project water to be used by El Paso Water Utilities to meet federal regulations. Additional information on this joint strategy is available for reference under Water Management Strategy E-22 in the 2022 Texas State Water Plan (Interactive) at https://2022.texasstatewaterplan.org/project/4090 and the 2021 Far West Texas Regional Water Plan (Page 5-16) http://westtexaswaterplanning.org/wp-content/uploads/2020/11/2021-Far-West-Texas-Water-Plan.pdf.

All Rio Grande Project water conserved will directly benefit communities in El Paso County, which meet the disadvantaged community definitions outlined in Section 1015 of the Cooperative Watershed Act (see next section). As water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water to El Paso Water Utilities in drought years when unmet water demands are highest

b. If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act (defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State), or the applicable state criteria for determining disadvantaged status.

The proposed project will improve water reliability in an area impacted by prolonged drought conditions. According to the *October 2021 StatsAmerica Distress Criteria Statistical Report* by the U.S. Economic Development Administration (EDA), El Paso County is considered economically disadvantaged. The pre-COVID-19 Median Household Income (MHI) (2019 ACS 1-Year Estimates) is $48,903, which is at 76.4% of the Texas MHI ($64,034). The poverty rate stands at 18.8% compared to 13.6% in Texas. Based on MHI, the proposed project will provide

benefits to multiple communities that meet the definition of "disadvantages community" per Section 1015 of the Cooperative Watershed Act.

Table 3. Distress Criteria Statistical Report in October 2021 for El Paso County, Texas

24 Month Unemployment	Threshold Calculation	BEA PCPI	Threshold Calculation	ACS 5-year PCMI	Threshold Calculation
7.11	0.55	$37,715	66.8	$21,683	63.6

c. If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

EPCWID1 regularly works with agricultural producers considered historically underserved in water conservation and efficiency projects. The project expected to benefit historically underserved farmers. The majority of producers in El Paso fall under the US Department of Agriculture (USDA) definition of historically underserved farmers and ranchers as defined by the Agricultural Improvement Act of 2018 (2018 Farm Bill). According to the data from the 2017 Census of Agriculture for El Paso County, 444 out of 656 (67.7%) farms and 79,424 out of 142,675 (55.7%) are operated by a Hispanic producer. 166 out of 1,062 (25.3%) farms are operated by veterans. 185 out of 656 (28.2%) farms are operated by new and beginning producers.

(3) Tribal Benefits: *The Department of the Interior is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. Please address the following, if applicable:*

a. Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

Water conserved as a result of the proposed project will benefit all Rio Grande Project water users served by EPCWID1, including the Ysleta del Sur Pueblo, a federally recognized tribe. EPCWID1 delivers water to the Ysleta del Sur Pueblo Reservation for agriculture and for two of the Ysleta del Sur Pueblo's most important ceremonial processions: *St. Anthony of Padua Feast Day* and *Dia de Los Santos Reyes*. The Ysleta del Sur Pueblo owns 379.2 acres of land with active irrigation water rights.

b. Does the proposed project directly 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?

As water use demand is met by a more efficient conveyance system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water to the Ysleta del Sur Pueblo in drought years when unmet water demands are highest.

(4) Other Benefits: *Will the project address water and/or energy sustainability in other ways not described above? For example:*

a. Will the project assist States and water users in complying with interstate compacts?

Texas v New Mexico Supreme Court Litigation Regarding the Rio Grande Compact
The proposed project will contribute water via conservation and efficiency improvements to delivery operations for Rio Grande Project water users. The methodology for determining diversions and allocations established in the 2008 Operating Agreement between the District, Elephant Butte Irrigation District, and Reclamation is currently in litigation (*State of Texas v State of New Mexico and State of Colorado, No. 22O141 Original in the United States Supreme Court and Intervention by the United States*). Decreasing and streamflow threaten Mexican irrigation, food production, and treaty-obligated deliveries to Mexico via the Rio Grande (USBR 2016).

b. Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

Water conserved because of the proposed project will benefit the agriculture, municipal, and environmental water users, including:

- An average of 49,000 acres of agricultural lands
- Approximately 50% of municipal water demand for a population of over 800,000 in El Paso County
- 372 acres of designated wetlands with active irrigation water rights that are also used for recreation and eco-tourism (Rio Bosque Wetlands Park)
- 379.2 acres of tribal land with active irrigation water rights (Ysleta del Sur Pueblo)

c. Will the project benefit a larger initiative to address sustainability?

Water Management Strategy E-37
Conserving water via conveyance and operational efficiency improvements are among the most cost-effective water management strategies available in the El Paso region (Michelsen et al. 2009). The AFM Improvements Project is a key component of Water Management Strategy (WMS) E-37 in the 2021 Far West Texas Water Plan and 2022 Texas State Water Plan. WMS E-37 is a strategy to ensure the sustainability of agricultural water supplies in El Paso during prolonged and near drought-of-record conditions. Water stakeholders in El Paso must invest aggressively to ensure that Rio Grande Project water can be managed sustainably amidst a changing climate, increased water demand, and continuing conflicts. WMS E-37 will require achieving more than 25,000 acre-feet in water savings at an estimated cost of $157 million. Improved conveyance improvements are necessary for sustainability.

Previous Investments in EPCWID1's Flow Measurement Capacity
EPCWID1 currently operates 99 remote metering canal sites throughout the irrigation system (see Appendix C). EPCWID1 also operates 60 remote metering shallow groundwater well sites. Previous investments were made by EPCWID1 and a 2018 grant from the Texas Water

Development Board (TWDB)'s Agricultural Water Conservation Grants program (10 sites). Reclamation also funded the installation of 60 well metering sites as part of its 2019 WaterSMART Small-Scale Water Efficiency Program (SWEP) (Agreement No. R19AP00207). The estimated total value of these investments is $2.6 million.

d. Will the project help to prevent water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?

The El Paso region faces unique water challenges characterized by an agricultural system that is a century old, prolonged drought conditions, dwindling and limited water supplies, a growing population and a growing sister city in Mexico with shared groundwater and surface water supplies, interstate and international treaties, and interstate litigation that may impact the EPCWID1's water supply from the Rio Grande. EPCWID1 is located in an area considered to be of "Substantial Potential for Conflict" as defined in the U.S. Bureau of Reclamation's Technical Memorandum 86-68251-11-01 (2011). As previously stated, EPCWID1 is involved in the Texas v New Mexico and Colorado Supreme Court litigation regarding the Rio Grande Compact. At the center of this litigation are conditions established by the 2008 Operating Agreement which were negotiated by the District, Elephant Butte Irrigation District in New Mexico, and Reclamation.

The proposed project will increase the efficiency of EPCWID1's distribution system and conserve water. The 2008 Operating Agreement introduced the option for EPCWID1 to carry over a maximum of 232,915 feet, equivalent to 60% of EPCWID1's full yearly allocation. This is a significant conservation incentive, and as irrigation water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

D. Evaluation Criterion D: Complementing On-Farm Irrigation Improvements (10 Points)

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:
Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.

- *Provide a detailed description of the on-farm efficiency improvements.*

EPCWID1 has a history of collaboration with the Natural Resources Conservation Service (NRCS) program and periodically hosts local work group management meetings at the District offices. The Environmental Quality Incentives Program (EQIP) 2020 El Paso District Priorities include practices that can enhance water availability and efficient irrigation systems.

Cropland Priority 1	**Excess/Insufficient Water - Inefficient use of irrigation water**
Irrigated Cropland Priority 1	**Excess/Insufficient Water - Inefficient use of irrigation water**

The proposed project advances NRCS priorities by conserving water and improving efficiency.

- *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*

On May 11, 2021, EPCWID1 informed the office of the local NRCS District Conservationist of the AFM Improvements Project. NRCS partners with the El Paso-Hudspeth Soil and Water Conservation District (SWCD) to provide technical and financial assistance to local farmers for the implementation of on-farm efficiency projects. The SWCD contacted agricultural producers with details on USDA and Reclamation's partnership.

- *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*

Due to prolonged drought conditions and COVID-19 restrictions, EPCWID1 was not successful in obtaining documentation from any upcoming NRCS EQIP projects impacted by the AFM Improvements Project. According to the USDA NRCS El Paso Office, the demand for NRCS EQIP projects is linked to drought and available Rio Grande Project water supplies. Farmer production and revenues decrease as drought forces farmers to fallow or deficit irrigate their agricultural acreage. This makes water conservation investments that are partially funded by EQIP less viable compared to non-drought periods.

- *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

No letters of intent were secured primarily due to local COVID-19 restrictions.

Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.

- Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how?

EPCWID1's telemetry data is publicly available and farmers have the option to use water flow and availability data to inform the development of on-farm soil sensor improvements.

- Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?

The proposed project advances NRCS priorities by conserving water and improving efficiency in the area.

Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.

- Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.

No water savings data is available at this time.

Please provide a map of your water service area boundaries. If your project is selected for funding under this funding opportunity, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.

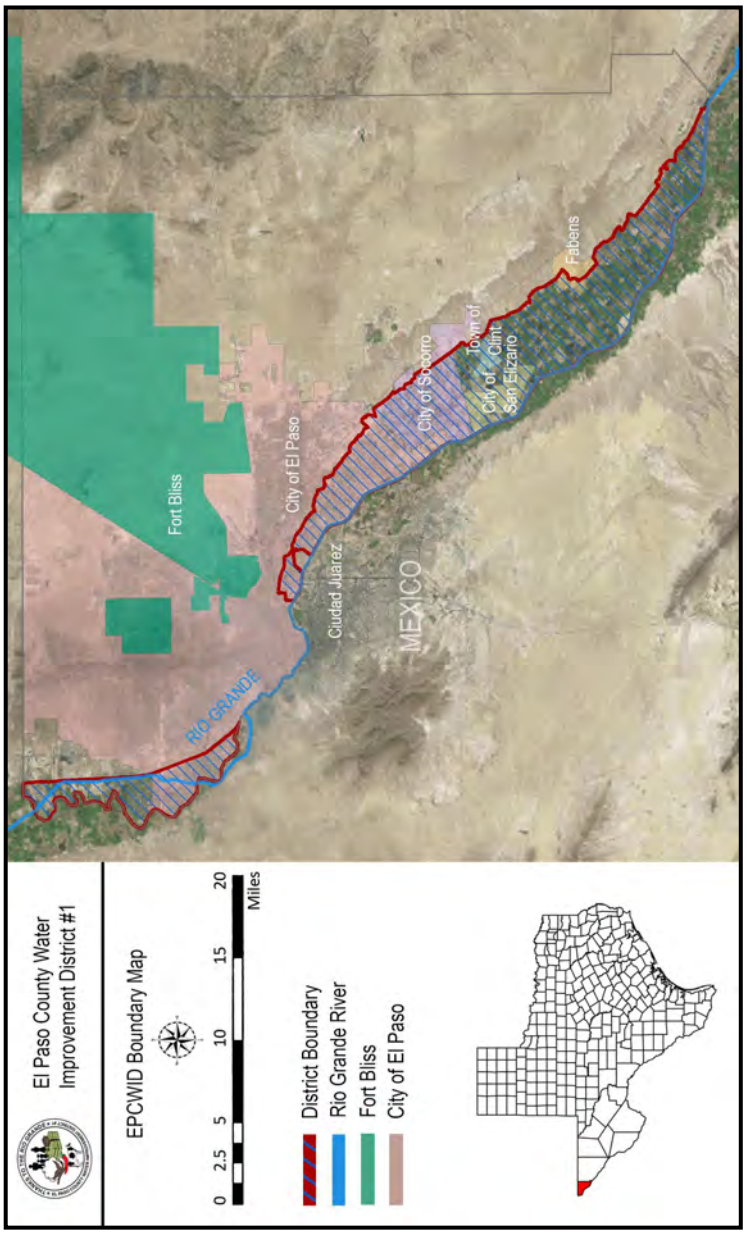

Figure 15. EPCWID1 Jurisdictional Boundaries Map

E. Evaluation C*riterion E: Planning and Implementation (8 Points)

Subcriterion E.1. Project Planning
Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study?

Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate.

The District Board of Directors approved an update to the District's Water Conservation Plan (WCP) in 2019 and the WCP is available for reference at https://www.epcwid1.org. The WCP incorporates findings from an internal System Optimization Review (SOR) and prioritizes conservation and efficiency projects.

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan, or other planning efforts done to determine the priority of this project in relation to other potential projects.

2022 Texas State Water Plan and 2021 Far West Texas Water Plan

The AFM Improvements Project is listed under Water Management Strategy (WMS) E-37 in the 2022 Texas State Water Plan. The State Water Plan is developed at the state level by the Texas Water Development Board (TWDB) with input from local water users and historical water use data. Improvements in EPCWID1's delivery system in WMS E-37 are estimated to conserve an aggregated 25,000 acre-feet of water per year. The project is also included as part of a Recommended Water Management Strategy in the state-approved 2021 Region E Far West Texas Water Plan, which is developed by the Far West Texas Water Planning Group (FWTWPG). Projects prioritized in these water plans are eligible for state funding from the TWDB. A Letter of Support from the Texas Water Development Board with additional details is included in Appendix A.

2021 Far West Texas Regional Water Plan (Page 11-18)
http://westtexaswaterplanning.org/wp-content/uploads/2020/11/2021-Far-West-Texas-Water-Plan.pdf

2022 Texas State Water Plan (Interactive)
https://2022.texasstatewaterplan.org/project/1777

2019 EPCWID1 Water Conservation Plan
The Advanced Flow Measurement (AFM) Improvements Project is a planned efficiency improvement strategy included in the EPCWID1's Water Conservation Plan (WCP). Select projects are listed in Table 4:

Table 4. Select Water Conservation Projects Prioritized in Internal SOR

Project	Date Start	Date End	Estimated Costs ($)	*ac-ft/yr	Status
Riverside Canal Lining Phase IA	2014	2016	$612,000	758	Completed
Riverside Canal Lining Phase II	2019	2021	$2,302,500	2,639	Completed
Riverside Canal Lining Phase IB	2015	2016	$550,000	621	Completed
Riverside Canal Lining Phase III	2020	2023	$2,039,504	1,770	In Progress
Riverside Canal Lining Phase IV	2023	2025	$2,002,417	1,145	Funding Req.
Riverside Canal Lining Phases V-VI	2025	2028	$10,600,000	4,842	Engineering
Franklin Canal Lining Phase I	2017	2020	$5,223,316	874	Completed
Franklin Canal Lining Phase II	2022	2025	$4,002,417	568	Funding Req.
Franklin Feeder Lining Project Phase 2	2019	2021	$1,113,360	376	In Progress
La Union East Canal Lining	2019	2022	$925,298	231	In Progress
Telemetry Phase I (TWDB)	2018	2021	$100,000	1,658	Completed
Telemetry Phase II (USBR well meters)	2019	2021	$150,153	410	Completed
Telemetry Phase III (USBR)	**2022**	**2024**	**$421,740**	**1,143**	**Funding Req.**

*Water conservation estimates may vary by year, use, allocation, and water supply availability

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

The project was selected based on its water conservation potential, expected return on conservation investment, and overall contribution to WMS E-37. The AFM Improvements Project will complete one of the projects listed in EPCWID1's 2019 Water Conservation Plan and advance Water Management Strategy E-37 in the 2022 Texas State Water Plan.

The method for determining the project return on conservation investment is calculated via:

*Total project cost / (annual water savings * life expectancy) = return on conservation investment*
$421,740 / (1,143 acre-feet per year *10 years) = $36.8976 → $36.90 per acre-foot

(3) If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes).

The Riverside Canal Concrete Lining Project: Phase IV is aligned with priorities outlined in Reclamation's Rio Grande Basin SECURE Water Act Section 9503(c) Report to Congress, which states: "For the next steps in the Rio Grande Basin, Reclamation has projects in progress

to increase water conservation and efficiency. Smart meters are included among prioritized projects (USBR 2021, p. 39).

Subcriterion E.2. Readiness to Proceed
Applications that include a detailed project implementation plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

- *Identify and provide a summary description of the major tasks necessary to complete the project.*

Task 1: Environmental and Regulatory Compliance
EPCWID1 will work with Reclamation to meet federal environmental and regulatory compliance requirements, including National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance. EPCWID1 expects that a Categorical Exclusion Checklist (CEC) to fulfill this requirement. No further work is expected.

Task 2: Purchasing Telemetry and Automation Equipment
EPCWID1 will procure and purchase all equipment listed in the Budget Justification section in compliance with 2 CFR 200 and in accordance with EPCWID1's Reclamation-approved purchasing policy. All purchase and procurement records will be submitted to Reclamation.

Task 3: Installing Telemetry and Automation Equipment (50%)
EPCWID1 staff will construct and install telemetry site structures (slabs, bridges, mounting, vandal boxes, telemetry equipment (solar panels, SCADA, wiring, flow meters, and test and calibrate telemetry equipment. EPCWID1 will submit to Reclamation all equipment installation records and photos, telemetry water flow and calibration data, and labor and fringe costs.

Task 4: Installing Telemetry and Automation Equipment (100%)
EPCWID1 staff will construct and install telemetry site structures (slabs, bridges, mounting, vandal boxes, telemetry equipment (solar panels, SCADA, wiring, flow meters, and test and calibrate telemetry equipment. EPCWID1 will contract technical services to program telemetry data transmission equipment and system design work. EPCWID1 will submit to Reclamation all equipment installation records and photos, telemetry water flow and calibration data, contractual costs, and labor and fringe costs.

Task 5: Reporting and Grant Administration
EPCWID1 staff will perform grant administration, periodic reporting, and technical assistance work necessary to complete the project. Work includes developing SF-425 Federal Financial Reports on a semi-annual basis and a final financial performance report, developing Interim Performance Reports, performing a post-installation water savings analysis to compare baseline water use and determine actual water savings, and developing a Final Performance Report. EPCWID1 will submit water savings analysis data as part of the project final report as specified in the funding opportunity announcement.

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

The project activities will be confined to EPCWID1's right-of-way and property. No other permits or approvals will be necessary for the project as proposed.

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

EPCWID1 has designed, tested, and installed telemetry and automation equipment for the last 20 years. The proposed installations are considered a Best Management Practice by the Texas Water Development Board (see: https://www.twdb.texas.gov/conservation/BMPs/index.asp).

- *Describe any new policies or administrative actions required to implement the project.*

No new policies or administrative actions are required to implement the proposed project.

- *Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*

Table 5. Estimated Project Task Schedule

Task	Estimated Start Date	Estimated End Date
1. Environmental and Regulatory Compliance	**Aug 2022**	**Nov 2022**
1.1 Categorical Exclusion Checklist (USBR)	Aug 2022	Sept 2022
2. Purchasing Equipment	**Oct 2022**	**Dec 2023**
2.1 Bidding and purchasing equipment	Oct 2022	Dec 2023
3. Installing Equipment (50%)	**Dec 2022**	**Jul 2023**
3.1 Constructing telemetry site structures	Dec 2022	Mar 2023
3.2 Installing telemetry equipment	Feb 2023	Mar 2023
3.3 Testing and calibrating	Apr 2023	July 2023
4. Installing Equipment (100%)	**Dec 2023**	**July 2024**
4.1 Constructing telemetry site structures	Dec 2023	Mar 2024
4.2 Installing telemetry equipment	Feb 2024	Mar 2024
4.3 Testing and calibrating	Apr 2024	July 2024
4.4 Programming and System Design	July 2023	July 2024
6. Grant Administration and Project Closing	**Aug 2022**	**July 2024**
6.1 Performance and Financial (SF-425) Interim Reporting	Aug 2022	July 2024
6.2 Post-installation water savings analysis	July 2025	July 2024
6.3 Final report and project closing (ASAP)	July 2025	July 2024

Table 6. Estimated Project Timeline

Task No.	2022					2023												2024										
	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Project Funding Award																													
Task 1. Environmental and Cultural Compliance																													
1.1 USBR NEPA Process (Notice to Proceed)																													
Task 2. Purchasing Equipment																													
2.1 Bidding and purchasing equipment																													
Task 3. Installing Equipment (50%)																													
3.1 Constructing telemetry site structures																													
3.2 Installing telemetry equipment																													
3.3 Testing and calibrating																													
Task 4. Installing Equipment (100%)																													
4.1 Constructing telemetry site structures																													
4.2 Installing telemetry equipment																													
4.3 Testing and calibrating																													
4.4 Programming and system design																													
Task 5. Grant Administration and Project Closing																													
6.1 Interim Reporting																													
6.2 Post-Installation Water Savings Analysis																													
6.3 Final report and project closing (ASAP)																													

F. Evaluation Criterion F: Collaboration (6 Points)

Please describe how the project promotes and encourages collaboration. Consider the following:

- *Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?*

The following stakeholders issued statements of support for EPCWID1's previous telemetry improvements projects. Phase I includes a funding request from the Texas Water Development Board (TWDB) for 10 telemetry installations. Phase II includes a funding request to Reclamation's WaterSMART Small-Scale Water Efficiency Program (R19AP00207) for 60 well meters. Table 6 below summarizes statements of support received in previous project phases.

Table 6. Supporting Stakeholders for the EPCWID1 telemetry improvements

Phase	Stakeholder	Description
Phase I	State Representative Mary E. Gonzalez (HD75)	General support in 2018
Phase I	State Representative Joe Moody (HD78)	General support in 2018
Phase II	El Paso Valley Cotton Association	General support in 2019
Phase II	West Texas Pecan Association	General support in 2019

- *What is the significance of the collaboration / support?*

EPCWID1 generally does not request repeat statements of support for project phases. It is important to note from the included statements of support that the El Paso region is experiencing prolonged drought conditions and that telemetry and automation equipment will be used to achieve much-needed water savings that will benefit municipal, industrial, agricultural, and environmental Rio Grande Project water users.

- *Will this project increase the possibility/likelihood of future water conservation improvements by other water users?*

Water conservation improvements by other water users are being developed concurrently with the AFM Improvements Project. This includes improved installations from El Paso Water Utilities at intake sites for treatment.

- *Please attach any relevant supporting documents.*

Please refer to statements of support included in Appendix D.

G. Evaluation Criterion G: Additional Non-Federal Funding (4 Points)

Non-Federal Funding	$221,740	=	52.6 %
Federal Funding	$200,000	=	47.4 %
Total Project Cost	$441,740		100 %

H. Evaluation Criterion H: Nexus to Reclamation (4 Points)

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider the following:

- *Does the applicant have a water service, repayment, or O&M contract with Reclamation?*

EPCWID1 obtains water by annual allocation from the United States Bureau of Reclamation's Rio Grande Project.

- *Will the proposed work benefit a Reclamation project area or activity?*

The proposed project lies within the Rio Grande Basin and is part of Reclamation's Rio Grande Project.

- *Is the applicant a Tribe?*

EPCWID1 is not a tribe. Water conserved as a result of the proposed project will benefit all Rio Grande Project water served by EPCWID1, including the Ysleta del Sur Pueblo, a federally recognized tribe. EPCWID1 delivers water to the Ysleta del Sur Pueblo Reservation for agriculture and for two of the Ysleta del Sur Pueblo's most important ceremonial processions: *St. Anthony of Padua Feast Day* and *Dia de Los Santos Reyes*.

V PERFORMANCE MEASURES

EPCWID1 proposes the following performance measures:

Period of Performance
A. EPCWID1 will complete construction from August 2022 to July 2024 (24 months)

Scope of Work and Administration
A. EPCWID1 will install telemetry and automation equipment as described in the Scope of Work
B. EPCWID1 will ensure all environmental and cultural compliance requirements are met
C. EPCWID1 will ensure the project follows requirements in 2 CFR Part 200
D. EPCWID1 will ensure the project complies with applicable local, state, and federal laws
E. EPCWID1 will submit semi-annual performance and financial reports
F. EPCWID1 will work with designated USBR staff that will oversee the project

Water Savings
Project improvements are expected to result in annual water savings of 1,143 acre-feet.

A. EPCWID1 will perform a post-installation water savings analysis by comparing end-of-system losses in 2023 and 2024 to baseline water losses and determine actual water savings
B. EPCWID1 will continue to measure end-of-system losses and reductions linked to the AFM Improvements Project
C. EPCWID1 will include all findings as part of the project Final Report

VI PROJECT BUDGET

A. Funding Plan and Letters of Commitment

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

EPCWID1 has sufficient revenues to provide a 52.6% cost share for the project. EPCWID1's funding commitment was established via Resolution from the District Board of Directors and is available for reference in Appendix A.

The proposed project includes budgeted costs that are representative of actual construction costs for previous telemetry and automation projects. EPCWID1 staff is familiar with the budget revision and justification process that is part of an award contract with Reclamation and the subsequent reporting requirements necessary for cost reimbursement and the closing of the contract.

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

There are no donations or in-kind costs incurred before the project start date that are included as part of the proposed budget.

B. Budget Proposal

Table 7. Total Project Cost Table

FUNDING SOURCES	AMOUNT
Cost to be reimbursed with the requested Federal funding	$ 200,000
Cost to be paid by the applicant (EPCWID#1)	$ 221,740
Value of third party contributions	-
TOTAL PROJECT COSTS	**$ 421,740**

Table 8. Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION $/unit		Qty	Quantity Type	EPCWID1 Funding	Reclamation Funding	TOTAL COST
Salaries and Wages							
Telemetry Supervisor	$27.07	/hour	800	Labor	$ 21,656	$ -	$ 21,656
River Team / Telemetry Specialist	$26.48	/hour	1200	Labor	$ 31,776	$ -	$ 31,776
Senior Ditchrider / Telemetry Specialist	$21.10	/hour	1200	Labor	$ 25,320	$ -	$ 25,320
Senior Ditchrider / Telemetry Specialist	$21.18	/hour	1200	Labor	$ 25,416	$ -	$ 25,416
Welder	$23.76	/hour	400	Labor	$ 9,505	$ -	$ 9,505
						Subtotal	**$ 113,673**
Fringe Benefits							
Telemetry Supervisor	$7.58	/hour	800	Labor	$ 6,064	$ -	$ 6,064
River Team / Telemetry Specialist	$7.41	/hour	1200	Labor	$ 8,897	$ -	$ 8,897
Senior Ditchrider / Telemetry Specialist	$5.91	/hour	1200	Labor	$ 7,090	$ -	$ 7,090
Senior Ditchrider / Telemetry Specialist	$5.93	/hour	1200	Labor	$ 7,116	$ -	$ 7,116
Welder	$6.65	/hour	400	Labor	$ 2,661	$ -	$ 2,661
						Subtotal	**$ 31,828**
Supplies and Materials							
Gate EIM Actuators (Valve Motors)	$6,946.00	/ea	8	each	$ 46,239	$ 9,329	$ 55,568
Antenna Yagi 9DB (00mhz	$75.00	/ea	17	each	$ -	$ 1,275	$ 1,275
Yagi Antenna Mounts	$59.00	/ea	17	each	$ -	$ 1,003	$ 1,003
DC Solar Panel 20 Watt - 20J	$149.00	/ea	17	each	$ -	$ 2,533	$ 2,533
DC Solar Panel 30 Watt - 20J	$180.00	/ea	2	each	$ -	$ 360	$ 360
Mounting Brackets for 20J	$26.00	/ea	17	each	$ -	$ 442	$ 442
Mounting Brackets for 20J	$39.00	/ea	2	each	$ -	$ 78	$ 78
Enclosures NEMA Box 20"x20"x8"	$250.00	/ea	17	each	$ -	$ 4,250	$ 4,250
Meter Flowline Level	$559.00	/ea	17	each	$ -	$ 9,503	$ 9,503
DC Powersonic 12V Battery	$51.03	/ea	17	each	$ -	$ 868	$ 868
DC DCM0035 35AH Battery	$71.00	/ea	17	each	$ -	$ 1,207	$ 1,207
Wiring Extension Cord 16AWG	$0.66	/ea	1000	each	$ -	$ 660	$ 660
Transnet 900 Board Radio	$694.22	/ea	17	each	$ -	$ 11,802	$ 11,802
12V Solar Regulator	$48.44	/ea	17	each	$ -	$ 823	$ 823
LMR 400 Cable	$0.37	/ea	800	each	$ -	$ 296	$ 296
SCADAPACK SP100	$1,413.82	/ea	17	each	$ -	$ 24,035	$ 24,035
Bridge Metal I Beam	$1,400.00	/ea	17	each	$ -	$ 23,800	$ 23,800
Bridge Oil Base Aluminum Paint	$36.00	/ea	80	each	$ -	$ 2,880	$ 2,880
Bridge Wiring 3/4" Rigid Conduit Sticks	$0.50	/ea	2000	each	$ -	$ 1,000	$ 1,000
Bridge Wiring 3/4" Conduit boxes	$7.00	/ea	200	each	$ -	$ 1,400	$ 1,400
Bridge Wiring 3/4" +2" Conduit boxes	$9.00	/ea	200	each	$ -	$ 1,800	$ 1,800
Bridge Wiring 2" Flex Reinforced Conduit	$1.76	/ea	100	each	$ -	$ 176	$ 176
Electrical Weather Heads	$12.00	/ea	200	each	$ -	$ 2,400	$ 2,400
Fittings, bushings, reducers, et al. materials	$12.00	/set	200	set	$ -	$ 2,400	$ 2,400
AC Power 10 AWG Wiring	$0.50	/ea	2000	each	$ -	$ 1,000	$ 1,000
Aqua Calc Pro Plus Meter Computer	$4,000.00	/ea	2	each	$ -	$ 8,000	$ 8,000
Actuator Monitoring EIM Dial Online Readings	$5,000.00	/ea	5	each	$ -	$ 25,000	$ 25,000
DCS Telemetry Sensors	$1,040.00	/ea	17	each	$ -	$ 17,680	$ 17,680
5G Cellular Site Upgrade Modem	$3,000.00	/ea	14	each	$ -	$ 42,000	$ 42,000
						Subtotal	**$ 244,239**
Contractual							
Programming and System Design	$125.00	/hr	160	Hours	$ 30,000	$ -	$ 30,000
						Subtotal	**$ 30,000**
Other							
NEPA CEC (USBR)	$50.00	/hr	40	Other	$ -	$ 2,000	$ 2,000
						Subtotal	**$ 2,000**
TOTAL ESTIMATED PROJECT COSTS					**$ 221,740**	**$ 200,000**	**$ 421,740**

C. Budget Narrative

Salaries and Wages (in-kind)
The following EPCWID1 personnel will be involved in this project. The perspective roles and value of their in-kind services is described as follows:

The District Telemetry Supervisor has successfully led the construction, installation, and operation of dozens of EPCWID1 telemetry stations and automation structures, including projects funded by Reclamation. The Telemetry Supervisor will be responsible for the oversight of all construction work personnel, project management tasks, planning and coordination, quality control, and cost and equipment use reporting. It is expected that the Telemetry Supervisor will contribute 800 salaried hours to the project at a rate of $27.07.

The River Team / Telemetry Specialist participated in the construction, installation, and operation of dozens of EPCWID1 telemetry stations and automation structures, including projects funded by Reclamation. It is expected that the River Team / Telemetry Specialist will contribute 1,200 salaried hours to the project at a rate of $26.48.

The Senior Ditch Rider / Telemetry Specialist (I) participated in the construction, installation, and operation of dozens of EPCWID1 telemetry stations and automation structures, including projects funded by Reclamation. It is expected that the Senior Ditch Rider / Telemetry Specialist (I) will contribute 1,200 salaried hours to the project at a rate of $21.10.

The Senior Ditch Rider / Telemetry Specialist (II) participated in the construction, installation, and operation of dozens of EPCWID1 telemetry stations and automation structures, including projects funded by Reclamation. It is expected that the Senior Ditch Rider / Telemetry Specialist (II) will contribute 1,200 salaried hours to the project at a rate of $21.18.

The District Welder assists in manufacturing in-house steel structures including I-beam bridges and vandal boxes to achieve costs savings. The District Welder has participated in the construction, installation, and operation of dozens of EPCWID1 telemetry stations and automation structures, including projects funded by Reclamation. It is expected that the District Welder will contribute 400 salaried hours to the project at a rate of $23.76.

Fringe Benefits (in-kind)
The in-kind fringe benefits EPCWID1personnel involved in this project were computed on a “Fringe” basis and were derived by subtracting the hourly salary rate for designated EPCWID1 personnel from the loaded value per hour. EPCWID1 average fringe benefit rate is 28%. Actual fringe benefit costs per employee will be determined pursuant to an award contract with Reclamation.

Certification of Labor Rates
The labor rates of identified personnel included herein are representative of the actual labor rates of personnel bearing the same title. Additional verification per employee assigned to the project is available as needed pursuant to an award contract with Reclamation.

Travel

No travel costs are included in the proposed budget.

Equipment
EPCWID1 will not charge the use of vehicles and other equipment to the project.

Materials and Supplies
The proposed costs and itemization for materials and supplies are representative of costs and quantities from comparable telemetry and automation projects recently completed by EPCWID1. EPCWID1 will purchase the needed materials and supplies in accordance with competitive procurement laws outlined in 2 CFR 200, the Texas Water Code, EPCWID1 purchasing policies, and applicable federal regulations. Historical bid and pricing information is available upon request for the development of an agreement with Reclamation.

The listed equipment in this section include all components necessary to install 17 surface water (canal) telemetry sites that meet EPCWID1's current and foreseeable needs for the next 10 years. EPCWID1 will install high-accuracy, low-cost DC-solar powered SCADAPACK SP100 units in conjunction with non-contact ultrasonic level flow sensors that will transmit canal water level data using 5G a cellular network to a central database. All data is made publicly available at https://epcwid.org/telemetry/.

Much of the steelwork required for the project is manufactured in-house as a cost-saving measure. Budgeted materials include base steel purchases that are then modified by EPCWID1 staff (welder). Wiring and installation are performed by EPCWID1 using EPCWID1-owned equipment. Equipment in-kind costs such as truck usage and specialized equipment is not included as part of the budget.

Contractual
Contracted technical services for programming of SCADA data transmission and designing of a central database and visualizations are necessary for the completion of the proposed project. Budgeted costs are representative of costs from telemetry and automation projects similar to the proposed project.

Environmental and Regulatory Compliance Costs
It is estimated that completing a Categorical Exclusion Checklist (CEC) is sufficient to meet environmental and cultural compliance requirements. Costs for any additional environmental activities will be determined pursuant to an award contract with Reclamation.

Indirect Costs
Indirect costs are not included as part of the project. All costs associated with the project are accounted for separately by EPCWID1.

Total Amount of Project Costs
The total cost of the project is $421,740. The Bureau of Reclamation requested share is $200,000. The non-federal cost-share is $221,740 as in-kind contributions from EPCWID1 and cash from EPCWID1.

VII ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

Will the proposed project impact the surrounding environment? 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.
There are no expected earth-disturbing work nor any work that will affect the air, water, or animal habitat in the project area.

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?
There are no anticipated impacts to threatened and endangered species by the proposed project.

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 surface waters inside the project boundaries that fall under CWA jurisdiction.

When was the water delivery system constructed?
Major canals and drains in the water delivery system were constructed under the Rio Grande Reclamation Project from 1915 to 1925.

Will the proposed project result in any modification of or effects to individual features of an irrigation system? 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.
Irrigation system features such as headings and turnouts are continuously modified as part of maintenance operations. No adverse impacts to individual features of the irrigation system are anticipated as part of the proposed project.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?
The El Paso County Water Improvement District Number One (EPCWID1) is listed in the National Register of Historic Places (NRHP) under National Register Information System ID 97000885. There are no anticipated adverse effects of features listed in the National Register of Historic Places as a result of the proposed project.

Are there any known archeological sites in the proposed project area?
There are no known archeological sites in the proposed project area.

Will the proposed project have a disproportionally high and adverse effect on low income or minority population?
The proposed project would not have a negative impact on minority populations or low-income communities.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?
There are no anticipated limits to access and ceremonial use of Indian sacred sites or adverse impact tribal lands.

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?
There are no anticipated contributions to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

VIII REQUIRED PERMITS OR APPROVALS

The project activities will be confined to existing District right-of-way. No conflicts with existing utilities or facilities requiring third-party approval are anticipated.

IX UNIQUE ENTITY IDENTIFIER AND SAM

System for Award Management (SAM) Registration
The El Paso County Water Improvement District No. 1 maintains an active SAM registration and all information is up to date.

EIN Number: 74-1505167

Department of Treasury Automated Standard Application for Payments (ASAP)
The District is currently enrolled in ASAP and is ready to engage in active financial assistance agreements with Reclamation. EPCWID1 is currently administering grant awards from Reclamation using ASAP.

DUNS Number: 128044773

X APPENDIX

A. Official Resolution

B. EPCWID1 End-of-System Water Losses

Fabens Waste Channel

2/2/2021 11:35 AM

EPCWID Average Daily CFS

2020

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	6	6	7	31	27	34	37	93	60	30	17	12	1
2	7	6	6	31	24	33	35	84	47	25	15	12	2
3	8	7	7	29	22	37	40	68	48	25	16	10	3
4	7	9	7	28	22	34	40	51	41	21	15	12	4
5	7	8	6	31	23	40	35	58	37	20	15	12	5
6	8	8	6	39	27	34	29	61	95	20	14	12	6
7	9	8	6	33	22	37	37	52	65	19	14	11	7
8	9	8	6	31	28	43	60	51	55	18	14		8
9	9	7	6	38	32	51	63	52	51	18	13		9
10	9	9	6	37	37	35	69	53	41	18	13		10
11	8	9	7	45	29	32	90	40	60	18	13		11
12	8	8	8	87	30	37	67	38	78	18	13		12
13	8	7	9	123	34	36	48	36	232	18	12		13
14	8	7	9	55	41	41	63	39	161	18	12		14
15	9	8	8	59	47	38	50	38	69	18	12		15
16	9	7	8	51	53	43	57	42	62	17	12		16
17	9	7	15	43	42	44	53	73	54	16	12		17
18	9	6	18	37	48	41	55	56	75	16	12		18
19	9	6	16	41	46	44	44	47	47	16	13		19
20	10	6	12	44	29	60	44	65	40	16	13		20
21	10	6	26	30	26	147	33	74	43	16	12		21
22	10	6	20	28	30	103	38	53	33	16	12		22
23	9	6	27	27	25	48	37	82	35	16	12		23
24	9	7	38	28	24	48	52	74	39	16	13		24
25	8	7	33	31	27	47	147	118	77	16	13		25
26	7	7	28	43	25	43	142	73	54	17	13		26
27	7	7	27	43	28	62	158	51	71	17	13		27
28	6	7	29	25	30	51	134	46	36	18	13		28
29	6	7	32	26	28	49	81	43	33	17	12		29
30	6		36	26	33	42	135	59	33	17	12		30
31	7		29		37		100	82		17			31
SFD	251	207	498	1220	976	1434	2073	1852	1872	568	395	81	SFD
AF	**498**	**411**	**988**	**2420**	**1936**	**2844**	**4112**	**3673**	**3713**	**1127**	**783**	**161**	**AF**
to date	498	908	1896	4316	6252	9096	13208	16881	20594	21721	22504	22665	to date

Fabens Waste Drain

EPCWID Average Daily CFS

2020

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	6	5	5	27	27	36	32	61	59	24	12	11	1
2	7	6	5	30	24	36	37	67	48	20	11	11	2
3	7	6	7	27	21	38	43	60	48	21	12	10	3
4	6	6	7	26	23	36	35	56	42	23	12	11	4
5	6	6	6	34	23	42	32	65	36	19	12	11	5
6	6	6	6	33	28	35	30	68	61	19	12	11	6
7	7	6	6	34	22	38	39	59	56	19	12	10	7
8	7	6	6	31	29	50	59	52	52	19	12		8
9	7	6	6	40	33	50	60	61	50	19	12		9
10	7	6	6	39	38	32	65	61	42	19	12		10
11	6	6	7	47	29	32	78	45	57	19	12		11
12	6	6	7	77	30	35	49	39	90	18	12		12
13	6	6	8	83	34	33	42	37	126	18	12		13
14	6	6	7	56	41	40	51	42	94	18	12		14
15	6	6	7	51	49	37	49	40	61	17	12		15
16	6	5	7	51	48	43	52	45	61	16	12		16
17	6	5	15	39	43	43	51	59	58	16	11		17
18	6	5	18	33	49	41	53	55	76	15	11		18
19	6	5	17	35	49	44	43	50	52	16	12		19
20	7	5	13	33	28	60	43	62	47	15	12		20
21	7	5	31	26	27	93	33	72	47	15	12		21
22	7	5	22	25	30	77	38	56	36	15	12		22
23	7	5	30	24	26	45	37	67	33	15	12		23
24	6	5	35	25	25	45	52	72	36	15	12		24
25	6	5	33	31	28	44	85	88	56	15	11		25
26	6	5	26	43	27	39	83	71	44	15	11		26
27	6	5	24	40	30	41	106	55	48	15	11		27
28	6	5	26	23	32	49	91	51	32	14	11		28
29	5	5	30	28	33	45	72	47	28	14	11		29
30	6		35	26	36	40	75	64	28	14	11		30
31	6		28		43		69	81		13			31
SFD	195	159	486	1117	1005	1319	1684	1808	1604	530	351	75	SFD
AF	**387**	**315**	**964**	**2216**	**1993**	**2616**	**3340**	**3586**	**3181**	**1051**	**696**	**149**	**AF**
to date	387	702	1666	3882	5875	8491	11831	15418	18599	19650	20346	20495	to date

Tornillo WW #2 @ Alamo Alto

EPCWID Average Daily CFS

2020

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	0	0	0	7	6	0	15	63	14	16	0		1
2	0	0	0	10	4	0	5	48	11	7	0		2
3	0	0	0	2	3	0	7	34	8	5			3
4	0	0	0	6	3	0	6	23	14	7			4
5	0	0	8	5	7	0	10	12	9	10			5
6	0	0	5	15	1	0	4	19	27	10			6
7	0	0	5	3	14	0	5	14	18	10			7
8	0	0	3	6	1	7	6	16	9	12			8
9	0	0	2	3	2	2	12	8	8	7			9
10	0	0	5	20	4	7	15	11	5	6			10
11	0	0	3	17	15	8	33	15	6	7			11
12	0	0	1	34	14	5	18	11	21	6			12
13	0	0	1	32	9	3	14	15	18	4			13
14	0	0	1	36	3	4	38	7	26	18			14
15	0	0	4	80	1	6	25	18	21	28			15
16	0	0	2	50	15	18	31	18	44	10			16
17	0	0	19	38	0	27	43	14	64	6			17
18	0	0	35	15	1	9	43	8	66	7			18
19	0	0	40	33	2	11	55	8	57	6			19
20	0	0	15	31	6	9	37	10	55	6			20
21	0	0	11	17	20	31	23	24	23	3			21
22	0	0	11	14	7	27	15	17	12	4			22
23	0	0	16	27	0	22	10	27	21	4			23
24	0	0	29	27	0	17	6	29	11	2			24
25	0	0	16	62	0	64	35	22	17	1			25
26	0	0	13	20	0	65	40	14	23	1			26
27	0	0	19	23	0	63	47	20	28	0			27
28	0	0	29	11	3	44	42	18	38	1			28
29	0	0	33	5	0	52	63	39	30	1			29
30	0		40	6	4	12	52	58	21	0			30
31	0		15		6		50	26		0			31
SFD	0	0	381	655	151	513	805	666	725	205	0	0	SFD
AF	**0**	**0**	**756**	**1299**	**300**	**1018**	**1597**	**1321**	**1438**	**407**	**0**	**0**	**AF**
to date	0	0	756	2055	2354	3372	4969	6290	7728	8134	8134	8134	to date

Fabens Waste Channel

11/2/2021 3:45 PM

2019

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	12	10	18	13	7	20	45	18	37	94	13	7	1
2	12	11	21	14	7	21	9	34	40	79	13	7	2
3	12	11	22	17	8	25	25	35	33	32	18	8	3
4	13	11	20	17	17	23	24	24	26	26	15	7	4
5	13	16	19	17	16	23	24	17	30	43	19	8	5
6	13	14	19	17	20	25	20	14	37	79	13	8	6
7	12	10	20	17	18	26	27	15	39	80	12	8	7
8	15	9	20	17	16	26	27	20	45	60	11	9	8
9	17	9	20	19	18	28	24	20	39	97	11	10	9
10	17	10	21	18	17	40	23	42	31	38	11	9	10
11	17	14	22	18	16	102	20	51	24	56	10	9	11
12	17	14	22	17	18	87	28	42	27	42	10	9	12
13	17	12	21	18	20	56	29	32	31	71	10	9	13
14	16	16	20	22	8	45	26	30	43	95	10	9	14
15	17	12	20	19	8	44	20	37	56	52	10	9	15
16	16	11	20	10	9	37	27	37	54	26	10	9	16
17	15	11	21	11	10	43	25	32	30	19	11	9	17
18	15	12	22	10	9	32	24	37	30	24	11	10	18
19	15	20	23	9	9	39	37	35	51	25	12	10	19
20	14	22	23	9	9	39	48	29	57	18	12	9	20
21	15	19	23	9	9	43	45	49	83	18	11	9	21
22	11	19	23	9	9	60	46	38	73	22	9	9	22
23	10	18	20	9	9	72	36	41	66	30	6	9	23
24	10	23	19	9	9	69	19	37	40	22	7	10	24
25	10	22	20	8	9	23	22	78	34	19	8	10	25
26	11	20	16	8	8	21	21	47	39	15	9	6	26
27	10	17	16	8	8	17	34	36	43	15	12	6	27
28	10	19	14	8	21	20	27	34	40	15	10	6	28
29	10		13	8	18	25	23	33	49	14	9	5	29
30	10		14	6	20	45	21	33	59	13	8	5	30
31	10		14		20		16	37		14		6	31
SFD	412	412	606	391	400	1176	842	1064	1286	1253	331	254	SFD
AF	**817**	**817**	**1202**	**776**	**793**	**2333**	**1670**	**2110**	**2551**	**2485**	**657**	**504**	**AF**
to date	817	1634	2836	3612	4405	6738	8408	10518	13069	15554	16211	16715	to date

Fabens Waste Drain

EPCWID Average Daily CFS

2019

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	12	9	11	10	6	4	36	14	21	61	13	6	1
2	11	9	11	10	6	4	25	26	24	49	13	6	2
3	11	9	13	11	7	5	21	26	19	31	17	8	3
4	12	9	12	9	7	6	21	18	14	28	12	7	4
5	12	3	11	10	6	5	20	14	17	36	13	8	5
6	12	6	11	10	9	7	16	13	22	48	12	8	6
7	11	9	12	10	7	7	25	14	22	52	11	8	7
8	11	8	12	10	7	8	23	16	27	46	10	8	8
9	12	8	12	11	6	10	20	16	22	50	10	9	9
10	11	9	12	11	6	20	19	16	32	35	10	8	10
11	12	11	14	10	6	52	18	39	24	39	9	8	11
12	11	11	14	10	6	57	25	32	25	39	9	8	12
13	11	10	13	10	6	43	25	25	29	51	9	8	13
14	11	13	12	12	6	21	21	23	37	49	9	8	14
15	11	11	12	11	5	36	21	21	45	27	9	8	15
16	11	10	12	9	5	31	21	25	42	22	9	8	16
17	10	10	13	9	5	35	21	26	28	19	9	8	17
18	10	11	13	9	5	23	18	28	28	23	9	8	18
19	10	12	12	8	6	22	30	26	36	22	10	8	19
20	10	13	12	8	5	16	36	20	44	17	10	7	20
21	10	13	12	8	5	12	33	20	52	17	9	7	21
22	9	12	12	8	5	18	35	13	51	21	9	7	22
23	9	11	12	8	5	25	28	19	47	26	3	7	23
24	9	13	12	8	5	23	16	19	37	20	6	7	24
25	9	13	12	7	5	23	19	26	33	18	7	7	25
26	10	13	12	7	4	19	19	19	36	15	9	6	26
27	9	11	12	7	4	14	30	12	40	15	11	6	27
28	9	11	11	8	5	16	23	16	38	15	10	6	28
29	9		11	7	4	20	20	17	44	14	9	5	29
30	9		11	5	4	31	15	19	49	13	8	5	30
31	9		11		4		12	21		13		6	31
SFD	323	288	372	271	172	613	712	639	985	931	294	224	SFD
AF	**641**	**571**	**738**	**538**	**341**	**1216**	**1412**	**1267**	**1954**	**1847**	**583**	**444**	**AF**
to date	641	1212	1950	2487	2828	4044	5457	6724	8678	10524	11107	11552	to date

Tornillo WW #2 @ Alamo Alto

2019

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	0	0	0	0	0	16	16	3	23	78	0	0	1
2	0	0	0	0	0	21	9	30	22	73	0	0	2
3	0	0	0	0	0	20	3	26	11	79	0	0	3
4	0	0	0	0	2	10	25	24	6	53	0	0	4
5	0	0	0	0	0	24	4	0	8	60	0	0	5
6	0	0	0	0	0	9	12	0	8	64	0	0	6
7	0	0	0	0	0	9	7	5	6	52	0	0	7
8	0	0	0	0	2	6	12	0	10	49	0	0	8
9	0	0	0	0	0	15	2	0	13	61	0	0	9
10	0	0	0	0	0	4	3	18	7	58	0	0	10
11	0	0	0	0	0	13	30	29	1	32	0	0	11
12	0	0	0	0	0	47	23	31	0	39	0	0	12
13	0	0	0	0	0	60	32	20	0	51	0	0	13
14	0	0	0	0	0	41	41	0	10	61	0	0	14
15	0	0	0	0	0	34	0	30	31	57	0	0	15
16	0	0	0	0	0	6	0	56	48	33	0	0	16
17	0	0	0	0	0	11	0	53	31	35	0	0	17
18	0	0	0	0	0	0	16	10	42	33	0	0	18
19	0	0	0	0	0	0	19	1	40	52	0	0	19
20	0	0	0	0	0	0	26	3	34	42	0	0	20
21	0	0	0	0	0	0	12	28	61	40	0	0	21
22	0	0	0	0	0	0	34	40	54	16	0	0	22
23	0	0	0	3	0	0	25	31	60	33	0	0	23
24	0	0	0	4	0	11	7	34	31	25	0	0	24
25	0	0	0	6	0	2	32	48	24	27	0	0	25
26	0	0	0	2	0	5	43	45	31	22	0	0	26
27	0	0	0	3	3	9	8	19	27	20	0	0	27
28	0	0	0	2	0	0	0	14	36	42	0	0	28
29	0		0	5	0	2	0	5	35	23	0	0	29
30	0		0	0	0	0	0	0	38	0	0	0	30
31	0		0		16		0	17		0		0	31
SFD	0	0	0	25	23	375	441	620	748	1310	0	0	SFD
AF	**0**	**0**	**0**	**50**	**46**	**744**	**875**	**1230**	**1484**	**2598**	**0**	**0**	**AF**
to date	0	0	0	50	95	839	1714	2943	4427	7025	7025	7025	to date

Fabens Waste Channel

11/2/2021 3:48 PM

2018

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	8	8	8	26	32	31	31	34	36	54	18	11	1
2	8	8	8	38	32	22	33	47	42	43	17	13	2
3	8	8	14	38	29	25	27	36	50	29	18	13	3
4	8	7	12	49	42	18	23	28	41	26	18	13	4
5	8	8	12	74	51	23	27	31	45	25	14	15	5
6	8	7	11	61	40	26	33	32	43	24	13	16	6
7	8	7	10	40	52	25	33	32	44	23	13	17	7
8	8	7	9	37	40	29	35	42	43	22	13	15	8
9	8	7	8	38	33	30	34	37	39	22	13	14	9
10	8	7	8	27	23	35	48	37	86	21	13	14	10
11	8	7	8	20	21	29	38	37	47	20	14	13	11
12	7	7	8	22	17	27	48	45	33	21	13	13	12
13	7	7	8	34	21	20	55	40	27	24	13	13	13
14	7	7	8	38	15	20	62	39	35	19	13	12	14
15	8	7	9	32	21	23	98	35	32	19	13	12	15
16	7	7	9	24	22	38	65	40	34	19	13	11	16
17	8	7	9	20	18	58	48	40	42	21	13	12	17
18	8	7	9	18	22	50	41	40	40	20	13	13	18
19	8	7	13	18	21	37	37	31	48	20	12	13	19
20	8	7	35	18	22	35	33	29	69	21	11	12	20
21	8	7	25	18	30	40	34	46	123	20	11	12	21
22	7	8	13	19	33	29	38	35	72	20	11	12	22
23	7	9	15	22	27	33	39	32	120	25	11	13	23
24	7	10	12	29	26	33	31	31	100	45	11	13	24
25	7	15	22	37	31	28	32	33	60	24	11	13	25
26	7	15	16	57	37	32	38	30	44	20	10	13	26
27	8	12	17	86	43	23	30	22	54	19	11	12	27
28	8	8	19	48	40	27	32	38	50	19	12	11	28
29	8		13	57	20	25	35	43	44	19	12	12	29
30	8		18	39	25	29	36	28	51	15	12	12	30
31	8		39		22		28	33		19		13	31
SFD	239	228	425	1084	908	900	1222	1103	1594	738	390	401	SFD
AF	**474**	**452**	**843**	**2150**	**1801**	**1785**	**2424**	**2188**	**3162**	**1464**	**774**	**795**	**AF**
to date	474	926	1769	3919	5720	7505	9929	12117	15279	16742	17516	18311	to date

Fabens Waste Drain

2018

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	5	5	5	23	33	26	28	33	37	52	15	11	1
2	5	5	6	26	27	25	29	41	41	40	14	12	2
3	5	5	12	30	27	24	22	36	39	27	14	12	3
4	5	5	11	28	34	31	23	27	39	25	14	12	4
5	6	5	11	34	33	24	27	30	42	23	13	13	5
6	6	5	10	36	33	23	30	30	43	23	12	13	6
7	5	5	8	34	36	25	31	37	44	20	12	14	7
8	5	5	8	33	36	27	32	46	52	20	12	13	8
9	6	5	5	30	35	28	38	38	57	20	12	13	9
10	6	5	5	25	30	30	39	36	62	18	12	12	10
11	5	5	4	21	27	27	34	38	45	18	13	12	11
12	5	5	4	22	26	25	39	47	32	18	12	12	12
13	4	5	4	32	28	20	51	42	29	21	12	12	13
14	5	5	5	33	23	20	50	40	32	17	12	11	14
15	5	5	6	30	22	23	59	38	34	17	12	11	15
16	5	5	6	28	22	31	54	35	32	18	12	11	16
17	5	5	6	20	18	31	45	34	39	20	12	12	17
18	5	5	6	17	22	33	38	35	40	18	12	12	18
19	5	5	11	17	21	39	35	43	40	18	11	12	19
20	5	5	20	18	22	35	32	41	43	20	11	11	20
21	4	5	22	17	28	39	33	30	60	19	11	12	21
22	5	6	11	18	32	29	32	28	49	19	11	12	22
23	5	9	13	21	27	33	36	31	58	23	11	12	23
24	5	9	12	26	27	33	31	32	57	40	11	12	24
25	5	14	21	27	30	29	34	29	52	22	11	12	25
26	5	14	15	31	33	30	38	33	47	18	10	12	26
27	5	11	15	32	35	23	33	38	50	17	11	11	27
28	5	7	17	30	31	26	34	40	50	17	11	11	28
29	5		11	33	23	25	37	40	44	17	11	11	29
30	5		17	34	28	27	36	32	50	14	11	12	30
31	5		22		25		29	34		16		12	31
SFD	157	175	329	806	874	841	1109	1114	1339	675	358	370	SFD
AF	**311**	**347**	**653**	**1599**	**1734**	**1668**	**2200**	**2210**	**2656**	**1339**	**710**	**734**	**AF**
to date	311	659	1311	2910	4643	6311	8511	10721	13377	14715	15425	16159	to date

Tornillo WW #2 @ Alamo Alto

2018

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	0	0	0	11	14	12	0	9	1	40	0	0	1
2	0	0	0	14	2	1	0	12	10	13	0	0	2
3	0	0	0	12	0	10	9	0	4	0	0	0	3
4	0	0	0	25	20	18	18	0	0	13	0	0	4
5	0	0	0	22	52	9	11	8	0	0	0	0	5
6	0	0	0	75	31	13	6	2	1	0	0	0	6
7	0	0	0	100	12	7	13	6	5	0	0	0	7
8	0	0	0	118	25	6	14	3	67	0	0	0	8
9	0	0	0	76	71	9	18	11	37	0	0	0	9
10	0	0	0	46	20	13	46	15	21	0	0	0	10
11	0	0	0	43	2	15	29	50	7	0	0	0	11
12	0	0	0	33	21	0	56	34	13	0	0	0	12
13	0	0	0	20	16	0	46	20	4	0	0	0	13
14	0	0	0	62	12	0	58	21	1	0	0	0	14
15	0	0	0	23	0	8	93	60	0	0	0	0	15
16	0	0	0	30	0	9	53	14	13	10	0	0	16
17	0	0	0	21	1	36	52	35	16	10	0	0	17
18	0	0	8	25	0	41	9	44	1	10	0	0	18
19	0	0	14	8	11	25	4	36	15	11	0	0	19
20	0	0	32	3	0	19	0	10	30	19	0	0	20
21	0	0	37	6	13	41	9	5	77	13	0	0	21
22	0	0	0	10	15	34	32	2	60	11	0	0	22
23	0	0	0	14	14	48	6	15	58	14	0	0	23
24	0	0	0	11	9	29	6	1	68	19	0	0	24
25	0	0	0	26	20	8	3	50	54	0	0	0	25
26	0	0	0	55	20	54	8	25	36	0	0	0	26
27	0	0	0	73	36	0	28	39	24	0	0	0	27
28	0	0	5	69	34	0	5	9	39	0	0	0	28
29	0		16	75	15	0	47	9	34	0	0	0	29
30	0		0	53	0	18	6	1	26	0	0	0	30
31	0		12		0		5	5		0		0	31
SFD	0	0	124	1159	486	483	690	551	722	183	0	0	SFD
AF	**0**	**0**	**246**	**2299**	**964**	**958**	**1369**	**1093**	**1432**	**363**	**0**	**0**	**AF**
to date	0	0	246	2545	3509	4467	5835	6928	8360	8723	8723	8723	to date

Fabens Waste Channel

11/2/2021 3:51 PM

2017

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	9	6	3	6	15	15	28	31	20	33	12	8	1
2	9	6	9	6	19	16	26	25	21	45	12	8	2
3	9	6	13	6	14	18	15	31	30	58	12	8	3
4	9	6	11	5	15	22	15	24	28	21	12	8	4
5	9	4	9	6	14	24	17	33	20	13	12	8	5
6	10	4	7	11	13	22	20	29	27	23	12	8	6
7	9	7	6	13	11	20	18	27	29	21	12	8	7
8	9	7	6	11	12	17	21	30	27	35	12	8	8
9	9	7	4	11	9	17	20	27	43	16	12	7	9
10	9	7	6	22	8	19	18	28	46	15	12	8	10
11	9	7	6	15	7	26	22	45	37	19	12	8	11
12	9	7	6	8	8	20	18	50	36	16	12	10	12
13	9	7	6	9	9	14	22	50	49	55	12	10	13
14	11	7	6	10	9	13	25	40	50	37	11	10	14
15	9	7	6	13	10	12	35	123	59	26	11	10	15
16	8	7	6	23	13	14	53	135	80	14	9	10	16
17	8	7	6	16	12	12	78	127	95	12	9	10	17
18	8	7	6	10	15	14	68	37	37	12	9	10	18
19	7	7	6	11	13	14	40	32	30	15	9	10	19
20	7	7	6	17	16	14	42	42	41	14	9	10	20
21	6	4	6	20	20	15	43	56	39	12	9	10	21
22	6	4	6	20	22	18	53	26	35	11	9	10	22
23	6	7	6	31	17	20	101	31	42	12	9	9	23
24	7	7	6	38	15	23	35	28	55	12	8	9	24
25	8	7	6	12	12	29	19	31	53	12	8	9	25
26	7	8	6	11	17	28	23	41	34	12	8	9	26
27	7	9	6	15	13	27	39	53	50	12	8	9	27
28	6	4	6	13	11	36	26	55	40	12	8	9	28
29	6		6	11	9	38	40	21	32	12	8	9	29
30	6		6	12	13	21	40	20	34	13	8	9	30
31	6		6		15		30	20		13		9	31
SFD	247	180	200	412	406	598	1050	1348	1219	633	306	278	SFD
AF	**490**	**357**	**397**	**817**	**805**	**1186**	**2083**	**2674**	**2418**	**1256**	**607**	**551**	**AF**
to date	490	847	1244	2061	2866	4052	6135	8809	11226	12482	13089	13640	to date

Fabens Waste Drain

EPCWID Average Daily CFS

2017

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	8	5	3	6	15	15	6	18	19	33	12	8	1
2	8	5	9	6	16	17	4	19	22	36	12	8	2
3	8	5	13	6	14	19	2	28	27	31	11	8	3
4	8	5	10	5	16	23	4	23	24	21	11	8	4
5	8	4	9	6	15	24	9	30	18	13	11	8	5
6	9	4	6	10	17	21	15	25	24	23	11	8	6
7	8	5	3	13	10	19	15	25	25	21	12	8	7
8	9	5	3	11	11	15	18	27	23	19	12	8	8
9	9	5	3	11	5	14	16	27	29	16	11	7	9
10	9	5	3	22	3	19	15	24	32	15	11	8	10
11	9	5	3	15	1	24	20	29	31	17	11	8	11
12	9	5	3	8	5	16	16	32	33	16	11	8	12
13	9	5	3	9	6	11	23	36	36	23	11	8	13
14	11	5	3	10	6	13	26	29	45	16	11	8	14
15	9	5	3	13	9	13	28	50	40	14	11	8	15
16	8	5	3	23	13	17	38	47	45	12	9	8	16
17	8	5	3	16	11	14	43	42	36	12	9	8	17
18	8	5	3	2	14	16	37	25	30	12	9	8	18
19	7	5	3	3	12	16	35	26	29	15	9	8	19
20	7	5	3	13	15	15	35	27	36	14	9	8	20
21	6	3	6	12	19	16	26	27	38	12	9	7	21
22	6	3	6	12	17	17	28	20	31	11	9	7	22
23	6	6	6	18	16	19	38	24	34	12	9	7	23
24	6	6	6	18	12	22	25	24	40	12	8	7	24
25	7	6	6	12	11	29	20	27	41	12	8	7	25
26	6	8	6	11	17	28	25	34	34	12	8	7	26
27	6	9	6	15	13	22	27	39	32	12	8	7	27
28	5	3	6	13	8	16	28	33	27	12	8	7	28
29	5		6	11	7	12	33	21	32	12	8	7	29
30	5		6	12	12	9	32	20	34	13	8	7	30
31	5		6		15		32	20		13		7	31
SFD	232	142	158	342	361	531	719	878	947	512	297	236	SFD
AF	**460**	**282**	**313**	**678**	**716**	**1053**	**1426**	**1741**	**1878**	**1016**	**589**	**468**	**AF**
to date	460	742	1055	1734	2450	3503	4929	6670	8549	9564	10153	10621	to date

Tornillo WW #2 @ Alamo Alto

EPCWID Average Daily CFS

2017

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	0	0	0	0	68	20	48	35	3	71	0	0	1
2	0	0	0	0	37	19	43	66	9	86	0	0	2
3	0	0	0	1	28	6	12	69	29	78	0	0	3
4	0	0	0	13	44	17	0	15	10	61	0	0	4
5	0	0	0	6	44	28	0	14	21	63	0	0	5
6	0	0	0	0	25	40	33	15	10	46	0	0	6
7	0	0	0	48	37	27	0	19	1	37	0	0	7
8	0	0	0	47	7	28	0	15	0	55	0	0	8
9	0	0	0	33	0	14	28	1	0	40	0	0	9
10	0	0	0	57	0	24	23	9	22	20	0	0	10
11	0	0	0	46	0	4	25	4	27	19	0	0	11
12	0	0	0	0	0	6	11	15	18	36	0	0	12
13	0	0	0	5	0	3	21	21	3	24	0	0	13
14	0	0	0	0	0	2	28	10	31	37	0	0	14
15	0	0	0	21	0	2	21	16	31	51	0	0	15
16	0	0	0	23	0	8	35	55	53	50	0	0	16
17	0	0	0	22	0	0	34	95	85	11	0	0	17
18	0	0	0	46	7	2	21	100	50	6	0	0	18
19	0	0	0	16	6	3	12	97	21	0	0	0	19
20	0	0	0	14	10	0	0	130	37	10	0	0	20
21	0	0	0	18	40	0	49	105	41	7	0	0	21
22	0	0	0	45	52	2	45	91	80	6	0	0	22
23	0	0	0	30	34	1	49	77	63	0	0	0	23
24	0	0	0	64	58	2	35	58	48	0	0	0	24
25	0	0	0	50	20	2	53	70	44	0	0	0	25
26	0	0	0	36	31	14	67	73	24	0	0	0	26
27	0	0	0	10	40	27	93	81	50	0	0	0	27
28	0	0	0	4	25	36	54	104	73	0	0	0	28
29	0		0	4	18	46	32	72	110	0	0	0	29
30	0		0	36	11	56	81	15	72	0	0	0	30
31	0		0		49		56	3		0		0	31
SFD	0	0	0	695	691	439	1009	1550	1066	814	0	0	SFD
AF	**0**	**0**	**0**	**1379**	**1371**	**871**	**2001**	**3074**	**2114**	**1615**	**0**	**0**	**AF**
to date	0	0	0	1379	2749	3620	5621	8696	10810	12424	12424	12424	to date

Fabens Waste Channel

11/2/2021 3:53 PM

2016

EPCWID Average Daily CFS

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	5	4	3	24	5	5	30	31	100	23	10	8	1
2	5	4	3	13	5	7	35	31	41	21	10	8	2
3	5	3	3	11	6	8	29	55	38	17	9	8	3
4	5	3	3	6	8	16	26	44	65	30	9	8	4
5	5	3	3	3	8	19	23	63	62	39	9	9	5
6	5	3	3	3	6	13	27	48	59	34	9	8	6
7	5	3	3	8	6	12	29	39	62	25	9	8	7
8	5	3	3	10	6	19	28	36	78	18	7	8	8
9	4	3	3	8	9	40	26	26	69	14	7	8	9
10	4	3	3	28	13	30	25	21	54	12	7	7	10
11	4	3	3	8	15	5	33	20	38	12	7	7	11
12	4	3	3	16	18	7	27	24	40	13	7	7	12
13	4	3	3	16	33	10	26	26	30	13	7	7	13
14	4	3	3	11	35	14	21	35	26	13	7	4	14
15	4	3	3	14	50	7	21	37	26	12	7	4	15
16	4	3	3	12	76	6	20	30	27	12	8	4	16
17	4	3	3	17	19	6	25	26	25	12	8	4	17
18	4	3	3	14	11	8	37	23	30	13	7	7	18
19	4	3	3	7	12	8	37	22	32	12	7	8	19
20	4	3	3	4	13	9	35	26	26	12	8	8	20
21	4	3	3	3	13	12	34	29	24	11	8	8	21
22	4	3	3	15	14	14	31	26	24	11	7	9	22
23	4	3	3	12	13	13	32	26	18	11	7	9	23
24	4	3	3	16	12	18	30	90	18	11	6	8	24
25	4	3	3	16	15	16	36	48	17	11	6	8	25
26	4	3	3	5	14	15	32	34	16	11	7	8	26
27	4	3	3	5	12	18	26	36	18	10	7	8	27
28	4	3	3	5	13	14	30	44	19	10	7	9	28
29	4	3	3	5	11	29	32	47	17	10	7	9	29
30	4		8	4	11	37	31	63	22	10	7	9	30
31	4		16		4		31	44		10		8	31
SFD	132	89	111	319	486	435	905	1150	1121	473	228	233	SFD
AF	**262**	**177**	**220**	**633**	**964**	**863**	**1795**	**2281**	**2223**	**938**	**452**	**462**	**AF**
to date	262	438	659	1291	2255	3118	4913	7194	9418	10356	10808	11270	to date

Fabens Waste Drain

EPCWID Average Daily CFS

2016

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	3	3	3	24	7	5	15	25	25	23	7	7	1
2	3	3	3	13	6	7	27	15	16	21	7	7	2
3	3	3	3	11	6	8	22	32	11	16	7	7	3
4	3	3	3	6	8	16	19	31	11	19	7	7	4
5	3	3	3	3	6	19	17	31	16	21	7	8	5
6	3	3	3	3	2	13	20	28	35	19	6	7	6
7	3	3	3	7	2	6	21	26	31	17	6	7	7
8	3	3	3	8	2	9	20	22	26	15	6	7	8
9	3	3	3	6	8	9	18	20	24	14	6	7	9
10	3	3	3	16	14	3	17	20	26	12	6	6	10
11	3	3	3	6	13	3	23	17	29	12	6	6	11
12	3	3	3	8	11	6	23	21	30	12	6	6	12
13	3	3	3	16	18	10	24	20	23	12	6	5	13
14	3	3	3	8	22	10	22	28	21	12	6	5	14
15	3	3	3	10	21	9	21	26	21	12	6	4	15
16	3	3	3	10	18	9	20	22	20	11	7	4	16
17	3	3	3	17	11	10	27	23	21	11	7	4	17
18	3	3	3	11	8	15	27	18	26	12	6	6	18
19	3	3	3	6	9	16	28	18	29	11	6	6	19
20	3	3	3	4	12	17	29	23	26	11	7	7	20
21	3	3	3	4	12	17	29	23	21	10	7	7	21
22	3	3	3	15	11	13	24	22	20	10	6	7	22
23	3	3	3	12	12	13	26	13	18	9	6	8	23
24	3	3	3	16	12	19	24	18	18	9	5	8	24
25	3	3	3	16	13	17	26	13	16	9	5	7	25
26	3	3	3	11	10	15	25	15	15	8	6	7	26
27	3	3	3	8	8	19	20	16	18	8	6	7	27
28	3	3	3	8	8	12	24	20	12	8	6	8	28
29	3	3	3	5	5	14	27	20	16	7	6	8	29
30	3		8	4	3	16	25	41	22	7	6	8	30
31	3		16		4		25	30		8		7	31
SFD	93	87	111	292	302	355	715	697	643	386	187	205	SFD
AF	**184**	**173**	**220**	**579**	**599**	**704**	**1418**	**1382**	**1275**	**766**	**371**	**407**	**AF**
to date	184	357	577	1156	1755	2460	3878	5260	6536	7301	7672	8079	to date

Tornillo WW #2 @ Alamo Alto

EPCWID Average Daily CFS

2016

day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	day
1	0	0	0	16	0	0	0	0	35	10	0	0	1
2	0	0	0	0	0	5	16	0	50	3	0	0	2
3	0	0	0	0	0	6	36	39	33	2	0	0	3
4	0	0	0	4	0	0	28	71	36	0	0	0	4
5	0	0	0	2	0	0	0	84	35	0	0	0	5
6	0	0	0	16	0	11	0	63	44	0	0	0	6
7	0	0	0	16	0	0	0	52	54	0	0	0	7
8	0	0	0	13	13	0	0	54	47	0	0	0	8
9	0	0	0	9	15	0	0	0	48	0	0	0	9
10	0	0	0	14	13	4	0	11	35	0	0	0	10
11	0	0	0	38	0	0	0	55	29	0	0	0	11
12	0	0	0	18	5	0	0	57	23	0	0	0	12
13	0	0	0	4	32	0	0	60	25	0	0	0	13
14	0	0	0	10	20	0	0	84	35	0	0	0	14
15	0	0	0	0	17	0	0	56	31	0	0	0	15
16	0	0	0	0	41	0	15	34	50	0	0	0	16
17	0	0	0	0	2	0	29	7	25	0	0	0	17
18	0	0	0	0	0	0	35	3	4	0	0	0	18
19	0	0	0	0	0	0	63	13	0	0	0	0	19
20	0	0	0	1	0	0	55	14	0	0	0	0	20
21	0	0	0	6	0	0	4	52	0	0	0	0	21
22	0	0	0	0	13	0	3	0	0	0	0	0	22
23	0	0	0	0	7	0	1	0	0	0	0	0	23
24	0	0	0	0	27	0	21	0	0	0	0	0	24
25	0	0	0	0	29	0	0	30	0	0	0	0	25
26	0	0	0	0	5	8	16	46	0	0	0	0	26
27	0	0	0	0	5	0	5	71	0	0	0	0	27
28	0	0	0	0	5	0	0	52	6	0	0	0	28
29	0	0	0	0	0	0	0	53	10	0	0	0	29
30	0		0	0	0	0	0	37	6	0	0	0	30
31	0		3		0		0	53		0		0	31
SFD	0	0	3	167	249	34	327	1151	661	15	0	0	SFD
AF	**0**	**0**	**6**	**331**	**494**	**67**	**649**	**2283**	**1311**	**30**	**0**	**0**	**AF**
to date	0	0	6	337	831	899	1547	3830	5141	5171	5171	5171	to date

C. EPCWID1 Proposed and Existing Telemetry Sites

No.	*STATIONS (PROPOSED)*	*x*	*y*
1	Franklin Feeder Heading	31.638245	-106.300383
2	Tornillo Canal Heading	31.495688	-106.154884
3	Tornillo Drain	31.450741	-106.113885
4	Hudspeth Feeder	31.42503	-106.123741
5	Fabens Waste Drain	31.50556	-106.163952
6	Fabens Waste Channel	31.495584	-106.15484
7	Franklin Canal Heading	31.759255	-106.468358
8	San Elizario Waste Way I Motor Gate	31.592351	-106.276925
9	Franklin Canal Heading Motor Gate (preliminary)	31.638245	-106.300383
10	Montoya A Lateral Heading (preliminary)	31.857108	-106.59822
11	Ysla Lateral / Wadlington Lateral Confluence (preliminary)	31.657734	-106.279782
12	Riverside Canal Settling Basin (preliminary)	31.54002	-106.23124
13	Mesa Spur Drain Tail End (preliminary)	31.614209	-106.227719
14	Mesa Drain @ Anderson Road (preliminary)	31.617433	-106.231548
15	Mesa Drain Tail End (preliminary)	31.506615	-106.16287
16	River Drain Tail End (preliminary)	31.505708	-106.163809
17	Montoya B Lateral Heading (preliminary)	31.847672	-106.584478
18	Montoya C Lateral tail end (preliminary)	31.823237	-106.598371

No.	*STATIONS (EXISTING)*	*Unit*	*x*	*y*
1	Rio Grande below Mesilla Dam	Rio	32.210254	-106.771953
2	Three Saints Lateral	6	32.000116	-106.618683
3	WW #32	6	31.996087	-106.641661
4	Montoya Lateral	6	31.87494	-106.602041
5	L.U.E. Heading	6	32.001631	-106.649473
6	Rio @ Canutillo Bridge	Rio	31.915147	-106.602323
7	Canutillo Lateral	6	31.930263	-106.623255
8	Montoya Drain	6	31.818962	-106.57441
9	WW #35	6	31.868991	-106.609454
10	WW #34	6	31.882132	-106.60078
11	Rio @ Anthony Cableway	Rio	31.98156	-106.621045
12	American Canal	7B	31.780075	-106.525848
13	American Canal Settling Basin	7B	31.761637	-106.507677
14	American Canal Leon Waste Way	7B	31.749387	-106.489729
15	American Canal 2nd Street	7B	31.759317	-106.468257
16	Franklin Canal	7B	31.771033	-106.447959
17	Franklin above Pendale	7B	31.7012	-106.332886
18	Franklin below Place Rd.	7A	31.643964	-106.281683
19	Riverside Canal Heading	8B	31.65853	-106.32613
20	Riverside Blw W.W. #1	8B	31.623532	-106.302952
21	Franklin Feeder	8B	31.635477	-106.298176
22	Franklin at Bills & Ellis checks	8A	31.521643	-106.17645
23	R.S. below I.M. Heading	9B	31.540497	-106.23414
24	Salitral Heading	8A	31.622048	-106.262081
25	Island main heading	9B	31.538881	-106.235001
26	San Elizario Lateral	8B	31.623064	-106.288431
27	Tornillo Canal	9A	31.495674	-106.154244
28	Webb Lateral	8A	31.539095	-106.20063
29	Clint Heading	8A	31.611337	-106.258785
30	Crismore Lateral	8A	31.554706	-106.186268
31	Cuadrilla Lateral	8A	31.535239	-106.197143
32	Y-197 Lateral	7A	31.645846	-106.259639
33	Y-303 Lateral	7A	31.623251	-106.241118
34	I - 206 Lateral	9B	31.491903	-106.20003
35	Island Feeder Heading	8B	31.568364	-106.232752
36	Franklin below I.F. checks	8A	31.568399	-106.231815
37	Fabens Waste Channel	9A	31.494772	-106.153668
38	Fabens Waste Drain	9A	31.501135	-106.15962
39	Hudspeth Feeder	9A	31.397237	-106.058377
40	Tornillo Drain	9A	31.400967	-106.026426
41	Tornillo WW #2 @ Alamo Alto	9A	31.40311	-106.020912
42	Tornillo Canal Check 17	9A	31.407292	-106.050217
43	Riverside Canal at Partidor	8B	31.638352	-106.300597
44	Tornillo Canal Check 2	9A	31.478524	-106.137232
45	Franklin at San Eli	8B	31.625802	-106.290183
46	Clint Checks	8A	31.610934	-106.259617

47	Tornillo Canal Check 5	9A	31.453095	-106.117655
48	Tornillo Canal Check 14	9A	31.419671	-106.079964
49	Wadlington Checks	7A	31.656639	-106.292664
50	Ysla Checks	7A	31.669472	-106.303669
51	Playa Checks	7B	31.734526	-106.367014
52	Riverside at Island Main Checks	9B	31.540604	-106.234982
53	I-57 Check	8B	31.554351	-106.235001
54	Salitral Checks	8A	31.622058	-106.263113
55	Montoya Heading Auto Gate	6	31.882366	-106.600793
56	Rio Grande Courchesne Bridge	Rio	31.803277	-106.541169
57	Rio Grande Below Leasburg	Rio	32.477006	-106.919854
58	Rio Grande below Caballo Dam	Rio	32.884535	-107.292697
59	Rio's Yard Repeater Tower	7B	31.655927	-106.31879
60	Ascarate Waste Way Repeater Tower	7B	31.746423	-106.402644
61	Franklin Canal Jornado Motor Powered Check Radials	7B	31.709386	-106.343268
62	Franklin Canal Cinecue Motor Powered Check Radials	7B	31.717817	-106.353514
63	Franklin Canal Alfalfa Motor Powered Check Radials	7B	31.757346	-106.393977
64	Franklin Canal Eads Motor Powered Check Radials	8B	31.584505	-106.246552
65	Franklin Canal Bills / Ellis Motor Powered Check Radials	8A	31.523144	-106.177751
66	Riverside Radials Motor Powered Checks	9B	31.527262	-106.214482
67	Riverside Canal Hansen Heading Motor Powered Radials	9B	31.508537	-106.190669
68	Tornillo Canal Check #15 Motor Powered Radials	9A	31.415121	-106.071283
69	Tornillo Canal Check #16 Motor Powered Radials	9A	31.411562	-106.059348
70	Ascarate Waste Way AutoGate	7B	31.759552	-106.396608
71	Waste Way 32 AutoGate	6B	31.996251	-106.642589
72	Franklin Canal Paisano Check Gates	7B	31.768868	-106.429166
73	I-341 Pruitt Farm Check	9A	31.452251	-106.125833
74	Clint Yard Headquarters	8A	31.585698	-106.23039
75	Fabens Yard Repeater	9A	31.504762	-106.163239
76	Canutillo Yard Repeater	6	31.917628	-106.603658
77	Tornillo Canal Check 3	9A	31.46896	-106.131514
78	EPWU Bustamante Plant	8B	31.652757	-106.320122
79	EPWU Jonathan Rogers Plant	8B	31.654524	-106.325634
80	EPWU Haskell Plant	7B	31.759901	-106.441219
81	Riverside Canal Stallings Checks	8B	31.609192	-106.300568
82	Franklin Canal Flume Checks	7A	31.687002	-106.318929
83	Franklin Canal Lowenstein Checks	7A	31.683854	-106.316151
84	Hansen DS I-243 Heading	9B	31.500591	-106.185961
85	I-243 Heading	9A	31.502394	-106.185864
86	T-216 Heading	9A	31.452608	-106.118298
87	Wadlington Lateral	7A	31.656115	-106.290305
88	Guadalupe Heading	9B	31.491866	-106.199006
89	Vinton Heading	6B	31.972788	-106.635278
90	Grandview	8A	31.528812	-106.188557
91	Lee Lateral	8A	31.53534	-106.19537
92	I-57 Lateral	8B	31.554172	-106.234314
93	JDH Main	7B	31.733533	-106.365139

94	Riverside Canal WW#2 GH Sensor	9B	31.543906	-106.247167
95	Socorro Lateral Heading	7A	31.671778	-106.307074
96	Upper Clint	8B	31.623509	-106.288232
97	Quemada Heading	8B	31.597681	-106.277919
98	Rodriguena Heading	8A	31.610768	-106.259461
99	Coffing Heading	8A	31.569346	-106.231216

No.	Well Site	y	x
1	Three Saints	32.000728	-106.61798
2	YL-2 (YL-1)	31.670408	-106.296978
3	? (WAL-1)	31.656311	-106.285835
4	SOC-1	31.657619	-106.30923
5	SOC-2	31.65262	-106.303986
6	FC-2 (FC-1A)	31.682446	-106.315179
7	FC-1 (CW-18)	31.67942	-106.312481
8	YL-3 (YL-2)	31.670966	-106.288527
9	JD-4 (JD-1)	31.675129	-106.291502
10	JD-3 (CW-19)	31.678176	-106.293872
11	JD-2 (CW-17)	31.685171	-106.299672
12	JD-1 (CW-16)	31.687682	-106.30258
13	Electric	31.70415	-106.310912
14	JDB-4 (CW-14)	31.693218	-106.293371
15	JDB-5 (CW-15)	31.691705	-106.295262
16	UV-1	31.900778	-106.607744
17	UV-2	31.8964	-106.607576
18	UV-3	31.89374	-106.600853
19	RS-1 (CW-3)	31.652083	-106.315281
20	RS-2 (CW-4)	31.647105	-106.310037
21	RS-3 (CW-5)	31.643414	-106.305903
22	RS-4 (CW-7)	31.636205	-106.302424
23	RS-5 (CW-8)	31.634445	-106.305297
24	RS-5 (CW-9)	31.632042	-106.306759
25	RS-7 (RS-4)	31.5908	-106.289165
26	RS-8 (RS-5)	31.583891	-106.286393
27	RS-9 (RS-6)	31.574407	-106.28352
28	RS-10 (RS-7)	31.570201	-106.28211
29	RS-11 (RS-8)	31.55767	-106.270222
30	RS-12 (RS-9)	31.553335	-106.262164
31	RS-13 (RS-10)	31.549172	-106.254408
32	RS-14 (RS-10A)	31.546426	-106.250329
33	RS-15 (RS-11)	31.544194	-106.247106
34	RS-16 (RS-12)	31.541834	-106.241516
35	RS-17 (RS-13)	31.54119	-106.238545
36	? (T-1)	31.495271	-106.153887
37	RS-21 (RS-20)	31.509347	-106.174424
38	RS-20 (RS-19)	31.509175	-106.177142
39	RS-19 (RS-18)	31.508875	-106.180791
40	RS-18 (RS-17)	31.508703	-106.183887
41	FF-5 (FF-2)	31.62569	-106.290314
42	FF-6 (FF-3)	31.625047	-106.28598
43	FF-7 (FF-5)	31.622901	-106.269574
44	FF-8 (FF-6)	31.622708	-106.267584
45	FC-3 (FC-1)	31.617751	-106.261934
46	? (FC-2)	31.598568	-106.253819

47	FC-4 (FC-3)	31.580801	-106.242986
48	FC-5 (FC-4)	31.578226	-106.240467
49	FC-6 (FC-5)	31.576295	-106.239459
50	FC-7 (FC-6)	31.568055	-106.231752
51	YL-4 (YL-4)	31.622	-106.242666
52	Removed (YL-3)	31.651783	-106.268977
53	CL-1 (CL-1)	31.610777	-106.252799
54	YL-1 (CW-20)	31.669593	-106.303185
55	IM-3 (IM-4)	31.495013	-106.202132
56	FF-1 (CW-10)	31.634789	-106.298653
57	FF-2 (CW-11)	31.630175	-106.295125
58	FF-3 (FF-1)	31.62775	-106.293386
59	FF-4 (FF-1A)	31.626441	-106.291496
60	IM-2 (IM-3)	31.505184	-106.209158
61	IM-1 (IM-2)	31.512265	-106.21248
62	? (IM-1)	31.529474	-106.227331
63	JDB-3 (CW-13)	31.695986	-106.294327
64	JDB-2 (CW-12)	31.697981	-106.295714
65	Wadlington	31.656396	-106.293262
66	Playa Checks	31.734824	-106.367286

D. Statements of Support for Previous EPCWID1 Telemetry Improvements

Statement of Support from the El Paso Valley Cotton Association (2019)

EPVCA
EL PASO VALLEY COTTON ASSOCIATION, INC.

P. O. BOX 690 • CLINT TEXAS 79836
PHONE (915) 851-2391
FAX (915) 851-0288

April 12, 2019

Mr. Matthew Reichert
Financial Assistance Support Section
United States Bureau of Reclamation
P.O. Box 25007, MS 84-27814
Denver, CO 80225

RE: Letter of Support for Water Efficiency Project Proposed by EPCWID1

Dear Mr. Reichert:

I am writing on behalf of the El Paso Valley Cotton Association to express our support for the Advanced Metering Infrastructure (AMI) Upgrades to Irrigation Wells Project, a water efficiency project by the El Paso County Water Improvement District No. 1 (EPCWID1). The project proposed by EPCWID1 will help meet irrigation water demand in El Paso County.

Agricultural operations in the El Paso region have been negatively impacted by long-term drought conditions. El Paso is famously known for its industry-best Pima Cotton, and about 20 million pounds of cotton were produced in the area in 2017. However, many cotton fields are fallowed or deficit-irrigated due to limited availability of irrigation water during years of drought. About 18,000 acres of irrigable land were fallowed in 2015.

Water efficiency improvement projects will help sustain the agricultural economy of rural communities in El Paso. As such, the El Paso Valley Cotton Association supports the project proposed by EPCWID1 and recommends its funding.

Sincerely,

Jim Ivey
President

COOP

HELPING TO INCREASE AGRICULTURAL INCOME

Statement of Support from the West Texas Pecan Association (2019)

West Texas Pecan Association
W. T. P. A.

April 12, 2019

Mr. Matthew Reichert
Financial Assistance Support Section
United States Bureau of Reclamation
P.O. Box 25007, MS 84-27814
Denver, CO 80225

RE: Letter of Support for Water Efficiency Project Proposed by EPCWID1

Dear Mr. Reichert:

I am writing on behalf of the West Texas Pecan Association to express our support for the Advanced Metering Infrastructure (AMI) Upgrades to Irrigation Wells Project, a water efficiency project by the El Paso County Water Improvement District No. 1 (EPCWID1). The project proposed by EPCWID1 will help meet irrigation water demand in El Paso County.

Agricultural operations in the El Paso region have been negatively impacted by long-term drought conditions. The El Paso region leads the state of Texas with about 14,500 acres of improved variety pecan orchards in El Paso County, which produced about 15 million pounds of nuts in 2017. Water from the Rio Grande is essential for the continued production of pecans. However, pecan orchards may be deficit-irrigated during years of drought when irrigation water is limited, leading to decreased production.

Water efficiency improvement projects will help sustain the agricultural economy of rural communities in El Paso. As such, the West Texas Pecan Association supports the project proposed by EPCWID1 and recommends its funding.

Sincerely,

Mary Elizabeth Santos
President

14589 Alameda Ave., Clint, TX 79836
915-765-9140 westtexaspecanassoc@gmail.com

Statement of Support from State Representative Joe Moody (Texas District 78)

TEXAS HOUSE *of* REPRESENTATIVES

Joe Moody

STATE REPRESENTATIVE
DISTRICT 78 • EL PASO COUNTY

January 26, 2018

Cameron G. Turner
Manager, Agricultural Water Conservation
Texas Water Development Board
1700 N. Congress Ave. | Austin, Texas 78711-3231

re: Letter of Support for Investment in EPCWID1's Telemetry System

Dear Mr. Turner:

The El Paso County Water Improvement District No. 1 (EPCWID1) is applying for TWDB Agricultural Water Conservation Program funding for FY2018 to expand its telemetry system for better water supply management, water conservation, and local agricultural sustainment.

EPCWID1 has become a water leader in the Southwest by investing heavily in its telemetry, automation, and communications systems. Efficiently meeting water needs with a better-managed system has led to lower annual allocations by users of Rio Grande water, allowing storage in Elephant Butte and Caballo Reservoir to accumulate critical water for droughts.

El Paso's arid climate—average annual rainfall is about eight inches—coupled with international and interstate treaties places significant demands on the limited water resources in the area. Conservation is critical for the sustainability, forcing water management systems to operate as efficiently as possible to prevent losses and make more water available for use.

The impact of projected water shortages in El Paso County will be approximately $3.45 billion by 2070, including almost 25,000 jobs lost (TWDB 2015). EPCWID1's investment in its telemetry system would help prevent that, so I fully support it and recommend its funding.

Respectfully,

JOE MOODY
State Representative | District 78—El Paso County

cc: Phyllis Thomas, TWDB Contract Administration

P.O. BOX 2910 • AUSTIN, TEXAS 78768-2910 • *phone* (512) 463-0728 • *fax* (512) 463-0197 • JOE.MOODY@HOUSE.STATE.TX.US

Statement of Support from State Representative Joe Moody (Texas District 75)

TEXAS HOUSE *of* REPRESENTATIVES

Mary E. González
State Representative, District 75

January 26, 2018

Cameron G. Turner
Manager, Agricultural Water Conservation
Texas Water Development Board
1700 N. Congress Ave.
Austin, Texas 78711-3231
CC: Phyllis Thomas, TWDB Contract Administration

RE: Letter of Support for Proposal to Make Investments in EPCWID1's Telemetry System

Dear Mr. Turner,

The El Paso County Water Improvement District No. 1 (EPCWID1) is seeking to apply for funding under the TWDB Agricultural Water Conservation Program for FY2018. EPCWID1 is proposing to expand its telemetry system to better manage the area's water supplies, conserve water, and sustain the local agricultural sector.

EPCWID1 has become a leader in water conservation and management in the Southwest by investing heavily in its telemetry, automation, and communications systems. As water needs are efficiently met by a better-managed system, water users require less of an annual allocation of Rio Grande water, thereby allowing storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years.

The El Paso region has an arid climate and receives an average annual rainfall of about 8 inches. Agricultural, municipal, and industrial water use as well as international and interstate treaties all place significant demands on the limited water resources in the area. Conservation is critical for the sustainability of water supplies, forcing water management systems to operate as efficiently as possible to prevent losses and make more water available for agricultural and municipal use.

Agriculture and water are especially important to the economy and livelihood of residents of House District 75. If not met, the socioeconomic impacts of projected water shortages in El Paso County are approximately $3.45 billion by 2070 and include almost 25,000 jobs lost (TWDB 2015).

Continuing to invest in EPCWID1's telemetry system is essential to meet El Paso's current and future water demands. As such, I support the project proposed by the El Paso County Water Improvement District No. 1 and recommend its funding.

P.O. Box 2910 • Austin, Texas 78768-2910 • *phone* (512) 463-0613 • *fax* (512) 463-1237 • mary.gonzalez@house.texas.gov
District Office: 11200 Santos Sanchez Road • Socorro, Texas 79927 • *phone* (915) 790-2299 • *fax* (915) 790-2144

Sinceramente,

Mary E. González
Texas Representative
House District 75

E. Referenced Reports

Balliew, John E. 2019. El Paso Water Utilities: Conservation + Diversification = Sustainability. Presented at the 2019 Two Nations One Water Conference. https://static1.squarespace.com/static/5c5da4383560c36d822ade54/t/5cc76d9a98a5ee00016eae9a/1556573600036/Balliew+Two+Nations+One+Water+2019+3.pdf

CH2MHILL. 2011. Alternatives Analysis for the Rio Grande Salinity Management Program: Prepared for U.S. Army Corps of Engineers. http://www.ch2mhillblogs.com/water/2012/05/21/rio-grande-salinity-management-program-using-alternatives-analysis-for-effective-solutions/

Chavarria, Sharleene B. and David S. Gutzler. 2018. Observed Changes in Climate and Streamflow in the Upper Rio Grande Basin."Journal of the American Water Resources Association (JAWRA) 54(3): 644-659. https://doi.org/10.1111/1752-1688.12640

City of El Paso. 2012. Plan El Paso, Comprehensive Plan. 7.2, 7.12, 12.2-12.9. https://www.elpasotexas.gov/~/media/files/coep/city%20development/planning/long%20range/plan%20el%20paso/plan%20el%20paso_vol2_adopted_for%20web.ashx?la=en

Consejo Nacional de Población (CONAPO). 2012. Proyecciones de la Población del Municipio de Juarez 2010-2030. http://www.conapo.gob.mx/es/CONAPO/Proyecciones_Analisis

El Paso Water Utilities. 2014. 2014 EPWU Water Conservation Plan. 1-2. https://epwater.org/UserFiles/Servers/Server_6843404/File/Conservation/Resources/Conservation_Plan_2014.pdf

El Paso Water Utilities. 2019. Public Service Board Regular Meeting on Wednesday, August 14, 2019. https://www.epwater.org/common/pages/DisplayFile.aspx?itemId=15918622

Far West Texas Water Planning Group. 2016. 2016 Far West Texas Water Plan. http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/E/Region_E_2016_RWP.pdf

Felix Kogan & Wei Guo. 2015. 2006–2015 mega-drought in the western USA and its monitoring from space data, Geomatics, Natural Hazards and Risk, 6:8, 651-668, DOI: 10.1080/19475705.2015.1079265.

Fort Bliss Garrison, Directorate of Public Works. 2011. August 8, 2011 Fort Bliss Fact Sheet. https://www.army.mil/e2/c/downloads/216568.pdf

Fort Bliss Water Services, Inc. 2017. Annual Water Quality Report: Water Testing Performed in 2017. 2. http://www.asusinc.org/images/uploads/bases_we_serve/FBWS_CCR_Webready.pdf

Gonzalez, Hector. 2017. Testimony of Hector Gonzalez before the Subcommittee on water Resources and the Environment and the Committee on Transportation and Infrastructure: U.S. House of Representatives; 10:00 a.m., September 26, 2017. https://transportation.house.gov/uploadedfiles/2017-09-26_-_gonzalez_testimony.pdf

Hibbs, B. J., and M. Merino. 2006. A geologic source of salinity in the Rio Grande aquifer near El Paso, Texas. New Mexico Journal of Science, v. 46, 165-181.

International Boundary and Water Commission, U.S. Section (IBWC). 2015. Channel Maintenance Alternatives and Sediment-transport Studies for the Rio Grande Canalization Project: Final Report. Contract No. IBM09D0006. https://www.ibwc.gov/Files/RGCP_CMA_Study_Final_10-19-15.pdf

International Boundary and Water Commission, U.S. Section (IBWC). 2020. Upper Rio Grande Sediment Removal Contracts. Presentation by Xochitl Aranda, P.E., Chief, Operations and Maintenance Division. January 9, 2020 Public Meeting. https://www.ibwc.gov/Files/Press_Release_122719.pdf

Michelsen, Chavez, Lacewell, Gilley, and Sheng. 2009. Evaluation of Irrigation Efficiency Strategies for Far West Texas: Feasibility, Water Savings and Cost Considerations. Texas A&M University.

JLUS: Southern New Mexico – El Paso Texas Joint Land Use Study, prepared for Doña Ana County, New Mexico. AECOM Technical Services. Jan 2015.

JMAS Junta Municipal de Agua y Saneamiento de Juarez. 2013. Resumen Ejecutivo 2012-2030. http://www.jmasjuarez.gob.mx/transp/v0/direct/Resumen_Ejecutivo_4_ejes.pdf

JMAS Junta Municipal de Agua y Saneamiento de Juarez. 2019. Plan Estatal Hídrico 2040 del Estado de Chihuaha. Plan: https://www.jmasjuarez.gob.mx/v2018/index.php. Statement in Page 7 of this document references a publication as published in the JMAS Ultimas Noticias page: https://www.jmasjuarez.gob.mx/v2018/mainnews.php

Sheng, Zhuping. 2013. Impacts of Groundwater Pumping and Climate Variability of Groundwater Availability in the Rio Grande Basin. ESA Ecosphere 4(1):5. http://dx.doi.org/10.1890/ES12-00270.1

StatsAmerica Distress Criteria Statistical Report - U.S. August 2020. Economic Development Administration (EDA). http://www.statsamerica.org/distress/distress.aspx

Texas A&M University (TAMU). 2015. Annual Report 2015: Far West Texas Region. 63. https://agrilifecdn.tamu.edu/elpaso/files/2016/02/AgRes-Impacts-Far-West-Texas-Annual-Report-2015.pdf

Texas Comptroller of Public Accounts. 2016. Military Snapshot: Fort Bliss. 98-986-2 (6/16). https://comptroller.texas.gov/economy/economic-data/military/2015/docs/98-986-fort-bliss.pdf
Texas Department of Transportation (TxDOT). 2018. I-10 Connect Public Hearing Display Boards. Environmental Constraints Slide 3 of 10. http://ftp.dot.state.tx.us/pub/txdot/get-involved/elp/i-10-connect/073018-display-boards.pdf

Texas Water Development Board. 2015. Ellis, John R., Cho, Yun, & Kluge, Kevin. Socioeconomic Impacts of Projected Water Shortages for the Region E Regional Water Planning Area. Texas Water Development Board, Water Use Projections and Planning Division.

University of Texas at El Paso. 2015. Hunt Institute for Global Competitiveness. Solar Radiation, Annual Average Sum (Period 1999-2013).

U.S. Bureau of Reclamation. 2011. "Managing Water Conflict: a Survey of Reclamation Managers and Scientists. Technical Memorandum 86-68251-11-01. https://www.usbr.gov/research/projects/download_product.cfm?id=140

U.S. Bureau of Reclamation. 2013. U.S. Department of the Interior. "Literature Review of Observed and Projected Climate Changes." Page B-20.

U.S. Bureau of Reclamation. 2016. U.S. Department of the Interior. "SECURE Water Act Section 9503(c) – Reclamation Climate Change and Water 2016, Chapter 7: Rio Grande Basin. Pages 7-3, 7-5, 7-6, 7-8.

U.S. Bureau of Reclamation. 2021. "Rio Grande Basin. SECURE Water Act Section 9503(c). Report to Congress." Page 39.

United States Department of Agriculture National Resource Conservation Service. 2019. NWQI Watersheds and Source Protection Areas for FY20. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/initiatives/?cid=nrcseprd1431052

United States Geological Survey (USGS). 2015. Seepage Investigation of the Rio Grande From Below Leasburg Dam, Leasburg, New Mexico, to Above American Dam, El Paso Texas, 2015. Scientific Investigations Report 2016-5011.