

Metropolitan Domestic Water Improvement District
6265 North La Canada Drive
Tucson AZ 85740
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PIMA COUNTY | STATE OF ARIZONA



U.S. Department of the Interior - Bureau of Reclamation

Category A Applicant - Water Conservation Project – Municipal Metering

Metro Main Automated Metering Infrastructure (AMI) Implementation and WaterSMART
Customer Platform for all District service areas

Prepared for:
WaterSMART Grant: Water and Energy Efficiency Grant for Fiscal Year 2023
Notice of Funding Opportunity No. R23AS00008

Due date: JULY 28, 2022

Applicant/Project Manager:

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Improvement District**
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Attachments

- Project Abstract Summary
- Application for Federal Assistance (SF-424)
- Disclosure of Lobbying Activities (Form SF-LLL)
- Budget Information for Non-Construction Programs (SF-424A)
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- Assurances for Construction Programs (SF-424D)
- Certification Regarding Lobbying
- Letter of Support
- Official Resolution

Technical Proposal

Executive Summary

Submission Due Date: July 28, 2022

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Funding Group: Category A Applicant Funding Option II

Metropolitan Domestic Water Improvement District is a water district located in unincorporated Pima County, within the State of Arizona. Pima County is part of the Sonoran Desert where water conservation is a critical component in delivering safe, reliable water. This project proposal is for the implementation of **Automated Meter Reading (AMI)** in its main service area northwest of Tucson, Arizona and implementation of a **WaterSMART Customer Platform** for all its customers located in Pima County. The work consists of installing AMI wireless communication equipment for meter data backhaul, upgrading components of commercial sized meters to be AMI capable, and replacing 11,234 existing customer water meters with new meters and electronic endpoints capable of sending hourly water consumption to the WaterSMART Customer Platform so customers can receive timely information of their current and historic water usage for better management of this most precious resource. It is anticipated that the completion of this project will reduce water usage by 1,119.09 Acre Feet per year. The reduction in water consumption will cause a reduction in electrical and fossil fuel consumption benefitting the regional power grid as well as air quality.

Keynote Benefits of the Automated Metering Infrastructure (AMI) Implementation and WaterSMART Customer Platform for all District service areas.

- This project will reduce water consumption by 1,119.09 Acre Feet per year or 22,381.8 Acre Feet over the 20 year lifecycle of the AMI equipment.
- Promote water conservation measures through customer engagement and water usage reports to assist customers reduce their daily water usage which can significantly reduce water waste and energy consumption.
- Reduce wasted water as a result of leaks by 80 percent due to rapid leak notifications.

- Reduce time, labor, cost, energy, and Greenhouse Gas emissions compared to the existing metering system, which requires personnel to physically drive to and manually read each meter.
- Modernized and increased dependability of Metro Water District’s aging water infrastructure by embracing new smart metering technologies in all service areas.

This Project is anticipated to take two and a half (2.5) years to complete. The proposed start date of this project is July 1, 2023.

This Project is not located on a Federal Facility.

Background:

Metro Water District is located in Pima County and is the largest Domestic Water Improvement District in the state of Arizona, formed in October 1992. This project is located in the Metro Main service area which has 18,895 customer connections. The Metro Main service area has 23 wells and 13.6 million gallons of water storage capacity. Metro Main’s storage facilities include the Herb Johnson Reservoir (5 million gallons), the James M. Tripp Reservoir (5 million gallons) and the Magee/La Cholla Reservoir (1 million gallons). The Water System consists of approximately 360 miles of water mains, varying in size from 2-inch to 30-inch diameter. The water system obtains its water from wells generally with depths of 70 feet to 650 feet. There are a total of 33 wells currently in service with 23 in the Metro Main service area.

The Metro Main Service Area consists of 18,895 total meters. The District has been active in meter replacements over the years in order to manage accuracy as well as add the meter components that would be compatible with a future AMI system. Out of the 18,895 meters, 7,661 are already compatible and ready for integration into an AMI system. This project would replace 11,234 water meters ranging in size from 5/8” to 2” with AMI compatible meters as shown below.

Meter Size	Number of Units
5/8”	10,602
3/4”	135
1”	262
1.5”	114
2”	121
TOTAL	11,234

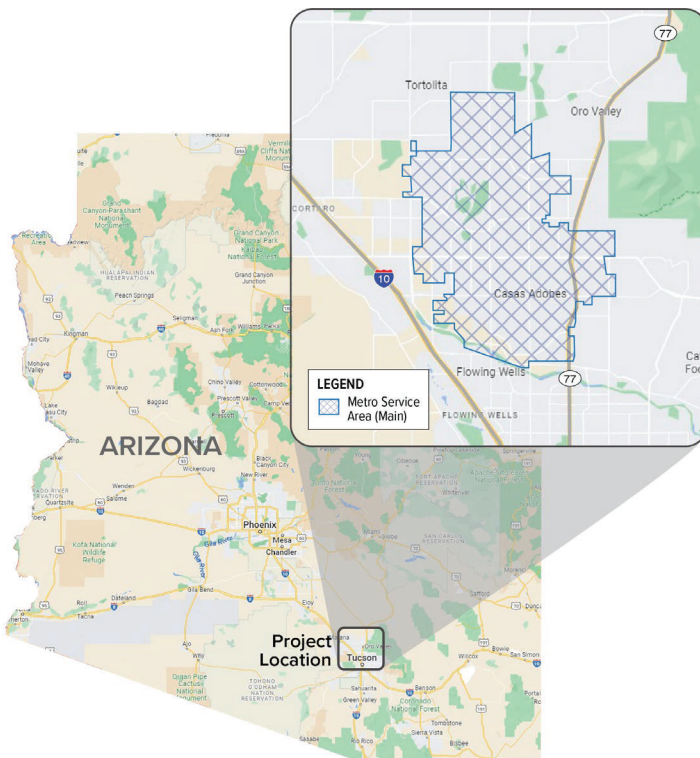
Note: The 3” and larger meters will only require register replacement and testing.

The District operates five public water systems around the Tucson area. Four of the systems have AMI meters and infrastructure installed and in operation accounting for 4,301 customers. This request would not only add the remaining meters in the Metro Main Service Area, it would make the WaterSMART Customer Portal available to all customers within the District’s service areas

allowing customers access to their water usage on an hourly basis rather than receive a 30-day reading as part of their billing statement that shows consumption that occurred up to 45-days prior. Customers can elect to receive a notification, via text or email, if their normal water usage has changed. This would enable customers to take corrective actions within hours as opposed to up to 45 days after the increased water use began. .

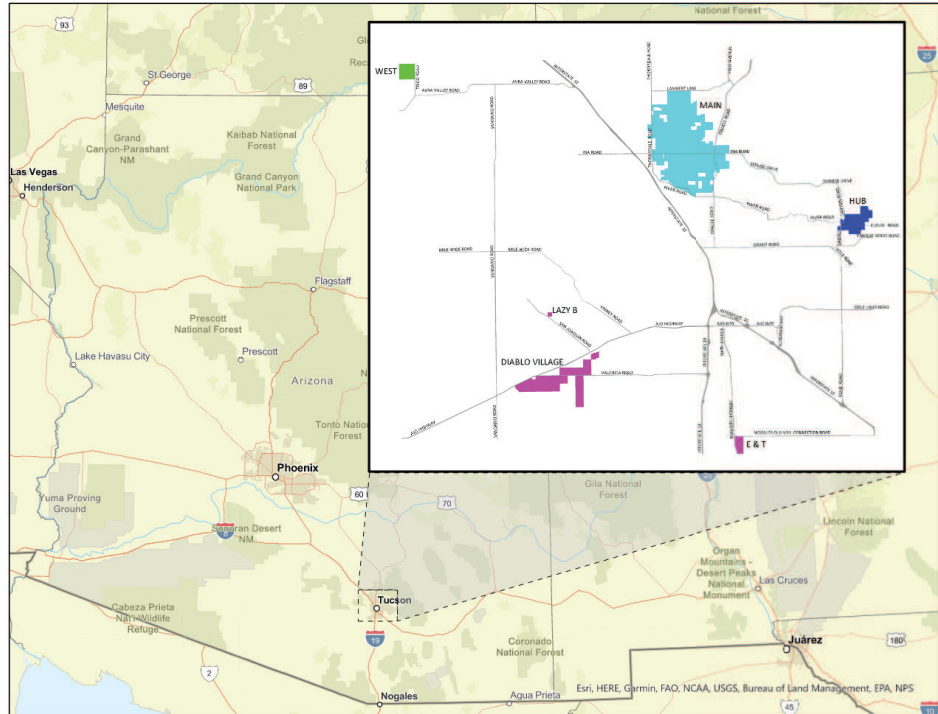
The District operates under the mission to “Deliver safe, reliable water to our customers.” compliance key element of this mission statement has been to plan for the future water resource reliability by reducing the reliance on groundwater and to generate renewable supplies. The District has been recharging Colorado River Water in the District’s Avra Valley Recharge Project for over 20 years. Schedules are currently being finalized to begin construction of recovery wells and pipelines to bring the recovered water into the District’s Metro Main Service Area. This AMI project is another initiative for the reliability of the District’s water resources by reducing unnecessary usage and wasted water.

Project Location



The Metro Main service area covers approximately 26 square miles in the northwest metropolitan Tucson area. Latitude 32.320240
Longitude -110.996440

Metro Water District owns and operates five active service areas in the Tucson region: Metro Main (cyan), Metro Southwest – Diablo Village (pink), Metro Southwest – E&T (pink), Metro Southwest – Lazy B (pink), and Metro Hub (blue). A sixth service area, Metro West, is undeveloped (green).



Technical Project Description

The Metro Main Automated Metering Infrastructure (AMI) and Implementation of the WaterSMART Customer Portal involves replacing existing water meters, installation of electronic endpoints, and installation of network communication equipment for the Metro Main service area. The District previously installed AMI compatible meters in the Metro Southwest – E&T, Metro Southwest – Diablo Village, Metro Southwest – Lazy B, and Metro Hub service areas. Software installation and web portal configuration for customer access will be implemented in all five service areas enabling 23,196 customers to utilize the WaterSMART Customer Portal to monitor their water consumption in real time. A summary of customer types by service area is reflected in Table 1 below.

Table 1 – All District Meters

Customer Type	Located in Metro Main	All Metro Service Areas
Single Family Residential	17,547	21,744
Multi-Family Residential	183	201
Commercial	796	804
Irrigation	355	433
Public Authorities	14	14
Total	18,895	23,196

Meters Requiring Replacement:

The project consists of 11,234 meters that need full replacement as they are not compatible with the AMI components. The 11,234 meters are range in size from 5/8” to 2” (See Table 2 below).

Table 2- Meters to be Replaced

Meter Size	Number of Units
5/8”	10,602
3/4”	135
1”	262
1.5”	114
2”	121
TOTAL	11,234

The District’s water meters are installed in meter boxes near the customer’s property line. The work involved in replacing the meters includes cleaning out the existing meter box, notifying customers of the work to be performed, recording of existing and new serial numbers and readings, removing the old meter and installing a new Badger Recordall® Disc Meter with a High Resolution Encoder (HR-E) register along with Itron connector to attach to the electronic endpoint. The materials will be purchased through co-operative purchasing programs to allow for volume discounts. The physical work to replace the meter will be contracted out to a vendor that performs meter replacements. The typical time to replace each meter is approximately 30 minutes with some situational deviations.



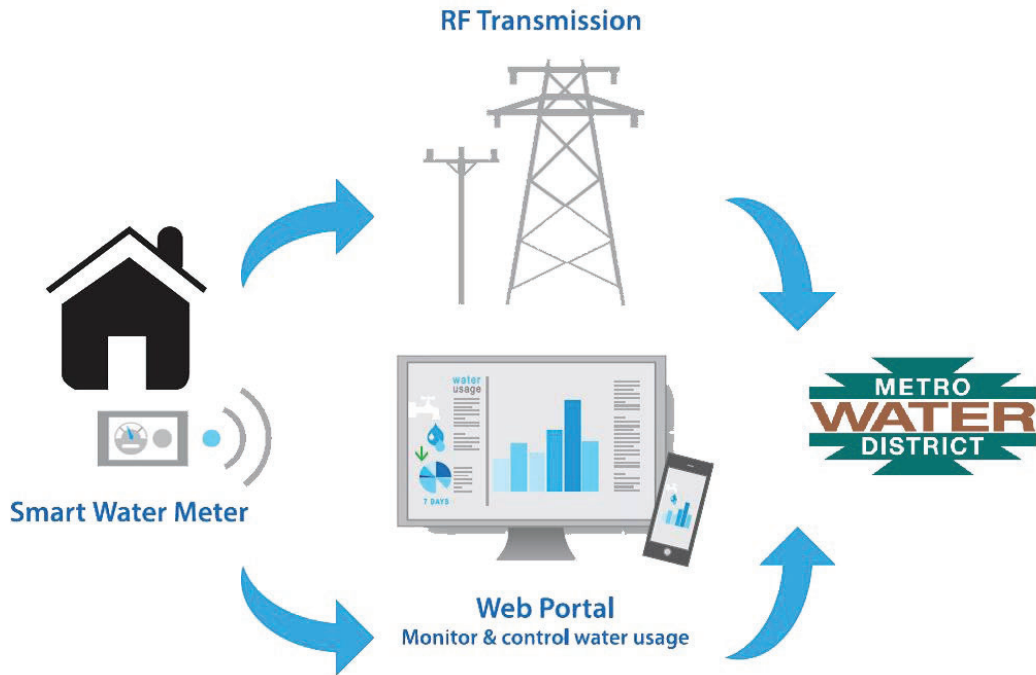
Encoder Receiver Transmitter (ERT)

Electronic Endpoint:

For a meter to be part of an AMI system, the meter reading needs to be transmitted to the servers containing the AMI and web portal software. At the time of the meter replacement / installation, an Itron 100W+ Water Communication Module, also known as an ERT (Encoder Receiver Transmitter) will be installed to perform this function. The ERT has a quarter turn connector that attaches to the Itron connector cable from the meter. The ERT also has an antenna port as well. This allows for the connection of a short antenna in order to boost the signal level. The District meters are located below ground in meter boxes. The majority of the meter boxes have steel lids that can impede the RF communication of the ERT. A 3/4” hole will be drilled into the lid to allow for the antenna

connection. This work is also done at the time of the meter connection. The equipment count shows more antennas than ERTs. This is due to the metal lids that exist on all the meter boxes. The meters in Metro Main that are already AMI compatible will require the addition of an antenna to eliminate radio frequency interferences with the metal lids.

Network Communication Equipment:



The ERT modules have a communication range of approximately one mile. The range can vary with topography, buildings, or other objects that interfere with radio communications. Since the District’s Metro Main system covers an area of approximately 23 square miles, 25 Collectors or



Itron CCU 100 and Repeater 100 have the same shape, size, and installation requirements



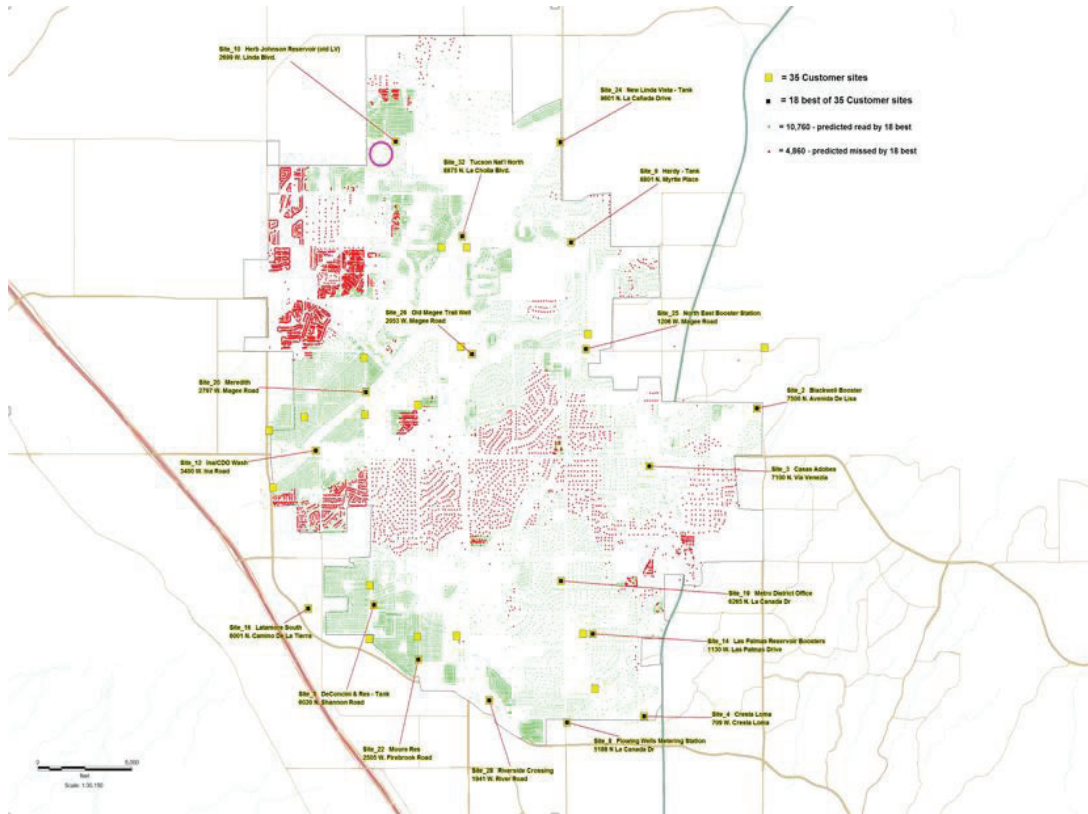
Repeaters will need to be installed. The collectors (Itron CCU 100) and the repeaters (Itron Repeater 100) will be installed around the District based on the propagation study that was performed by Itron on 18 of the existing properties owned by the District. The propagation study identified the need for additional locations to obtain full coverage.

The additional seven collectors / repeaters will be installed on public right of way infrastructure. The right of way locations will be utility power poles or street lighting poles. The collectors and repeaters are the same physical size, with each being about one foot square; and both use a three-foot antenna. They have a small footprint that makes them more versatile than traditional radio equipment as well as being much less obtrusive to the public. The

actual installation work will vary depending whether it is being installed on a water storage tank, antenna tower, or power pole. In security controlled sites, the collector / repeater will be installed

approximately 4 feet off the ground with a remote three-foot antenna being installed at a height of 20 to 30 feet. Utility poles without security will require the collector / repeater to be installed on top of the pole with the direct mount antenna.

Existing Propagation Study without the Right of Way installations:



The District is currently working with Itron to update the propagation study to include coverage for the underserved areas. This task will be completed before the project award and will not incur any costs to this requested funding.

The meter installations are planned to take 2-1/2 years. The installation of the collectors and repeaters will be done concurrently with the meter replacements.

Software Installation:

The District currently utilizes Itron’s Choice Connect Fixed Network Software for four of its service areas: Metro Southwest – E&T, Metro Southwest – Diablo Village, Metro Southwest – Lazy B, and Metro Hub service areas. The fixed network software is also currently being upgraded to the latest version and is expected to be online in August of 2022. This AMI project will utilize the same software already installed. The only software programming will be related to the additional collectors / repeaters that are installed. The District maintains software and technical support with Itron.

WaterSMART Customer Portal:

The WaterSMART Customer Portal is a key component to making the water usage information available to customers. WaterSMART is a cloud based application so customers can access it from the internet. The Itron Choice Connect Fixed Network will transmit data to the WaterSMART platform. WaterSMART has integrated with the Itron Choice Connect Fixed Network software in other utility installations, so integration issues are not anticipated. The District's Fixed Network data (customer account and meter information, pertinent server address, and mapping) will be sent to WaterSMART for integration into their platform and creation of the web portal. The District will maintain annual technical support for the WaterSMART software and services. This will insure continued operation of the customer portal to District customers.

Evaluation Criteria:

- 1) E.1.1. Evaluation Criterion A—Quantifiable Water Savings
- 2) Describe the amount of estimated water savings.

The District expects to conserve a total of **1,119.09** acre-feet as a result of this project:

Water savings associated with customer conservation, leak notifications, and improved meter accuracy include:

- 424.25 acre-feet due to customer conservation based on the ability to monitor and know their hourly and daily usage.
- 569.48 acre-feet due to timely leak notifications
- 125.36 acre-feet of unaccounted water due to improved meter accuracy

Additional water savings are anticipated from reductions in electricity and gasoline:

- Water saved from reduced energy production is estimated 48.93 acre-feet.

This project focuses on water conservation measures by providing the tools needed to the District's customers so that they can be well informed about their water usage in a timely manner, which empowers allows them to make corrections to conserve water and reduce their water bill. This will be accomplished by the conversion of all the meters to AMI fixed network and providing a Water SMART web portal that allows customer to see their water usage on an hourly basis as well as being informed by the system when they have a potential water leak.

The AMI system uses an algorithm to monitor water usage and if the usage does not periodically go to zero, a notification is made of a possible leak that can be sent to the customer via text, email, or they can see the notification when using the web portal.

Under the current system in place, customers do not have the ability to see their water usage until the water bill is sent in the mail, which can be as much as 45 days later. At that point the customer's leak has caused wasted water and a financial impact to the customer. Customers could physically

read the water meter, however, that can be a challenge for some customers and could create some safety concerns. The WaterSMART Customer Portal can be viewed from a smart phone app, making it convenient for customers to track their water usage. With smart phone applications now being part of many people's daily lives, this project makes tracking water usage easy as a few taps on the phone and provides the tools for the customer to save water, money, and directly participate in increasing water conservation.

Between the five service areas that the District serves, and will be part of the WaterSMART customer portal, the District billed over 2.7 billion gallons or 8,485 acre-feet of water in Fiscal Year 2021. **With the implementation of the AMI and the Customer Portal, the District anticipates water savings of 1,119.09 acre-feet per year.**

3) Describe current losses: Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:

- a. Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?
- b. If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?
- 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?

The current water losses that will be conserved as a result of this project are from high water usage, leaks, and meter inaccuracies. The United States Environmental Protection Agency cites that “the average household’s leaks can account for nearly 10,000 gallons of water wasted every year and ten percent of homes have leaks that waste 90 gallons or more per day”. <https://www.epa.gov/watersense/fix-leak-week>.

The Potential Water Losses from Water Leaks published by EPA identifies some of the causes of losses from leaks. <https://www.epa.gov/watersense/getting-started>

Potential Losses From Water Leaks

Malfunction	Leaking Flow Rate (gallons per minute)	Water Loss	Estimated Cost of Water Loss
Leaking Toilet	0.5 gpm	21,600 gallons per month	\$2,100 per year
Drip Irrigation Malfunction	1.0 gpm	43,200 gallons per month	\$4,300 per year
Unattended Water Hose at Night	10.0 gpm	5,400 gallons per day	\$16,000 per year
Broken Distribution Line For: One Night One Day One Week One Month	15.0 gpm 15.0 gpm 15.0 gpm 15.0 gpm	8,100 gallons 21,600 gallons 151,200 gallons 648,000 gallons	Up to \$64,000 per year
Tempering Water Line on a Steam Sterilizer Stuck in the On Position	2.0 gpm	86,400 gallons per month	\$8,600 per year
Stuck Float Valve in a Cooling Tower	5.0 gpm	216,000 gallon per month	\$21,000 per year

The lost and unaccounted for water in the District’s Metro Main Service Area in 2022 was calculated at 7.09 percent. This water loss is a combination older meter inaccuracies and leaks from water mains and service lines. Ninety percent of the District’s water mains and service lines range from two foot deep to five foot deep and the majority of leaks surface within a few days and are identified. As such, it is anticipated that a significant portion of the lost and unaccounted for water is the result of meter inaccuracies. This project will improve the meter accuracies as the new meters being installed will meet the AWWA meter accuracy standards (98.5% - 101%). Although this will not eliminate water loss from mainline and service line leaks, it will increase the recorded water usage through the meter providing more accurate information to customers on their actual usage for enhanced water resource management. Additionally, the increased recorded water will also increase the water bill, based on actual usage, further promoting water conservation. The WaterSMART Customer Portal will enable customers in all five service areas to actively monitor their water consumption and will alert customers of high water usage, resulting in more immediate responses to leaks.

- 4) **Describe the support/documentation of estimated water savings:** Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below)

when determining the estimated water savings, along with the necessary support needed for a full review of your proposal.

https://www.awwa.org/Portals/0/AWWA/ETS/Resources/Technical%20Reports/ami_report_feb_2022.pdf In a report prepared for the American Water Works Association in January 2022 titled Increasing consumer benefits & engagement in AMI-based conservation programs, the authors found customers who had signed up for the AMI portal decreased their daily water usage in a range of 6.3% to 12%.

[https://www.financingsustainablewater.org/sites/www.financingsustainablewater.org/files/resource_pdfs/MCubed-Watersmart_evaluation_report_FINAL_12-12-13\(00238356\).pdf](https://www.financingsustainablewater.org/sites/www.financingsustainablewater.org/files/resource_pdfs/MCubed-Watersmart_evaluation_report_FINAL_12-12-13(00238356).pdf) In a report prepared by the company M.Cubed on the Evaluation of East Bay Municipal Utility District's Pilot of Water Smart Home Water Reports showed that the water savings ranged from 4.6% to 6.6%.

As a conservative estimate and to not overstate the potential water savings, the District has elected to use the percent savings of five percent in its calculations. This is lower than the low end of the AWWA report and in the middle range of the East Bay MUD report. One of the critical aspects of the customer portal is customer participation. The District is planning multiple approaches for the implementation of the customer portal to gain greater participation and increase the savings, to include notifying customers via social media, newsletters, billing inserts, public information meetings, and through free conservation materials that are available to all customers. Below are the calculations using the 5 percent water savings.

In Fiscal Year 2021, the District's five service areas billed 8,485 acre-feet of recorded water. Using the 8,485 acre-feet multiplied by 5 percent saves 424.25 acre-feet per year.

8,485 acre-feet x .05 = 424.25 acre-feet.

The United States Environmental Protection Agency states that "the average household's leaks can account for nearly 10,000 gallons of water wasted every year and ten percent of homes have leaks that waste 90 gallons or more per day". With the implementation of the AMI and customer portal, leaks will still occur; however, with the reports provided, customer monitoring, and leak notifications, the District estimates the leaks will be mitigated by 80 percent. This will reduce the EPA identified leak volume from 10,000 gallons to 2,000 gallons per year per household. Using the 8,000 per year savings for the 23,196 customers, the potential water savings due to the implementation of this project is 569.48 acre-feet per year.

23,196 customers x 8,000 gallons per year saved per customer = 185,568,000 gallons

185,568,000 gallons ÷ 325,851 gallons per acre-foot = 569.48 acre-feet of water saved.

Additional water savings are anticipated from reductions in electricity:

- Water saved from reduced energy production is estimated at 15 gallons of water per 1 kWh of electricity. Based on an estimated reduction of 1,063,319 kWh used for the delivery of water, approximately 15,947,147 gallons, or **48.94 acre-feet of water**, would not be used to generate electricity on an annual basis.

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

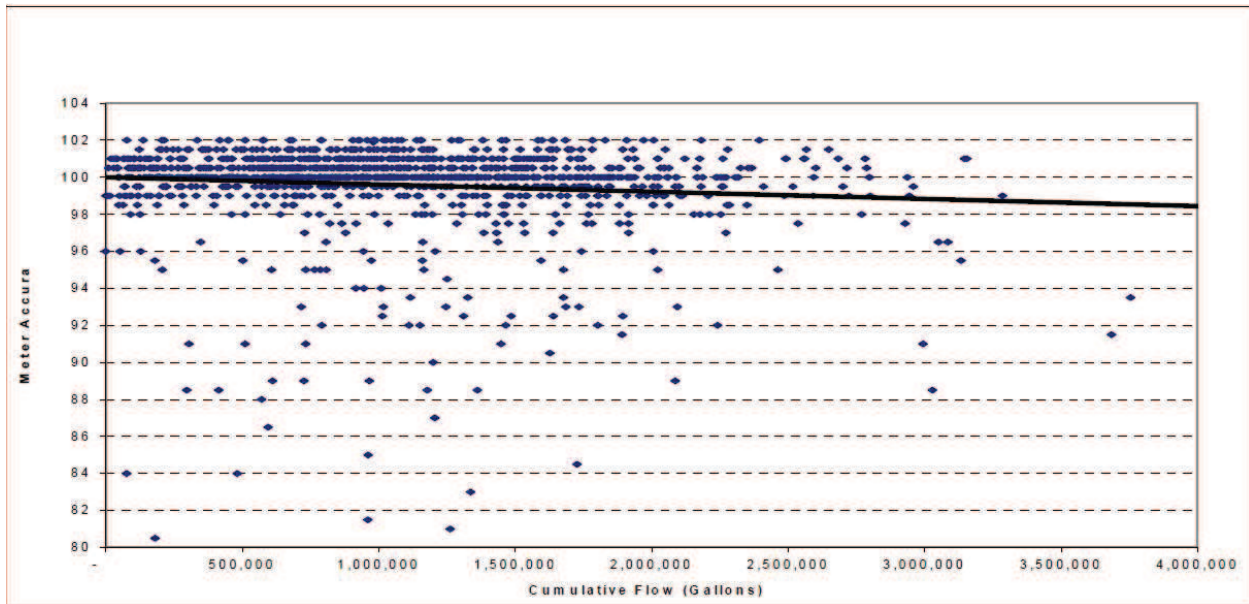
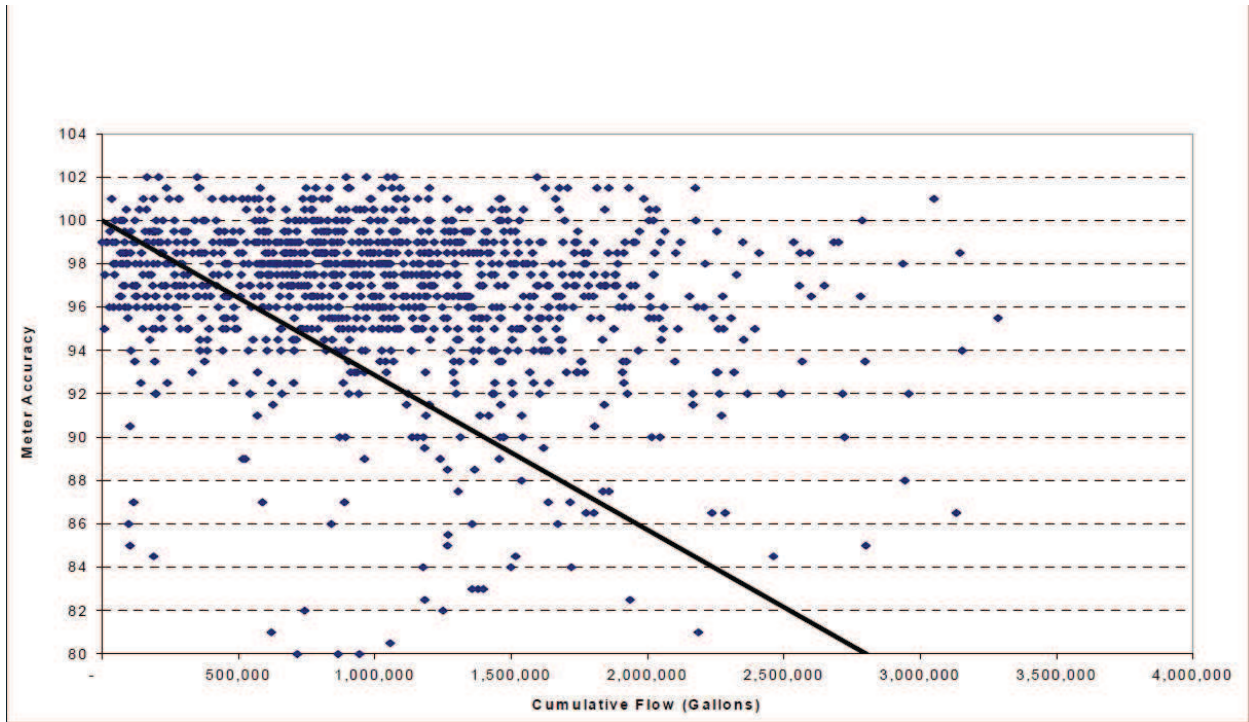
(1) **Canal Lining/Piping:** Canal lining/piping projects can provide water savings when irrigation

Canal Lining is not applicable to this project.

(2) **Municipal Metering:** Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tiered pricing and when existing individual user meters are replaced with advanced metering infrastructure (AMI) meters. To receive credit for water savings for a municipal metering project, an applicant must provide a detailed description of the method used to estimate savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:

- a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.
- b. How have current system losses and/or the potential for reductions in water use by individual users been determined?
- c. For installing end-user water service meters, e.g., for a residential or commercial building unit., refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.

This project includes 5,728 meters that will be at least 15 years old at the time the funding is awarded. The industry standard is to replace meters when they are between 15 and 20 years old, with the understanding that usage is the primary driver of meter inaccuracy. The District's Main service area has a customer average usage of 7,436 gallons per month based on Fiscal Year 2022 data. This averages out to be 89,232 gallons per year. 89,232 gallons times 15 years is 1.3 million gallons. A previous study done for the District in 1999 on meters that were ten years old, shown in the charts below, showed that meter replacements based on cumulative flow serves as better metric to curb meter inaccuracies and reduce unaccounted for water loss. Below are two graphs of the low flow and medium flow tests conducted by the consultant from Malcolm Pirnie.



The study identified 1.4 million gallons of cumulative flow as the key point to replace meters, the District performed an aggressive meter replacement program that replaced over 9,800 meters in a two and a half year period. This reduced the District’s lost and unaccounted for water from 10% in 1999 to 5.2% in 2004. This is a similar scenario 22 years later and the District has proven that replacement of meters based on usage will improve meter accuracies and reduce lost and unaccounted for water by as much as 48%.

Of the 11,234 meters that are not AMI compatible and needing replaced, 4,876 meters register above 1.4 million gallons of cumulative flow. Using the average consumption, the District has attempted to estimate the most accurate, reasonable, and conservative quantities of water that could be saved with the new Badger HR-E. Replacing just the 4,876 meters with the cumulative flow of 1.4 million gallons, Metro Water believes it can recover at least 125.84 acre-feet/year in improved meter accuracy.

For calendar year 2021, the District's Main system had a lost and unaccounted for water calculation of 7.09 percent or 533 acre-feet. In the previous meter replacement program, 9,800 meters were replaced, which reduced the unaccounted for water loss by 48 percent to a baseline of 5.2%. For the water savings in lost and unaccounted water, the District is using the previous number of meters and the previous 48 percent reduction as the basis for the calculations.

In this project 4,876 meters of the 11,234 are at or over the 1.4 million gallon threshold identified in the meter study.

2021 Lost and Unaccounted for Water: = 533 acre-feet

Reduction Multiplier: .48

533 acre-feet x .48 = 255.84 acre-feet

The original meter replacement that achieved the 48 percent consisted of 9,800 meters. This project only has 49 percent of the meters that meet that same criteria, so to get the savings for this project; the 255.84 acre-feet needs to be multiplied by .49.

255.84 acre-feet x .49 = **125.36** acre-feet recovered

- d. What types (manufacturer and model) of devices will be installed and what quantity of each?

Table 3 - Equipment

The following types of devices will be installed as part of this project:

DEVICE	MANUFACTURER	MODEL	SIZE	QUANTITY
METER	BADGER	RECORDALL MODEL 25 WITH HR-E REGISTER	5/8"	10,602
METER	BADGER	RECORDALL MODEL 35 WITH HR-E REGISTER	¾"	135
METER	BADGER	RECORDALL MODEL 55 WITH HR-E REGISTER	1"	262
METER	BADGER	RECORDALL MODEL 120 WITH HR-E REGISTER	1 1/2"	114
METER	BADGER	RECORDALL MODEL 170 WITH HR-E REGISTER	2	121
ERT	ITRON	100W+ WATER COMMUNICATION MODULE		8,904
ERT ANTENNA	ITRON	CFG-0900-003	N/A	18,895
NETWORK COLLECTOR	ITRON	CCU 100	N/A	5
NETWORK REPEATER	ITRON	REPEATER 100	N/A	20

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

To verify the amount of water savings, historical water usage data prior to implementation of the AMI system will be compared with water usage data after implementation of the AMI system. Leaks detected from the alarms generated through the AMI system will be recorded throughout each year. The data will be used to compare the water usage had the leak not been identified through early leak detection but had been identified as if it was on the District's current practice of manual monthly meter reads.

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

The District has 355 designated irrigation meters; however, these meters are 5/8” to 2” in size for residential and commercial property irrigation and are not deliveries to irrigators. This project will assist customers with these irrigation meters in evaluating the water used on an hourly basis for irrigation and allow better management for outside irrigation watering.

(4) Turf Removal: Applicants proposing turf removal projects should address:

This project is not applicable to turf removal.

(5) Smart Irrigation Controllers, Controllers with Rain Sensor Shutoff, Drip Irrigation, and High-Efficiency Nozzles: Applicants proposing smart irrigation controllers, controllers with rain sensor shutoff, drip irrigation, or high-efficiency nozzle projects should address:

This project is not applicable to Smart Irrigation Controllers.

(6) High-Efficiency Indoor Appliances and Fixtures: Installing high- efficiency indoor appliances and fixtures can provide water savings for municipal water entities where there is significant potential for replacing existing non-efficient indoor appliances and fixtures. Applicants proposing high-efficiency indoor appliance and fixtures projects should address:

This project is not applicable to High-Efficiency Appliances.

(7) Commercial Cooling Systems: Cooling towers are components of many refrigeration systems with many applications. They dissipate heat to the atmosphere through the evaporative process and are common in manufacturing processes where cooling is required. They are also used for cooling large commercial buildings. Cooling tower structures vary in size, design, and efficiency. Regardless, all cooling towers consume large volumes of water and energy.

This project is not applicable for Commercial Cooling Systems.

E.1.2. Evaluation Criterion B—Renewable Energy

E.1.2.1. Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

This project is not a renewable energy project; however, this proposal does have associated energy savings with less power required from the electrical grid to meet customer water demands. The proposal also has benefits to renewable energy. In Arizona, municipal water pumping equipment is one of the largest consumers of power. By reducing the amount of water needed, the pumps would run less conserving more power. Less power consumption allows the limited supply of renewable energy to help meet the demand without having to tap into the fossil fuel power generating equipment.

Describe the amount of energy capacity. 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.

Describe the amount of energy generated. For projects that implement renewable energy systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate. Please explain how the power generated as a result of this project will be used, including any existing or planned agreements and infrastructure.

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
- Expected environmental benefits of the renewable energy system
- Any expected reduction in the use of energy currently supplied through a Reclamation project.
- Anticipated benefits to other sectors/entities.
- Expected water needs, if any, of the system.

AND/OR

E.1.2.2. Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.

Each month, the District calculates how much energy (electricity) it takes to produce one Million gallons of water. The current average energy usage for Metro Main is 2,916 kWh / Million Gallons. With the estimated reduction of water consumption at 1,119.09 acre-feet per year in water, this correlates to a reduction in energy use of 1,063,319kWh per year.

Cost per Kilowatt-hour is .122531 cents per hour.

2,916 Kilowatt-hours to produce one million gallons

1,119.09 acre-feet = 364,656,595.59, gallons

364,656,595.59gallons divided by 1,000,000 = 364.65 million gallons

2916 Kilowatt-hours per million gallons *364.65 million gallons = 1,063, 319 kWh of Energy Saved per Year

1,063,319 kWh x .122531 = \$130.289.58 Cost Savings per Year

- How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.

Less Energy usage by reducing the amount of runtime on wells and booster pumps may help reduce impacts of climate change.

- If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?

The District wells and booster pumps operate on a demand basis. As tank levels drop in the reservoirs or pressure drops in the system, the pumps turn on to refill the tanks and / or boost the pressure in the system. The drop in reservoir levels and the drop in pressure are a direct result of water being used by customers. The implementation of this project will reduce the amount of water used by the customers and in turn will reduce the number of times or the duration a pump has to run. The reduction in runtime reduces the amount of electricity used. The District's pumps range in size from 21 GPM to 1,400 GPM. The motors for the pump range from 5 hp to 250 hp.

- Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

The energy savings estimate is based on actual calculations of energy consumed at the point of diversion (wells and booster facilities).

- Does the calculation include any energy required to treat the water, if applicable?

Calculation includes all applicable electrical costs.

- Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

This project would create an additional energy savings through reduced fossil fuel consumption. By replacing the manually-read meters with AMI meters, District staff will no longer need to drive to the 18,895 meter locations to record water usage data.

EPA estimates that every gallon of gasoline burned creates about 8,887 grams of CO₂ (<https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=This%20assumes%20the%20average%20gasoline,8%2C887%20grams%20of%20CO2>). The District averages approximately 30,000 miles driven annually to read meters. With the implementation of this project, the annual miles traveled will be reduced by approximately 75%. Using an estimated 14.6 mpg city fuel economy for a Ford F-250, the reduction in miles traveled will reduce CO₂ emissions by 13,695,719 grams of CO₂, or 13.7 metric tons of CO₂ annually (274 metric tons of CO₂ reduced over the 20-year life cycle of this project).

- Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

This project does not add any renewable comments; however, the District fully embraces renewable energy. As an example, our main office facility receives its primary power from the solar field installed on the District property.

E.1.3. Evaluation Criterion C—Sustainability Benefits

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

This project does not directly see to improve ecological resiliency; however, the acre-feet of water saved from pumping allows the flexibility to leave additional water in the already strained Colorado River Basin where the ecological benefits would occur.

- Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels).

The District expects to conserve a total of 1,119.09 acre-feet of water annually as a result of this project, including a reduction of 424.25 acre-feet due to customer conservation, 569.48 acre-feet due to timely leak notifications, and 125.36 acre-feet of unaccounted water due to improved meter accuracy. Additional water savings resulting from lower energy consumption are 48.93 acre-feet. Groundwater pumping is the primary source of water supply for the Metro-Main service area, and ongoing groundwater pumping and severe drought over the past 20-plus years have resulted in groundwater level declines averaging approximately 2.8-feet per year. Reduced groundwater pumping resulting from this project supports the District's Drought Plan, by providing greater sustainability and resiliency to physically available water supplies that could be impacted by continued drought and effects of climate change.

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state 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).

While the project does not directly benefit the species, the environmental benefits gained by energy and water conservation and a reduction of greenhouse gas emissions will benefit the District and region in general. Better water management will result in the benefit to the surrounding environment and wildlife overall as less groundwater pumping could help stabilize aquifer levels.

- Please describe any other ecosystem benefits as a direct result of the project.
- Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

Enabling customers to continuously monitor their water use, as well as targeted notifications from the District regarding high water consumption events, will directly result in enhanced water resource utilization efficiency.

The project will result in more efficient use of water supplies both in groundwater aquifer pumping and Colorado River water. Less water demand will provide the opportunity to do additional rotations in the groundwater wells to lessen the water level decline in each well field in the Tucson Basin and could result in localized aquifer stabilization and/or recovery.

Projects that are intended to improve streamflows or aquatic habit, and that are requesting \$500,000 or more in Federal funding, must include information about plans to monitor the benefits of the project. Please describe the plan to monitor improved streamflows or aquatic habit benefits over a five-year period once the project has been completed. Provide detail on the steps to be taken to carry out the plan.

Not Applicable

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 District's service areas reside around the Tucson area, which has an arid climate and the primary source of water is physical groundwater. Groundwater is being pumped out faster than it can be replenished by nature. The District does have an allocation of Colorado River water that it receives each year but is delivered to recharge basins and stored underground approximately 13 miles west of the Metro Main service area. Designs to directly recover the stored renewable water resources and deliver to Metro Main's service area have been finalized and construction is anticipated to begin in the next two years. Regardless of the unrelated infrastructure effort to recover the renewable supplies, this proposal will directly result in overall water resource savings. With the water levels continuing to decline in the Colorado River system, and shortages declared on the river, the District expects reduced deliveries in the near future. This project slows the groundwater level decline, and potentially stabilizing declines in individual wells, as well as mitigating the impacts of reduced Colorado River water to the District.

- 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.

The lowering of the ground water table requires pumps to be set deeper. Deeper pumping systems require larger horsepower motors which require additional electricity to operate. Greater electrical requirements can exceed the available portfolio of sustainable energy causing a greater reliance on fossil fuel for power generation which contributes to pollutions as well as interruptions in power service due to the higher demand. Manual meter reads also requires an operator to physically visit each meter, which results in wasted fuel and contributes to higher energy consumption and greenhouse gas emissions. This project will not eliminate these issues; however, will reduce fossil fuels used for power generation and will reduce the vehicle miles traveled for meter reading, thus reducing energy use and CO2 emissions.

- 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?

In the simplest terms, the less water required by District customers, the less impact water shortages have and enhances the ability of the District to meet customer demands now and in the future.

- 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.

The District’s current primary source of water is groundwater. The conserved water from this project will offset groundwater pumping to slow or stabilize water level decline. In addition to the slowed water level decline the conserved water will allow the District to leave additional water in the Colorado River system to help with the decline of the overall Basin.

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

For the offset of groundwater pumping there is not mechanism needed. The water will not be pumped and remain in the ground. The mechanism of leaving additional water in the Colorado River system is done by agreements with the District’s Reclamation contractor the Central Arizona Water Conservation District. For the past three years, the District has voluntarily conserved 3,500 acre-feet annually through the Central Arizona Water Conservation District through a compensated conservation agreement to leave this quantity of water in Lake Mead; lessening the magnitude of declines to the Lake.

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

The quantity conserved for the purpose of offsetting groundwater pumping and an addressing delivery shortages is estimated to be 1,119.09 acre-feet annually.

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:** E.O. 14008: “Tackling the Climate Crisis at Home and Abroad”, focuses on increasing resilience to climate change and supporting climate resilient development. For additional information on the impacts of climate change throughout the western United States, see: <https://www.usbr.gov/climate/secure/docs/2021secure/2021SECUREREport.pdf>. Please describe how the project will address climate change, including:
 - Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

The project will reduce energy consumption by 1,063,319 kWh per year, which in turn reduces the use of fossil fuel power generation contributing to climate change and lowers CO₂ emissions by 460.4 metric tons annually (9,208 metric tons of reduced CO₂ emissions over the 20-year lifecycle of this project). Per EPA guidance 4.33×10^{-4} metric tons of CO₂ is generated per kWh (<https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>).

Additionally, the project reduces vehicle miles driven by approximately 22,500 per year, further lowering CO2 emissions by 13.7 metric tons annually (274 metric tons of CO2 reduced over the 20-year life cycle of this project)

In total, this project will reduce CO2 emissions by 9482 metric tons over the 20-year project life cycle (9,208 metric tons from reduced fossil fuel power production and 274 metric tons from reduced vehicle emissions).

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

The project does strengthen water supply sustainability by reducing groundwater pumping and leaving more water in the Colorado River system.

- Will the proposed project establish and utilize a renewable energy source?

This project will not specifically establish or utilize a renewable energy source.

- Will the project result in lower greenhouse gas emissions?

Yes, the project reduces greenhouse gas emissions through lower energy consumption. Based on an estimated savings of 1,063,319 kWh per year, this results in lower emissions of 460.34 metric tons of CO2 annually. The project also reduces greenhouse gas emissions through the elimination of approximately 22,500 miles of driving per year to read the meters. The estimated reduction in greenhouse gas emissions associated with lower fuel consumption is 13,695,719 grams, or 13.7 metric tons, of CO2 annually.

(2) **Disadvantaged or Underserved 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:

- 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.

In seeking state revolving funding for infrastructure needs unrelated to this grant application it was determined by that state agency that the District's Metro Main, Metro Southwest - Diablo Village, and Metro Southwest - E&T service areas are disadvantaged communities based on a medium household income of \$46,011.47 in 2021 dollars.

- 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, which is a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, applicable state criteria for determining disadvantaged status. 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.



AZ Water and Wastewater Rates Dashboard
Rates as of July 1, 2021
 Last updated: Jan 12, 2022



Metropolitan Domestic Water Improvement District - Metro Main and M...

Rates Comparison | Financial Benchmarks | Characteristics | Links

Select residential bill and monthly consumption amount

Water Bill at [] Water Price / 1,000 gallons, []

Affordability

Annual Bill (Monthly Bill times 12 Months Per Year) = Annual Median Household Income

This dial shows what a household making the median level of income in Tucson city would spend annually, as a percent of their income, on Water using 7,500 gallons per month. Half of the households in the community would be spending a greater portion of their income for these bills.

Raw Data	
Annual Bills	\$584.64
Annual MHI	\$43,425

The median affordability metric is often referred to as "percent Median Household Income (MHI)". It is only one of many metrics that can be used to assess affordability. There is no universally accepted definition of what "affordable rates" means and other factors such as poverty rate, income distribution, and fixed income will influence the affordability of rates in a community. The color spectrum reflects that this metric is on a continuum, without any single threshold that dictates what is affordable or unaffordable. The MHI data are derived from the U.S. Census Bureau's 5-year American Community Survey estimates for 2015 - 2019 MHI (in 2019 dollars).

For a more comprehensive look at affordability in your community using multiple metrics, use our [Residential Rates Affordability Assessment Tool](#)

For more information about percent MHI, including considerations about its assumptions, [read this blog post about Percent MHI Indicator](#)

For an in-depth look at customer affordability programs, read our report: [Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities](#)

Ok

The above is the Median Household Income (MHI) per the WIFA Rate Dashboard. The E&T service area is a Colonial which immediately qualified it as a disadvantaged community for WIFA. WIFA stated this was based upon 2019 income.

12 Month Average CIP for 2020 = 1.2 inflated MHI for 2020 \$43,946.10, which is 65% of the U.S. 2020 Median income in the United States which was \$67,521 or 35% below the U.S. Average MHI. The 2020 Arizona MHI was \$61,529 and the Metro Water District's MHI was 71.42% or 28.58% below the Arizona State Average MHI.

12 Month Average CIP for 2021 = 4.7 inflated MHI \$46,011.57 which is 63% of the U.S. 2021 MHI.

According to this report, the median income in the United States in December 2021 was \$72,933 or 36.91% below the U.S. Average MHI. The 2021 Arizona MHI was \$61,744 and the Metro Water District is MHI was 74.52% or 25.48% below the State Average MHI.

(3) Tribal Benefits:

There is no tribal benefit associated with this project.

E.1.4. Evaluation Criterion D—Complementing On-Farm Irrigation Improvements

This project is not applicable to On-Farm Irrigation Improvements

E.1.5. Evaluation Criterion E—Planning and Implementation

E.1.5.1. 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?

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.

The District’s Drought Plan is delineated by four stages of response. These stages are based on Tiers of shortage defined by the Lower Basin States Drought Contingency Plan (LBSDCP) and monitored water levels in the service area. Water levels in the service area are measured in all production wells annually, and continuously in select monitor wells. The increasing stages of response in the Drought Plan define specific conservation measures that both Metro Water District and its customers can take to further mitigate drought and climate change impacts. The District is currently in a Stage 1 Drought as average water level declines throughout the District’s service areas have exceeded 1-foot of decline per year and Lake Mead elevation is currently below 1,075 feet above sea level. The District will enact Stage 2 of the Drought Response plan if (when) Lake Mead drops to below 1050 feet above sea level.

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 supports the District’s Drought Plan by reducing groundwater pumpage, minimizing lost and unaccounted for water, and enabling customers to monitor their water usage and make informed decisions to enhance water conservation.

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)

For the past 6 years the District has actively participated in a Reclamation funded Basin Study to analyze the supply and demand imbalances in the Lower Santa Cruz River Basin. The results of this study provided mitigating strategies to localized aquifer declines by conveying renewable supplies from areas where this water was historically, and is continued to be, stored to areas where groundwater declines are occurring. While this project effort will not directly result in the elimination of the identified supply imbalances from the Basin Study, the quantifiable reductions in demand caused by this effort will lessen the current supply imbalances and move the District incrementally forward in addressing this critical disconnect.

E.1.5.2. 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. Note: please do not repeat the more detailed technical project description provided in Section D.2.2.2. *Application Content*. This section should focus on a summary of the major tasks to be accomplished as part of the project.

The District is ready to proceed upon approval of the agreement. For planning purposes, the selected start date of the project is July 1, 2023. The majority of the work is in the replacement of the water meters and installation of the network infrastructure. The District already has cooperative purchasing contracts in place that will be utilized and allow for the immediate ordering / purchasing of the equipment and materials needed. The only potential slowdown will be related to supply chain and product availability. A three month buffer has been included in the schedule to assist with any supply chain challenges. In addition to the material purchasing contracts, the District has access to meter installation services that it currently uses for the physical replacement of meters. The bulk of the network infrastructure required for this project will be installed at existing District-owned properties. These facilities will be installed by in-house staff. For the seven or so units that will need to be installed on infrastructure not owned by the District, those investigations and agreements are currently being worked on and are anticipated to be complete before the award of the agreement. The Fixed Network Software required to receive the meter data is already installed and is operating in four out of five of the District service areas. The Customer Web Portal is anticipated to take six months to complete and will begin on following the award of the agreement. The completion of the Customer Portal in the first phase of the project will allow immediate water savings to begin in the Metro Southwest – Diablo Village, Metro Southwest – E&T, Metro Southwest – Lazy B, and Metro Hub service areas where AMI compatible meters have already been installed, while the remainder of the meters and network infrastructure are installed in the Metro Main service area.

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

The only potential permits needed would be associated with additional light poles installed in the public right-of-way to support the fixed network equipment installations. This would only occur if the District is unable to install the fixed network equipment on existing public infrastructure. Right-of-way permits can be obtained from the associated jurisdiction within a couple of weeks of the request.

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

The engineering and design work for this project will be updating the network propagation study to achieve full network communications to all District meters. This task is currently in process and will be completed prior to the award of this project.

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

The new policies and administrative actions that will be needed are those that involve customer access to log into the new Water SMART Customer Portal and maintain privacy and security for customer data. The District will develop procedures that make customer sign up as easy as possible by implementing pre-filled data fields.

- Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?

Table 4- Project Schedule

ACTIVITY DESCRIPTION	START	COMPLETION
Procurement Phase I Materials	July 1, 2023	September 30, 2023
Purchase Phase I Water Meters	July 1, 2023	September 30, 2023
Purchase Phase I AMI Equipment	July 1, 2023	September 30, 2023
Purchase Phase I Network Equipment	July 1, 2023	September 30, 2023
Phase I Implementation	July 1, 2023	September 30, 2024
Meter and AMI Installation for 5,617 meters.	September 30, 2023	September 30, 2024
Customer Portal Development	July 1, 2023	December 31, 2023
Network Infrastructure and Equipment Installation	September 30, 2023	September 30, 2024
Phase II Procurement	July 1, 2024	September 30, 2024
Purchase Phase I Water Meters	July 1, 2024	September 30, 2024
Purchase Phase I AMI Equipment	July 1, 2024	September 30, 2024
Purchase Phase I Network Equipment	July 1, 2024	September 30, 2024
Phase II Implementation	September 30, 2024	September 30, 2025
Meter and AMI Installations for 5,617 meters.	September 30, 2024	September 30, 2025
Network Infrastructure and Equipment Installation	September 30, 2024	September 30, 2025
Project Closure	September 30, 2025	December 31, 2025
Performance Measure Validation	September 30, 2025	December 31, 2025

E.1.6. Evaluation Criterion F—Collaboration

- 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?
- What is the significance of the collaboration/support?
- Will this project increase the possibility/likelihood of future water conservation improvements by other water users?
- Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

The District continues to work with other local water providers for regional collaboration on water sustainability projects. The most recent example would be the ongoing development of the Northwest Recharge Recovery Delivery System that includes three area water providers to recover stored surface water in order to reduce the reliance on groundwater. Since the primary source of water for the area providers is groundwater pulled from some of the same aquifers. Any reduction or water saved from being pulled from the ground benefits all the water providers by reducing groundwater level decline.

This project has support from the Water Conservation Alliance of Southern Arizona (Water CASA). Water CASA’s goal has been the efficient use of regional water resources and to strive for a public fully aware of all water conservation tools, method, and practices. WaterCASA’s letter of support specifically highlights that “a real time portal enabling customers to track their water consumption is exactly the type of initiative that is needed in our current environment to increase conservation and customer awareness of their water usage.”

E.1.7. Evaluation Criterion G— Additional Non-Federal Funding

The District has been active in meter replacements and fixed network upgrades for AMI and customer portal preparation. The District has replaced 7,503 meters with an expense of \$648,725.69 in the last three years. These costs were incurred separately from this request and will not be included. Additionally, the fixed network software for the AMI is currently being upgraded with a cost of \$70,000. The District is committed to this project and if awarded, the District’s will be funding 61.9% of the project.

Non-Federal Funding \$3,258,319 or 61.9%

Total Project Cost \$5,258,319

E.1.8. Evaluation Criterion H— Nexus to Reclamation

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

- Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?

No, the District does not have a direct contract with Reclamation, but does have a subcontract. This is because Central Arizona Water Conservation District (CAWCD) is a contractor of Reclamation to deliver Central Arizona Project Water and the District is a contractor with CAWCD.

- If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?

Yes, the District receives an allocation of Colorado River water delivered through the Central Arizona Project by the Central Arizona Water Conservation District which is a contractor for Reclamation.

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

Metro Water District's goal of reducing groundwater pumping is supported by the soon to be published Lower Santa Cruz River Basin Study (LSCRBS). The LSCRBS explores many possible adaptive strategies to reduce groundwater pumping in the Tucson AMA. Conservation efforts of the past are discussed and evaluated using a groundwater flow model to quantify the effects of reduced groundwater pumping in the study area which includes Metro Water District's service areas. The project will have a small benefit to the Central Arizona Project by reducing the amount of water required for the District to offset groundwater pumping, which may enable additional water to remain in the Colorado River system.

- Is the applicant a Tribe?

The District is not, nor affiliated with, a tribe.

Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project

The project performance will be measured by the actual water saved by customers, as well as power consumption, and percent lost and unaccounted water. The District's billing system maintains years previous of customer consumption that can be compared with the consumption after the project is complete.

The District also maintains a history of water produced at each facility as well as the power consumed to produce the water. This data will be compared to the post project data to verify water saved by the project as well as electrical power saved.

Each year the District is required by the Arizona Department of Water resources to calculate it's lost and unaccounted for water. The replacement of the water meters will increase the accuracy of the meter and more accurately measuring the usage that may have previously gone unmeasured. The recording of this water will reduce the unaccounted for water loss and will be compared to previous year's data.

Savings in fuel consumption can be made by comparing usage after the project is implemented with prior consumption.

Project Budget

D.2.2.3. Project Budget

The project budget includes:

- (1) Budget proposal
- (2) Budget narrative
- (3) Funding plan and letters of commitment

Budget Proposal and Funding Plan

The total project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project. Please include the following chart (Table 5) to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

Table 5. – Summary of Non-Federal Funding Sources

Sources FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Metered Water Revenue	\$3,258,319
2.	
3.	
Non-Federal Subtotal	\$3,258,319
REQUESTED RECLAMATION FUNDING	\$2,000,000

Budget Proposal and Funding Plan

The total project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project. Please include the following chart (Table 6) to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

Table 6 – Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal Funding	\$2,000,000
Costs to be paid by the applicant	\$3,258,319
Value of third-party contributions	None
TOTAL PROJECT COST	\$5,258,319

Project Budget

Table 7 – Project Budget

Item Description	Quantity	Unit Cost	Total
Water Meters and Materials for Installation	Project (11,234)	Lump Sum	\$1,559,741
ERT Modules and ERT Antennas	Project	Lump Sum	\$2,061,918
Contracted Meter Labor	Project	Lump Sum	\$1,152,411
Fixed Network Equipment and Installation	Project	Lump Sum	\$325,495
WaterSMART Software and Licenses	Project	Lump Sum	\$158,752
TOTAL PROJECT COST			\$5,258,319

Budget Narrative

Metro Water District will be using Meter Water Revenue to pay for all costs associated with this project that will not be covered by Federal Funding, however, without Federal Funding this will take over 10 years to complete. The Audited Annual Metered Water Revenue is shown below:

Audited Financials for Metered Water Sales			
	6/30/2019	6/30/2020	6/30/2021
Total Metered Water Revenue excluding Bulk meters	<u>\$ 17,287,072</u>	<u>\$ 18,462,011</u>	<u>\$ 19,806,737</u>

The District is committed to replacing meters that are not compatible with the AMI in the Metro Main service area so all service areas will be on to the Fixed Network and the AMI meter reading and WaterSMART Customer Portal. The District has spent \$648,725.69 on this effort over the last three years for a total of 7,503 meters replaced. These expenses will not be included in the matching contributions, but do show a commitment to get this project completed.

Meters Replaced Fiscal Year 2020	Meters Replaced Fiscal Year 2021	Meters Replaced Fiscal Year 2022	Total
2,049	2,661	2,793	7,503

Metro Water District will be matching the \$2 million dollars of Federal grant funding, if awarded, with \$3,258,319 or 61.19%. The District's portion of the funding will be through our Capital Improvement Program.

The Project is anticipated to start July 1, 2023, which is the fourth quarter of the Federal Fiscal Year 2023 Budget. The SF424A Budget Information - Non-Construction Programs is completed based on this schedule for the two and a half year project. On the SF424A form, the project is broken down into three categories: Equipment, Supplies, and Contractual. The equipment category consists of the Fixed Network Equipment that has a per-unit acquisition cost exceeding \$5,000. The 11,234 water meters and materials, associated ERT modules and ERT antennas, and WaterSMART Software and Licenses have been included in the Supplies category. The meter installation labor will be performed by a meter services company and has been included in the Contractual category.

Equipment:	\$325,495
Supplies	\$3,780,413
Contractual	\$1,152,411
Project Total	\$5,258,319

D.2.2.4. Pre-Award Costs

This project has no pre-award costs.

Environmental and Cultural Resources Compliance

D.2.2.5. Environmental and Cultural Resources Compliance

Please answer the questions from *Section H.1. Environmental and Cultural Resource Considerations* in this section.

Section H: Other Information

Section H. Other Information

Environmental and Cultural Resource Considerations

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants should consider the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

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

The project will have minimal to no environmental impacts. The meters that are being replaced are in existing meter boxes along the right-of-way at the customer address. The majority of the work can be done without removing the meter box and disturbing the soil. In cases where the meter boxes are removed for installation the excavation would be approximately one-foot wide, one-foot long, and one-foot deep.

The project will require the installation of network equipment. The majority of the network equipment will be install inside District-owned property on existing water tanks or newly installed poles approximately 25' tall. Seven fixed network locations are intended to be installed on existing street light poles. There is a possibility that an identified pole will not be able to support the network equipment and an additional pole would need to be installed. The location(s) for these additional poles are anticipated to be in public rights-of-way that have already been disturbed. If the need arises to place a pole in areas that have not been previously disturbed, the District will complete environmental, biological, and cultural evaluations of the site(s), prior to any ground-disturbing activities, if needed.

•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?

No threatened, endangered species or critical habitat will be impacted by this 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 wetlands or surface water inside the project boundaries. “Waters of the United States” will not be impacted by this project.

•When was the water delivery system constructed?

The District’s service area and delivery system is a culmination of smaller water systems and developments that have occurred since the early 1950’s through the present day.

•Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were

constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

This project does not modify or affect irrigation systems.

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

The District is a water improvement district and not an irrigation District. The District does not have any listed or facilities it deems eligible as a Historic Place.

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

There are no known archeological sites in the project area; however, this project work is in existing meter boxes, existing facilities, and on existing infrastructure in the public right-of-way that has been previously disturbed.

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

This project will not have an adverse effect on the low income or minority population. In fact, the opposite is true that this project will allow low income, minority, and others to reduce their water usage, and in turn, lower their water bills and saving them money.

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

This project is not on Tribal lands and will not impact access or use to Indian sites or tribal lands.

Required Permits or Approvals

D.2.2.6. Required Permits or Approvals

You must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

The only permits that may be required related to this project are if we are unable to install some of the network equipment on existing light or utility poles and we have to install a pole, would be a Right-of-Way permit. This type of permit is easily acquired and at a low cost. Right-of-way permits can be obtained from the associated jurisdiction within a couple of weeks of the request.

Overlap or Duplication of Effort Statement

Metro Water District certifies that no overlap exists between the project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. The proposal submitted for consideration under this program is not in any way duplicative of any proposal or project that has been or will be submitted for funding consideration to any other potential funding source, either Federal or non-Federal.

Conflict of Interest Disclosure Statement

Metro Water District certifies that no actual or potential conflict of interest exists at the time of submission of this application.

Restrictions on Lobbying

Disclosure of Lobbying Activities (Note, the General Manager is the registered lobbyist for Metro Water District). Metro Water District has NOT had any financial transactions associated with any lobbying activities.

Uniform Audit Reporting Statement

Metro Water District certifies that it was not required to submit a Single Audit report for the most recently closed fiscal year.

D.2.2.10. Letters of Support

Letters of support attached.

D.2.2.11. Letters of Partnership

There are no partners associated with this project.

D.2.2.12. Official Resolution

Official Resolution attached.

Attachments

Project Abstract Summary

This Project Abstract Summary form must be submitted or the application will be considered incomplete. Ensure the Project Abstract field succinctly describes the project in plain language that the public can understand and use without the full proposal. Use 4,000 characters or less. Do not include personally identifiable, sensitive or proprietary information. Refer to Agency instructions for any additional Project Abstract field requirements. If the application is funded, your project abstract information (as submitted) will be made available to public websites and/or databases including USAspending.gov.

Funding Opportunity Number

R23AS00008

CFDA(s)

15.507

Applicant Name

Metropolitan Domestic Water Improvement District

Descriptive Title of Applicant's Project

Metro Main Automated Metering Infrastructure (AMI) Implementation and WaterSMART Customer Platform for all District service areas

Project Abstract

This project proposal is for the implementation of Automated Meter Reading (AMI) in its main service area northwest of Tucson, Arizona and implementation of a WaterSMART Customer Platform for all its customers located in Pima County. The work consists of installing AMI wireless communication equipment for meter data backhaul, upgrading components of commercial sized meters to be AMI capable, replacing 11,234 existing customer water meters with new meters and electronic endpoints capable of sending hourly water consumption to the WaterSMART Customer Platform so customers can receive timely information of their water usage, historical usage and timely leak notifications for better conservation of this resource. Empowering customers to monitor and manage their water consumption has been shown to reduce water usage and save water. It is anticipated that the completion of this project will conserve 1,119.09 acre-feet of water per year. The reduction in water usage will cause a reduction in electricity used by the pumping equipment, saving 1,063,319 Kilowatt-hours (kWh) of energy per year. Lower electrical requirements in turn reduce the usage of fossil fuel for power generation. The AMI system will eliminate approximately 22,500 miles per year currently driven by staff to physically read the meters, further reducing Greenhouse gas emissions such as CO2 by 13.7 metric tons per year.

Application for Federal Assistance SF-424		
* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
* 3. Date Received: 07/27/2022	4. Applicant Identifier: <input type="text"/>	
5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>	
State Use Only:		
6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>	
8. APPLICANT INFORMATION:		
* a. Legal Name: Metropolitan Domestic Water Improvement District		
* b. Employer/Taxpayer Identification Number (EIN/TIN): 86-0715043	* c. UEI: VTR2ZF468VH7	
d. Address:		
* Street1: 6265 N La Canada Dr	Street2: <input type="text"/>	
* City: Tucson	County/Parish: Pima	
* State: AZ: Arizona	Province: <input type="text"/>	
* Country: USA: UNITED STATES	* Zip / Postal Code: 85704-1032	
e. Organizational Unit:		
Department Name: <input type="text"/>	Division Name: <input type="text"/>	
f. Name and contact information of person to be contacted on matters involving this application:		
Prefix: Mr.	* First Name: Joseph	
Middle Name: <input type="text"/>	* Last Name: Olsen	
Suffix: <input type="text"/>	Title: General Manager	
Organizational Affiliation: Metropolitan Domestic Water Improvement District		
* Telephone Number: 520-209-2842	Fax Number: 520-575-8454	
* Email: jolsen@metrowater.com		

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

D: Special District Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Bureau of Reclamation

11. Catalog of Federal Domestic Assistance Number:

15.507

CFDA Title:

WaterSMART (Sustain and Manage America's Resources for Tomorrow)

*** 12. Funding Opportunity Number:**

R23AS00008

* Title:

WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2023

13. Competition Identification Number:

R23AS00008

Title:

WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2023

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Metro Main Automated Metering Infrastructure (AMI) Implementation and WaterSMART Customer Platform for all District service areas

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:

* a. Start Date: * b. End Date:

18. Estimated Funding (\$):

* a. Federal	<input type="text" value="2,000,000.00"/>
* b. Applicant	<input type="text" value="3,258,319.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="5,258,319.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

a. This application was made available to the State under the Executive Order 12372 Process for review on .

b. Program is subject to E.O. 12372 but has not been selected by the State for review.

c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

Yes No

If "Yes", provide explanation and attach

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:


* Last Name:

Suffix:

* Title:

* Telephone Number: Fax Number:

* Email:

* Signature of Authorized Representative:  * Date Signed:

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

OMB Number: 4040-0013
Expiration Date: 02/28/2025

1. * Type of Federal Action: <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. * Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. * Report Type: <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
--	--	--

4. Name and Address of Reporting Entity:

Prime SubAwardee

* Name: Metropolitan Domestic Water Improvement District

* Street 1: 6265 N La Canada Drive Street 2: _____

* City: Tucson State: AZ: Arizona Zip: 85704-1032

Congressional District, if known: 6

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

6. * Federal Department/Agency: Bureau of Reclamation	7. * Federal Program Name/Description: WaterSMART (Sustain and Manage America's Resources for Tomorrow) CFDA Number, if applicable: 15.507
---	---

8. Federal Action Number, if known: _____	9. Award Amount, if known: \$ _____
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10. a. Name and Address of Lobbying Registrant:

Prefix: _____ * First Name: N/A Middle Name: _____

* Last Name: N/A Suffix: _____

* Street 1: N/A Street 2: _____

* City: N/A State: _____ Zip: _____

b. Individual Performing Services (including address if different from No. 10a)

Prefix: Mr. * First Name: Joseph Middle Name: _____

* Last Name: Olsen Suffix: _____

* Street 1: Metropolitan Domestic Water Improvement District Street 2: 6265 N La Canada Dr

* City: Tucson State: AZ: Arizona Zip: 85704-1032

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* Signature:

* Name: Prefix: Mr. * First Name: Joseph Middle Name: _____

* Last Name: Olsen Suffix: _____

Title: General Manager Telephone No.: 520-209-2842 Date: 27 Jul 2022

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2025

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Notice of Funding Opportunity No. R23AS00008	15.507	\$ <input type="text"/>	\$ <input type="text"/>	\$ 2,000,000.00	\$ 3,258,319.00	\$ 5,258,319.00
2.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5. Totals		\$ <input type="text"/>	\$ <input type="text"/>	\$ 2,000,000.00	\$ 3,258,319.00	\$ 5,258,319.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	Notice of Funding Opportunity No. R23AS00008				
a. Personnel	\$	\$	\$	\$	\$
b. Fringe Benefits					
c. Travel					
d. Equipment	325,495.00				325,495.00
e. Supplies	3,780,413.00				3,780,413.00
f. Contractual	1,152,411.00				1,152,411.00
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)	5,258,319.00				\$ 5,258,319.00
j. Indirect Charges					\$
k. TOTALS (sum of 6i and 6j)	\$ 5,258,319.00	\$	\$	\$	\$ 5,258,319.00
7. Program Income	\$	\$	\$	\$	\$

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Notice of Funding Opportunity No. R23AS00008 WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2023	\$ 3,258,319.00	\$	\$	\$ 3,258,319.00
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	\$ 3,258,319.00	\$	\$	\$ 3,258,319.00

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 250,000.00	\$	\$	\$	\$ 250,000.00
14. Non-Federal	\$ 411,189.00				411,189.00
15. TOTAL (sum of lines 13 and 14)	\$ 661,189.00				\$ 661,189.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS)			
	(b)First	(c) Second	(d) Third	(e) Fourth
16. Notice of Funding Opportunity No. R23AS00008	\$ 1,000,000.00	\$ 750,000.00	\$	\$
17.				
18.				
19.				
20. TOTAL (sum of lines 16 - 19)	\$ 1,000,000.00	\$ 750,000.00	\$	\$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:		22. Indirect Charges:	
---------------------	--	-----------------------	--

23. Remarks: Initial cash need in Year 1 is assumed to be Quarter 4 of FY23 which will be \$250K. The remaining \$1.75M will be split \$1M/\$750K in FY24/25

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

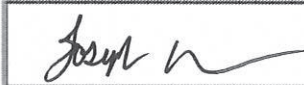
PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE General Manager
APPLICANT ORGANIZATION Metropolitan Domestic Water Improvement District	DATE SUBMITTED 27 Jul 2022

ASSURANCES - CONSTRUCTION PROGRAMS

OMB Number: 4040-0009
Expiration Date: 02/28/2025

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.


PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards of merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
20. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE General Manager
APPLICANT ORGANIZATION Metropolitan Domestic Water Improvement District	DATE SUBMITTED 27 Jul 2022

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

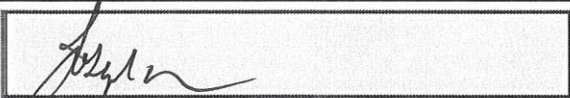
(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* APPLICANT'S ORGANIZATION	
Metropolitan Domestic Water Improvement District	
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
Prefix: Mr.	* First Name: Joseph Middle Name:
* Last Name: Olsen	Suffix:
* Title: General Manager	
* SIGNATURE: 	* DATE: 27 Jun 2022



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

July 7, 2022

Subject: Metro Water District's WaterSMART Water and Energy Efficiency Grant Request (NOFO R23AS00008)

Bureau of Reclamation Water and Energy Efficiency Grant NOFO Team,

The Colorado River Basin is continuing to experience a record setting drought spanning over 22 years, with no sign of slowing. This drought impacts every sector served by the Colorado River and makes conservation a crucially important component to navigate the water scarcity challenges in the Southwestern United States. The Colorado River plays a key, critical role in Metro Water District's water resource portfolio. Engaging customers in the metrics of their personal water consumption aids in the efficient use of our scarce water resources.

Since Metro Water District's creation in 1992, they have embraced the importance of conservation and maintained a successful toilet rebate program for nearly 30 years. They also offer rebates for rainwater harvesting. Continuing in this tradition of conservation, Metro Water proposes in this grant to implement a WaterSMART platform for customers to track their real time water consumption as well as upgrade the meters in one of their service areas to Automatic Metering Infrastructure (AMI). This will ensure all Metro Water customers, regardless of where they live, will have access to real time consumption data and high usage notifications.

A primary goal of this grant is to conserve water. Metro Water's grant request would have a tangible savings as a study titled "Evaluation of East Bay Municipal Utility District's Pilot of WaterSmart Home Water Reports," found that a WaterSMART customer portal reduced customer consumption between 4.6% and 6.6% annually. Additionally, customers who leveraged the customer portal were 2.3 times more likely to participate in conservation rebate programs; furthering the beneficial impacts of conservation. Beyond the water conservation element of Metro Water's grant, if their Metro Main service area is converted to AMI, there would be a reduction of over 20,000 vehicle miles driven annually, reducing greenhouse gas emissions.

Since the founding of the Water Conservation Alliance of Southern Arizona (WaterCASA) in 1997, I have had the distinct pleasure of serving as the organization's Director. For a quarter of a century, WaterCASA's goal has been the efficient use of regional water resources and to strive for a public fully aware of all water conservation tools, methods, and practices. Metro Water's proposal for a real time portal enabling customers to track their water consumption is exactly the type of initiative that is needed in our current environment to increase conservation and customer awareness of their water usage.

It is for these reasons that I wholeheartedly support Metro Water District's grant application for the WaterSMART Water and Energy Efficiency Grant Program for FY 2023.

Sincerely,

A handwritten signature in black ink, appearing to read "Val Little", is written over a horizontal line.

Val Little, Director

RESOLUTION NO. 2022-7

RESOLUTION OF THE BOARD OF DIRECTORS OF THE METROPOLITAN DOMESTIC WATER IMPROVEMENT DISTRICT OF PIMA COUNTY, ARIZONA, TO AUTHORIZE THE DISTRICT TO SOLICIT FINANCIAL ASSISTANCE THROUGH THE EXECUTION OF A WATERSMART GRANT APPLICATION AND AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION AND APPROVING RELATED DOCUMENTS AND ACTIONS.

WHEREAS, The United States Bureau of Reclamation (Reclamation) issued a Notice of Funding Opportunity No. R23AS00008 for the WaterSMART Water and Energy Efficiency Grants for Fiscal Year 2023 (Grant); and

WHEREAS, Funding Group II of this grant provides up to \$2,000,000 per agreement for a project that can be completed within three years; and

WHEREAS, The District determined it would be advantageous to solicit the Grant funding for the Metro Main AMI Meter Replacements and WaterSMART by Vertexone Platform and Services to provide customer with water usage information; and

WHEREAS, The District will cash fund with the remaining cost with metered water revenue and include this project in the Capital Improvement Program; and

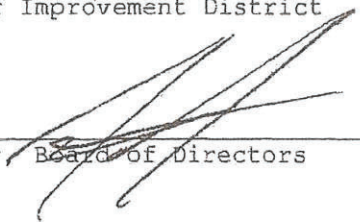
WHEREAS, To be eligible for the Grant, staff recommend submitting an application to Reclamation.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE METROPOLITAN DOMESTIC WATER IMPROVEMENT DISTRICT OF PIMA COUNTY, ARIZONA, as follows:

1. The District, acting through the District's General Manager and Chief Financial Officer, is hereby authorized to solicit financial assistance through the execution of an application and agreement with the United States Bureau of Reclamation in an amount \$2,000,000 for Metro Main AMI Meter replacements and WaterSMART by Vertexone platform and services.
2. The District, acting through the District's General Manager, has reviewed and supports the application to be submitted.
3. The District affirms it has the capability to provide the amount of funding and in-kind contributions specified in the funding plan for this project.
4. The District will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.
5. The Board Chair, District's General Manager and Chief Financial Officer are authorized to sign all associated documents for the Grant.

PASSED AND ADOPTED this 11th day of July, 2022.

Metropolitan Domestic
Water Improvement District




Chair, Board of Directors

Attest:



Clerk

Recommended by:



General Manager

Approved as to form:



Legal Counsel

CERTIFICATION

I, Theo Fedele, the duly appointed District Clerk of the Board of Directors of the Metropolitan Domestic Water Improvement District of Pima County, Arizona, hereby certify that the foregoing Resolution No. 2022-7 was duly passed and adopted by the Board at a meeting held on July 11, 2022, and the vote was 5 aye's and 0 nay's and that 5 Board members were present.



Clerk