

WaterSMART Grant:
Small-Scale Water Efficiency Projects
Funding Opportunity Announcement No. R22AS00195
For Fiscal Year 2022
\$100,000 Grant Request

March 29, 2022

Water Meter and Data Management Upgrade
Overton, NV

Applicant

Moapa Valley Water District
601 N. Moapa Valley Blvd
Overton, Nevada 89021
TEL (702) 397-6893

Project Manager

Joseph K. Phillips, PE
11 N 300 W
Washington, Utah 84780
TEL (435) 652-8450
jphillips@sunrise-eng.com

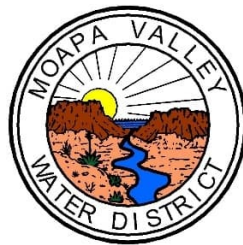
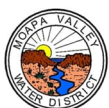


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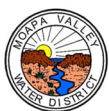


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EXECUTIVE SUMMARY

Date: March 30, 2022

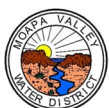
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Contact: Joe Phillips, PE
Sunrise Engineering, Inc
11 North 300 West
Washington, UT 84780
jphillips@sunrise-eng.com
(435) 652-8450

PROJECT SUMMARY:

For this project, Water Metering and Data Management Upgrade, 400 failing domestic water meters in Southern Nevada will be upgraded to new meters coupled with cellular endpoints for improved data analytics and water management. The project will increase efficiency in Moapa Valley Water District's distribution system and help achieve the District's goal of providing quality drinking water to its users through efficient management and conservation. It will also increase resiliency to climate change, particularly as it relates to severe drought. Furthermore, this project will help to stretch and secure water supplies for future generations. Proposed funding in the amount of \$100,000 acquired through the Bureau of Reclamation will be used to purchase the upgraded metering equipment while an equal or greater portion of funds will be provided as a matching contribution by Moapa Valley Water District to implement the project.

Applicant Eligibility	Category A
Estimated Start Date:	April 2023
Approximate Project Length:	21 months
Estimated Completion Date:	December 2024
Federal Facility:	This project is not located on a Federal facility



BACKGROUND DATA

As applicable, describe the source of water supply, the total quantity of water supply managed and supplied, the water rights involved, current water uses (i.e., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply.

For municipal systems, please include the total approximate length of distribution lines, number and sizes of storage tanks, number of pump stations and capacities, and the number of connections and/or number of water users served and any other relevant information describing the system.

Identify any past working relationships with Reclamation. This should include the date(s), description of the relationship(s) with Reclamation, and a brief description of the project(s).

Although this section is not required by the Notice of Funding Opportunity for Fiscal Year 2022, it has been included because it provides relevant information for the reviewer.

Moapa Valley is located approximately 60 miles northeast of Las Vegas, NV at the northmost head of Lake Mead. The valley consists of the following towns or communities: Overton, NV; Logandale, NV; Glendale, NV; Moapa, NV; the Moapa River Indian Reservation, and the Warm Springs Natural Area. Moapa Valley has an estimated population of 9,000 residents. Figure 1 is an area map for Moapa Valley.

The Moapa Valley Water District (MVWD) was created as a political subdivision of the State of Nevada on July 23, 1983 to provide domestic water (irrigation water is provided by another company) to customers within Moapa Valley. MVWD's service area covers approximately 79 square miles and is bounded by Lake Mead to the southeast and the head of the Muddy River at Warm Springs Natural Area to the northwest. Within MVWD's service area is the reservation for the Moapa Band of Paiutes. Figure 2 shows a location map of the District's service area boundary. The dashed line on the left of Figure 2 is the Moapa River Indian Reservation boundary.

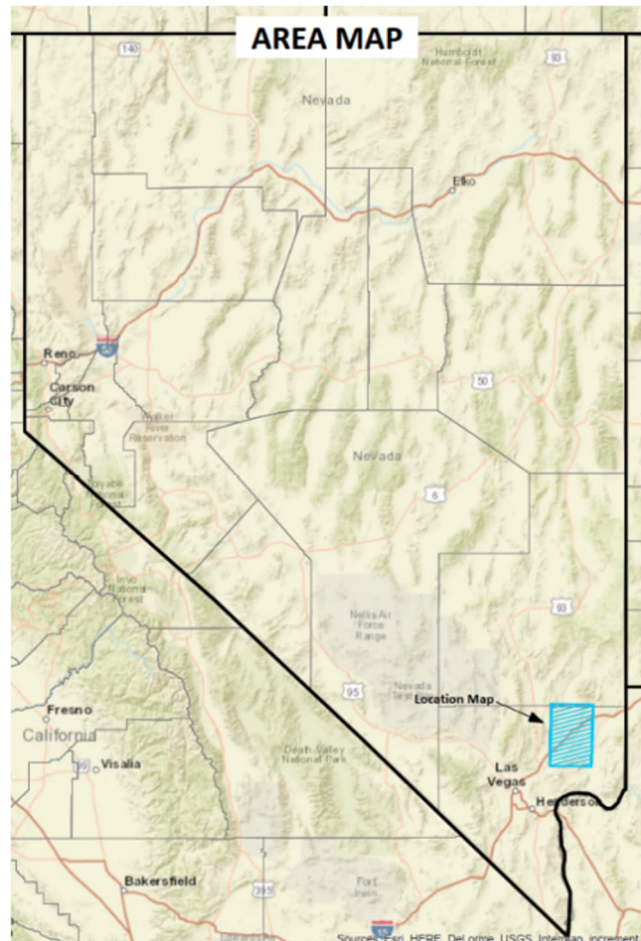
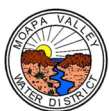


Figure 1. Area Map of Moapa Valley



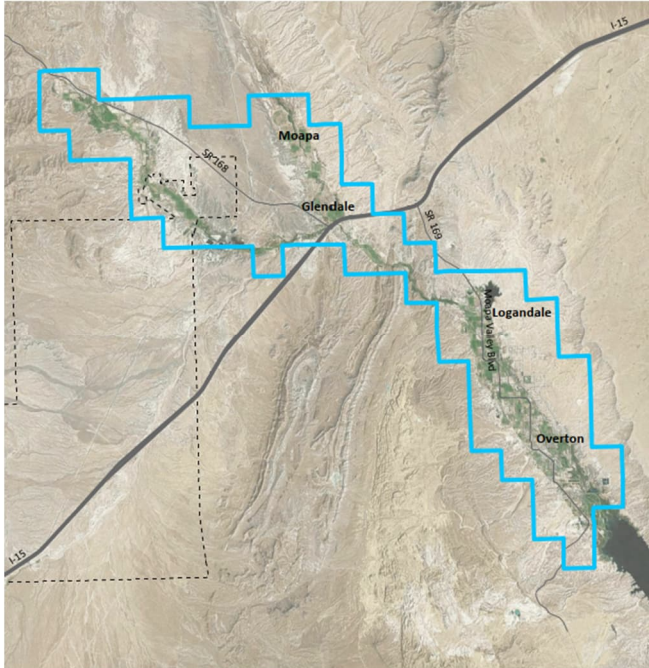


Figure 2. MVWD Service Area Boundary Map

WATER SYSTEM

MVWD operates a domestic water system that generally includes 4 wells, 2 spring groups, 6 tanks totaling 8.3 million gallons, 2 treatment facilities, 14 pressure reducing valves, 449 fire hydrants, 1,721 valves, and 184 miles of transmission and distribution pipe ranging in size from 2 inches to 24 inches. The system is operated in 15 pressure zones, serving connections at elevations from approximately 1,800 feet down to 1,225 feet above sea level.

Water Source

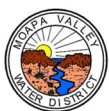
The water sources available to MVWD originate from the regional carbonate aquifer flow system which collects from the Muddy River and Meadow Valley Wash hydrological basins. MVWD holds a series of ground water rights in the Lower White River

Flow System for municipal, domestic, and irrigation uses, utilizing 4 wells and 2 springs for domestic water which draw from the carbonate aquifer. A list of the available domestic water sources and their water right capacities is given in Table 1. Pending action in the Nevada State Engineer’s office related to the Lower White River Flow System in general threatens to curtail MVWD’s water rights associated with the MX-6 and Arrow Canyon wells. MVWD is actively working to mitigate the potential loss of source pursuant to that action.

The water sources listed in Table 1 are as provided in MVWD’s Water Conservation Plan and are water rights that currently produce domestic water for the District’s system.

Table 1. Active Domestic Water Rights

Permit #	Water Source	Diversion Rate (cfs)	Annual Duty (afy)
68524	Logandale Well	0.89	913.1
72263		2.71	
46932	MX-6 Well	2.00	6792.71
52520	Arrow Canyon Well #1	2.00	
55450		3.00	
58269		1.50	
66043	Arrow Canyon Well #2	3.50	
28791	Baldwin Spring	3.00	2132.2
22739	Jones Spring	1.00	723.8
Total Water Rights		19.6	10561.81



Both Baldwin and Jones Springs (MVWD domestic water sources) are part of a larger spring group at Warm Springs Natural Area forming the Muddy River which flows to Lake Mead, southern Nevada's primary drinking water source. The Warm Springs Natural Area is owned and operated by Southern Nevada Water Authority (SNWA), a partner of the Bureau of Reclamation.

On August 7, 2002, SNWA and MVWD entered into a Memorandum of Understanding (MOU) to memorialize their mutual commitment to work cooperatively to resolve regional water supply issues.

Subsequently, on April 20, 2006, MVWD, SNWA, the Moapa Band of Paiute Indians, and the US Fish and Wildlife Service entered into a Memorandum of Agreement (MOA) to suspend MVWD's diversion of the Jones Spring water right in exchange for an equivalent 724 acre-feet per year from a well owned by SNWA. This agreement was made to retain water in the Warm Springs Natural Area, which is an oasis for 28 endangered, threatened, and sensitive species of plants and wildlife.

SNWA and MVWD have entered into additional agreements to use MVWD's distribution system for discharging water from SNWA's Coyote Springs Well No. 5 into the Muddy River via Bowman Reservoir. The additional water in the Muddy River flows to Lake Mead for other beneficial uses such as hydropower and recreation and is part of SNWA's overall water resource management strategy in southern Nevada.

MVWD also partners frequently with the Muddy Valley Irrigation Company (MVIC) through shared water rights.

Distribution System

MVWD's distribution system consists of 184 miles of water lines in 15 pressure zones, feeding approximately 3,200 total connections. Most existing connections to the water system are equipped with Master Meter Bottom-Load Multi-Jet (BLMJ) meters which are read monthly by drive-by 3G radio transmission. MVWD has begun upgrading failing meters to new Badger Meter Positive Displacement Disc meters with cellular endpoints for more advanced two-way data transmitting and management. Recognizing the efficiencies of these upgrades, MVWD intends to continue this meter upgrading effort through this and future projects.

CONSERVATION PLAN

MVWD has a complete water conservation plan and actively supports conservation measures. The conservation plan details educational, financial, and regulatory incentives.

PROJECT LOCATION

Provide detailed information on the proposed project location or project area including a map showing the geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g., northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}.



The MVWD office is located in Overton, Clark County, NV, approximately 60 miles northeast of Las Vegas, NV. The office is situated approximately 24 miles from the northwest boundary of the service area and three miles from the southeast boundary. The project will occur in 400 different locations within MVWD’s service area; MVWD has targeted 400 specific meters to be upgraded, including those meters currently in the worst operating condition. Refer to Map 4 on the next page for locations of the 400 meters to be upgraded by this project.

PROJECT DESCRIPTION

Provide a more comprehensive description of the technical aspects of your project, including the work to be accomplished and the approach to complete the work. This description should provide detailed information about the project including materials and equipment and the work to be conducted to complete the project. This section provides an opportunity for the applicant to provide a clear description of the technical nature of the project and to address any aspect of the project that reviewers may need additional information to understand.

PROBLEMS AND NEEDS

MVWD faces three main issues stemming from the current meters and data collection method. These issues include an aging infrastructure, strain on District resources, and the ability to conserve water in accordance with MVWD’s water conservation plan.

Aging Infrastructure

Typical mechanical water meters have a service life of 10 to 15 years before accuracy begins to decline to an unacceptable level. When these types of meters begin to fail, the accuracy declines at a slow and steady rate for a period of months to years before taking a significant and noticeable drop in accuracy (see Figure 3). MVWD’s method of meter data tracking is not sophisticated enough to detect faulty meters until after the significant drop in accuracy, resulting in prolonged, unnecessary losses in water supply and revenue.

Most existing meters within MVWD’s system are more than 14 years old and are experiencing significant drops in accuracy. MVWD has reported 400 meters that are reading far below typical flows or have stopped transmitting data wirelessly. A Capital Facilities Plan completed by MVWD in 2016 recommended replacing and upgrading meters on a recurring schedule.

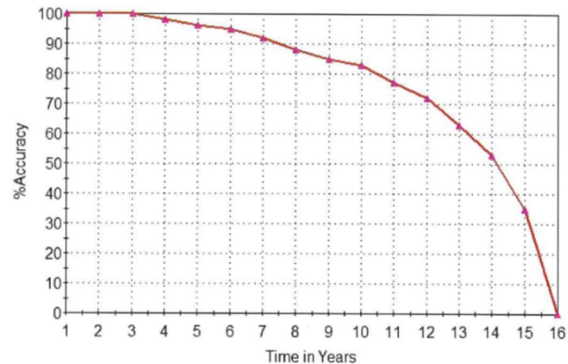
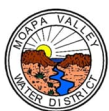
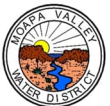
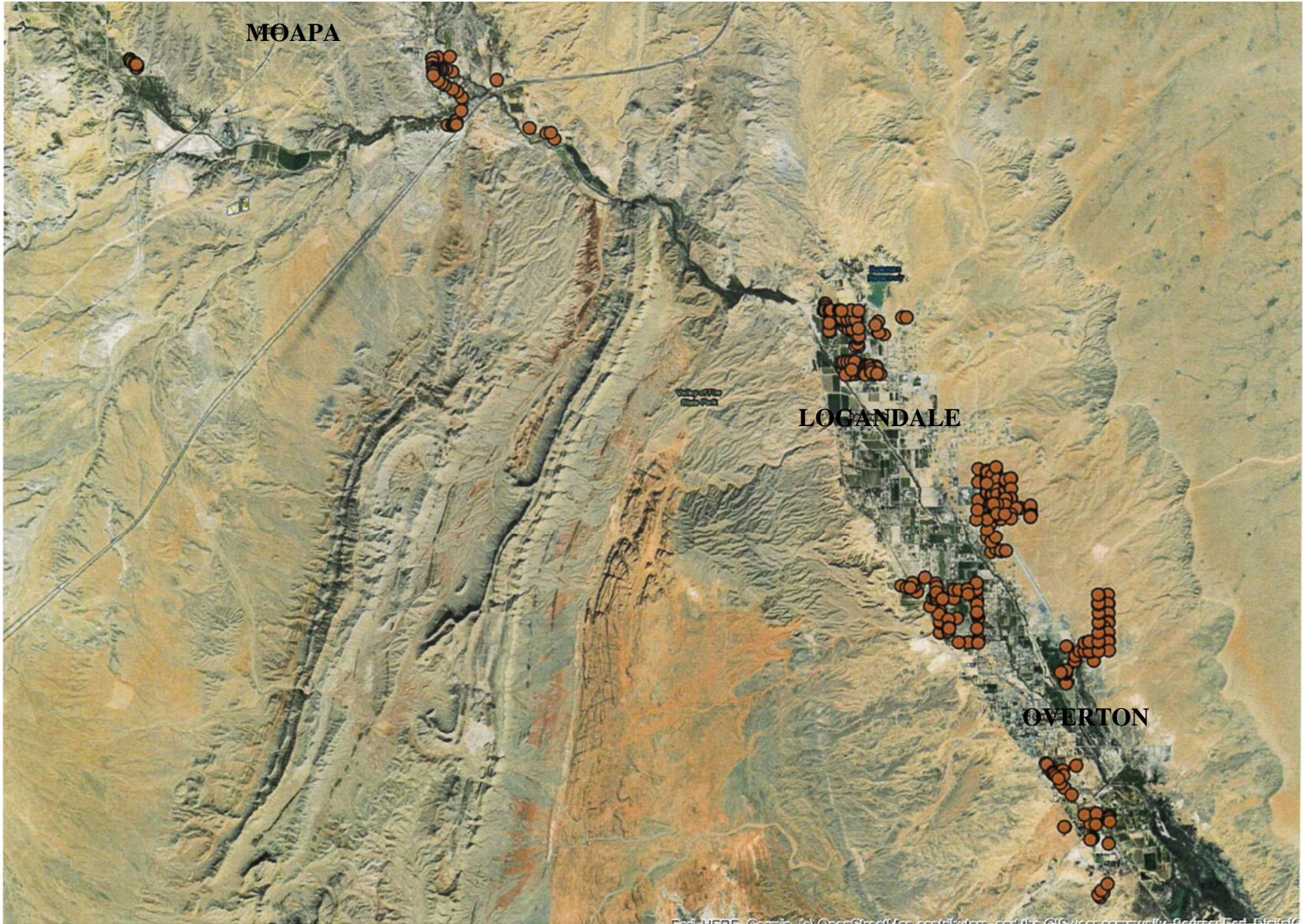


Figure 3. Accuracy of Water Meter Over Time



MOAPA VALLEY WATER DISTRICT 2022 Meter Upgrade Program



Strain on District Resources

The size and nature of MVWD’s service area is not conducive to the drive-by radio data collection required by the current meters. MVWD’s office is situated in Overton – approximately 24 miles from the northern boundary of the service area and three miles from the southern boundary. This distance puts a strain on equipment and manpower, as well as consumes excess amounts of fuel, when regular trips are required to the extents of the service area. Each month, crews travel over 200 miles recording meter readings. These numbers are increased when meters fail to transmit data during drive-by meter reading activities.

Water Conservation

A recent study estimates that lost & unaccounted for water from MVWD’s failing meters ranges from 30% to 60% of actual flows. MVWD’s conservation plan states that responsibilities on the part of the purveyor include leak detection and system maintenance. The current meters and data reporting method do not provide the ability to detect small leaks within the system. Any leak from the system means additional water demanded from the sources supplying water to Warm Springs Natural Area and less water available to Lake Mead.

PROJECT DESCRIPTION

To help correct the issues described above, MVWD intends to upgrade 400 old and malfunctioning meters with new Badger Meter 5/8” positive displacement disc meters and Orion Cellular LTE-M Endpoints. Additionally, crew members will replace approximately 64 existing meter boxes and 270 meter lids that are beyond their service life to help preserve the new meters. The proposed project will require 2 hours to remove and install each upgraded meter. MVWD plans to complete the project at a rate of 35 meters per month to finish the project within the two-year allotted timeframe.

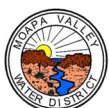
The upgraded cellular endpoints collect data from the meters at 15-minute intervals and store the information for 45 days. Four times each day, the endpoints send stored data through a cellular network to a cloud-based data management system. Using this upgraded system, both MVWD and consumers will be able to access information regarding water usage to improve water management.

MVWD will additionally utilize GIS to manage upgraded assets. The new metering system will operate through Badger Meter’s Fixed Network data collection system and integrate with MVWD’s GIS data to support predictive rather than reactive management. Importantly, the upgrade will allow MVWD to conserve resources required to complete monthly meter reads and more accurately identify when meters begin to show signs of failure.

EVALUATION CRITERIA

The evaluation criteria portion of your application should thoroughly address each criterion and subcriterion in the order presented to assist in the complete and accurate evaluation of your proposal.

It is suggested that applicants copy and paste the evaluation criteria and subcriteria in Section E.1. Technical Proposal: Evaluation Criteria into their applications to ensure that all necessary information is adequately addressed.



EVALUATION CRITERION A: PROJECT BENEFITS (35 POINTS)

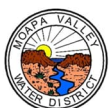
Up to 35 points may be awarded based upon evaluation of the benefits that are expected to result from implementing the proposed project. This criterion considers a variety of project benefits, including the significance of the anticipated water management benefits and the public benefits of the project. This criterion prioritizes projects that modernize existing infrastructure in order to address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflict in the region.

Benefits to the Category A Applicant's Water Delivery System: Describe the expected benefits to the Category A applicant's water delivery system. Address the following:

- ***Clearly explain the anticipated water management benefits to the Category A applicant's water supply delivery system and water customers.***

Upgrading MVWD's water meters will improve the overall efficiency of the water delivery system. The new metering and data management project will provide greater accuracy, earlier detection of leaks, and improve usage understanding by all parties to help reduce and manage water consumption in MVWD's service area.

- ***Explain the significance of the anticipated water management benefits for the Category A applicant's water delivery system and customers. Consider:***
 - ***Are customers not currently getting their full water right at certain times of year?***
Yes. However, with the ongoing and persistent drought in the region, there is some degree of uncertainty as to whether or not this will still be the case over time.
 - ***Does this project have the potential to prevent lawsuits or water calls?***
Yes. With the technology to capture and store data in real-time, the District and the customers will have the ability to refer to and pull historical or current data as necessary. This would aid in mitigating issues and disputes before escalating to legal battles. Further, these meter upgrades will likely result in the District having the ability to troubleshoot and resolve issues from an office setting rather making a call to the actual location of where the problem originated.
 - ***What are the consequences of not making the improvement?***
Prolonging these improvements would result in continued water use inefficiencies as well as unnecessary strain on District resources. The water conserved through this project will allow water resources to stretch further and expand the scale of benefit beyond the local region. The more current and future water that can be captured in Lake Mead will be a future benefit for all Lower Basin States on the Colorado River. Should these upgrades not be completed due to financial constraints, it will result in water losses that would typically remain in the river and eventually in Lake Mead.
 - ***Are customer water restrictions currently required?***



No, the District has not been compelled to set customer water restrictions. The District does have the authority to set restrictions in the event that usage trends show an increase or conditions warrant such action as so indicated in the Water Conservation Plan. The system improvements noted will allow the District to more closely monitor water use and take the necessary steps to better manage water resources, especially in a drought environment.

- ***Other significant concerns that support the need for the project.***

Upgrading MVWD's water meters and data collection method will reduce the consumption of precious water supplies, thereby improving the reliability and longevity of those water sources. Importantly, in light of current proceedings in the Nevada State Engineer's office and probable curtailments of water rights in the Lower White River Flow System, which are anticipated to affect MVWD's water rights portfolio, conservation of water in MVWD's system will reduce the demand on water rights, strengthening MVWD's ability to supply water reliability.

Broader Benefits: Describe the broader benefits that are expected to occur as a result of the project. Consider:

Will the project improve broader water supply reliability at sub-basin or basin scale?

Yes, the meter upgrades will help to optimize the water system and will result in supply reliability on a sub-basin and basin scale. As water is better managed through more reliable and timely data, the customers and the District will be able to monitor usage at a much greater frequency. This, in turn will allow the water users to respond more quickly and the benefits and savings from conservation practices can be captured much sooner. These water savings will naturally improve reliability by stretching limited water supply much further.

- ***Will the proposed project increase collaboration and information sharing among water managers in the region? Please explain.***

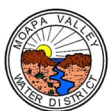
As noted previously, MVWD has partnered through legal agreements with several water managing institutions in a commitment to resolve regional water supply issues. Advanced data management and accessibility made possible through the upgraded metering system will provide beneficial data and information to help collectively manage southern Nevada's water.

- ***Will the proposed project positively impacts/benefit various sectors and economies within the applicable geographic area (e.g., impacts to agriculture, environment, recreation, and tourism)? Please explain.***

Conservation of water and water management resources is expected to benefit the local economy by enabling application of saved resources to other endeavors, water uses, infrastructure improvements, and opportunities both locally and regionally. Additional water to the Warm Springs Natural Area and Lake Mead will provide impacts to recreation and tourism while simultaneously supporting Federal and regional environmental initiatives. Additional water to Lake Mead may also contribute to the potential of greater hydropower generation through Hoover Dam as a renewable resource.

- ***Will the project complement work being done in coordination with NRCS in the area (e.g., the area with a direct connection to the districts water supply)? Please explain.***

No NRCS projects have been done in the proposed project area to MVWD's knowledge



- *Will the project help address drought conditions at the sub-basin or basin scale? Please explain.*

This project will help address drought conditions at the sub-basin or basin scale by reducing the amount of water being drawn from the watershed and water table.

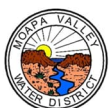
EVALUATION CRITERION B: PLANNING EFFORTS SUPPORTING THE PROJECT (30 POINTS)

Up to 30 points may be awarded based on the extent to which the proposed on-the-ground project is supported by an applicant’s existing water management plan, water conservation plan, System Optimization Review, or identified as part of another planning effort led by the applicant. This criterion prioritizes projects that are identified through local planning efforts and meet local needs.

***Plan Development:** Describe how your project is supported by an existing planning effort. Identify the planning effort and who developed it. If the planning effort was not developed by the Category A applicant, describe the Category A applicant’s involvement in developing the planning effort.*

***Support for the Project:** Describe to what extent the proposed project is supported by the identified plan. Address the following:*

- ***Is the project identified specifically in the planning effort?***
 MVWD’s Water Conservation Plan states “MVWD’s primary goal is to deliver quality water to its customers. To achieve that goal, the existing water distribution system must be kept in good repair...” The plan also states MVWD’s existing water supplies must be properly managed through conservation. The proposed project is in accordance with MVWD’s conservation plan to maintain the distribution system and manage water through conservation. In addition, MVWD’s current Capital Improvements Plan recommends a regular program for replacing and upgrading meters to enable accurate billings, to maintain a quality history of use, to support the sizing and demands of future infrastructure, and to promote water conservation. In summary, the project implements goals from both the Water Conservation Plan and the Capital Improvements Plan.
- ***Explain whether the proposed project implement a goal or address a need or problem identified in the existing planning effort?***
 Managing conservation is an overarching goal of the District. A problem that the District has come to know is that it is impossible to manage what is not measured. This is the case for performance on an administrative level as well as system operations. On this premise, the District has made system optimization and care a priority in both the Water Conservation Plan and Capital Improvements Plan. This project will help achieve the goals that the District has, which are to keep the water system in good repair and to make necessary upgrades. This in turn, lends to greater efficiencies in the workflow of personnel. This will result in improved overall system management that will benefit not only the customer base in the MVWD service area but throughout the region.



Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

MVWD’s Board of Directors recognizes meter replacement and upgrading efforts as an annual priority because of the high return on investment for making the improvements. MVWD recognizes the important role of meter accuracy in revenue generation which translates directly to the ability to fund other needed improvements. MVWD also recognizes the value on the conservation side, especially where lighter demands translate to reduced pressure on source improvements and water right needs. Reduced demands for manpower and equipment, with their related costs, saved in meter reading efficiencies through higher-technology meter upgrades also represents a savings on the demand side of the equation.

EVALUATION CRITERION C: IMPLEMENTATION AND RESULTS (20 POINTS)

Up to 20 points may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project upon entering into a financial assistance agreement. Applicants that describe a detailed 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.

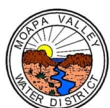
- *Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*

The project will be implemented by local District employees as typical daily duties. With funding being authorized in March 2023, meter installation would begin in January 2024 and proceed at a rate of 35 meters per month minimum. The total project length is estimated to be 21 months for a completion date of December 2024. Table 2 shows the proposed schedule of implementation.

Table 2. Proposed Project Schedule

Project Tasks and Milestones	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Receive Funding Award								
Coordinate with Reclamation on Agreement								
Order Meters & Supplies								
Install 400 Upgraded Meters								
Integrate Meters into Data Management System								
Project Closeout & Submit Final Report								

- *Describe any permits that will be required, along with the process for obtaining such permits.*
No permits are required for this project. It will be completed as a maintenance project under Nevada Division of Environmental Protection (NDEP) Bureau of Safe Drinking Water (BSDW) rules.
- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*
No engineering or design work is required for this project.



- ***Describe any new policies or administrative actions required to implement the project.***
No new policies or administrative actions are required to implement the project. However, MVWD accounting and GIS staff will be advised of the upgraded technology and receive training and direction on how to utilize the improved technology to archive and represent the data for use by MVWD managers in administering the system. The trainings will be focused on how efficiencies gained through the upgraded meter system can be recognized and capitalized.
- ***Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office?***

Whereas the proposed project (Metering and Data Management Upgrade) represents improvements to local meter assemblies at specific sites that have already been disturbed (there are existing meters in place at each of the sites), environmental impacts are expected to be negligible and NEPA compliance is expected to be tenable through a Categorical Exclusion. Compliance efforts and anticipated costs have been discussed with the local Reclamation office. It is anticipated that Reclamation will perform the work necessary to document NEPA compliance. For budgeting purposes, 3% of the direct costs have been included in the budget proposal to account for this expense, though costs are expected to be minimal.

EVALUATION CRITERION D: NEXUS TO RECLAMATION (5 POINTS)

Up to 5 points may be awarded based on the extent that the proposal demonstrates a nexus between the proposed project and a Reclamation project or activity. Describe the nexus between the proposed project and a Reclamation project or activity, including:

- ***Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:***

Yes. The Metering and Data Management Upgrade project is expected to conserve water resources and introduce efficiencies into MVWD’s culinary water system. MVWD and SNWA have entered into legal agreements and are working as partners on several initiatives, including the conveyance of SNWA water from the Coyote Springs valley into Lake Mead through MVWD’s transmission and distribution system and utilizing MVWD’s Jones Spring water right as a source to support SNWA’s Warm Springs Natural Area as part of SNWA’s regional water management strategy. In addition, both SNWA and MVWD hold water rights in the Lower White River Flow System and are parties to the ongoing discussion on sustainable yield current in the Nevada State Engineer’s office. Thus, conservation activities undertaken by MVWD have a direct connection to a Reclamation project (Lake Mead) and a Reclamation partner (SNWA) via the working relationships between MVWD and SNWA.

- ***Does the applicant receive Reclamation project water?***

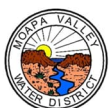
No. However, MVWD is a contributor to Reclamation project water, being located on the Muddy River at the upstream head of Lake Mead and through its partnerships with SNWA.

- ***Is the project on Reclamation project lands or involving Reclamation facilities?***

No.

- ***Is the project in the same basin as a Reclamation project or activity?***

Yes. The project is in the Muddy River basin which drains immediately into Lake Mead.



- *Will the proposed work contribute water to a basin where a Reclamation project is located?*

Yes. The project is in the Muddy River basin which flows directly into Lake Mead. The proposed work (meter upgrade project) is expected to have immediate direct and indirect effects on water conservation. Any conserved water resource will enter Lake Mead.

EVALUATION CRITERION E: PRESIDENTIAL AND DEPARTMENT OF THE INTERIOR PRIORITIES (10 POINTS)

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

Relationships. Points will be allocated based on the degree to which the project supports the priorities listed, and whether the connection to the priority(ies) is well supported in the application. Without repeating benefits already described in previous criteria, describe in detail how the proposed project supports a priority(ies) below.

This project supports Department of the Interior's Priority 5 – Modernizing our Infrastructure. MVWD's meter upgrade project will continue modernization of its infrastructure and support advanced cyclic maintenance. The upgraded technology proposed in this project will reduce slippage, more accurately reading low flow usage that is currently unaccounted for, resulting in increased revenue that would be applied to other infrastructure modernization and water conservation technologies. Furthermore, the technology will reduce the demand for manpower and equipment currently absorbed in meter reading efforts, thus allowing those manpower and equipment assets to be utilized to implement other priorities.

Sub-criterion no. E1: Climate Change

Points will be awarded based on the extent the project will reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity. Address the following as relevant to your project.

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.*

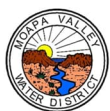
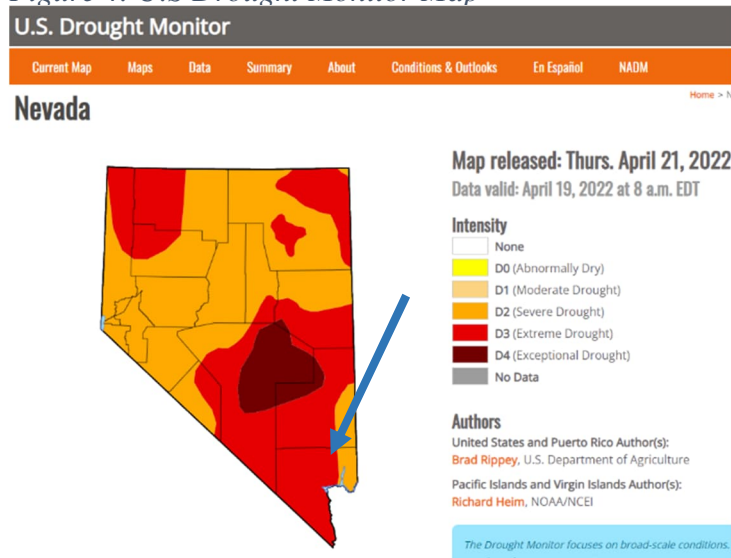


Figure 4. U.S Drought Monitor Map



The ongoing drought in the west has had significant impact on the water supply throughout the region. The MVWD service area is currently in the D3 (extreme) drought intensity according to the U.S. Drought Monitor as shown in Figure 4. This has caused some degree of uncertainty in the future as it pertains to sustainable yield in community water sources.

This metering upgrade project will allow the District to better monitor and manage their system in a real-time environment and take appropriate action in response to drought conditions. Furthermore, advanced and

accurate metering has shown to cause users to be more judicious in how they use water.

- *Does this proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?*

Yes, the project does strengthen water supply through proven conservation measures such as advanced metering and monitoring water use. These efforts will result in less water being used on landscapes and allowing conserved water to remain in the water basin and ultimately into Lake Mead. District crews currently use gas powered vehicles to travel around 200 miles each month to collect data from meters within the service area. This equates to approximately 2,400 miles annually, lending to approximately \$10,800 of annual expense. With the ability to capture the data from a remote location, which this project will provide, the District will realize this financial benefit and will be able to use it elsewhere in their operating budget. Though it may be negligible, there will also be a reduction in carbon load as the District will not be required to travel routes to read meters and in some instances will be able to troubleshoot and resolve water calls without traveling to the actual location of the issue.

Sub-criterion No. E2. Disadvantaged or Underserved Communities

Points will be awarded based on the extent to which the Project serves economically disadvantaged or underserved communities in rural or urban areas.

- *Will the proposed project serve or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety by addressing water quality, new water supplies, or economic growth opportunities.*

MVWD service area has a diverse cross-section of race and ethnicity consisting mostly of White (Non-Hispanic) followed by Hispanic and then Asian. Statistics show that around 6.5% of the population in the area live in poverty. Considering the current environment of unstable markets and rising inflation rates. It is likely that those living in poverty along with those earning less than the national average will trend even higher.

The grant funding available through this WaterSMART opportunity will allow the district to complete the upgrades to the system while leveraging cash and in-kind contributions. Thus, tempering the burden on the customers. This will be a tangible benefit to those who may be disadvantaged or historically underserved throughout the service area community.

- *Please describe in detail how the community is disadvantaged based on a combination of variables that may include:*
 - *Low income, high and/or persistent poverty*
 - *High unemployment and underemployment*
 - *Racial and ethnic residential segregation, particularly where the segregation stems from discrimination by government entities*
 - *Linguistic isolation*
 - *High housing cost burden and substandard housing*
 - *Distressed neighborhoods*
 - *High transportation cost burden and/or low transportation access*
 - *Disproportionate environmental stressor burden and high cumulative impacts*
 - *Limited water and sanitation access and affordability*
 - *Disproportionate impacts from climate change*
 - *High energy cost burden and low energy access*
 - *Jobs lost through energy transition*
 - *Access to healthcare*

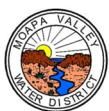
- *If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been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

Statistics show that 6.5% of the area live in poverty and the average fuel price in the State of Nevada is currently above \$5.00/gal.

Impacts from drought are greater in the western U.S. than in other areas of the nation. Drought intensity is currently in the extreme range according to the U.S. Drought Monitor.

Sub-criterion No. E.3. Tribal Benefits

Points will be awarded based on the extent to which the Project will honor the Federal government's commitments to Tribal Nations.

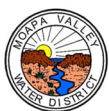


- *Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for a Tribe?*

Yes. MVWD's service area includes the inhabited area of the Moapa River Indian Reservation, and MVWD provides domestic water service to the Moapa Band of Paiute Indians. A portion of the meter upgrades proposed as part of this application will improve service on the Reservation.

- *Does the proposed project support Tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities?*

These conservation efforts will help to sustain flows in the Muddy River basin which flows directly into Lake Mead. Conservation efforts that allow for more water in Lake Mead will add social and economic benefit to tribal members who depend on the lake for the recreation and tourism element for employment and economic growth opportunities.



PROJECT BUDGET

The project budget includes:

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

Project costs for environmental and cultural compliance and engineering/design that were incurred or are anticipated to be incurred prior to award should be included in the proposed project budget.

*If the proposed project is selected, the awarding Reclamation Grants Officer will review the proposed pre-award costs to determine if they are consistent with program objectives and are allowable in accordance with the authorizing legislation. Proposed pre-award costs must also be compliant with all applicable administrative and cost principles criteria established in 2 Code of Federal Regulations (CFR) §200, and all other requirements of this NOFO. **In no case will costs incurred prior to July 1, 2021, be considered for inclusion in the proposed project budget.***

Please note that the costs for preparing and submitting an application in response to this NOFO, including developing data necessary to support the proposal, are not eligible project costs under this NOFO and must not be included in the project budget. In addition, budget proposals must not include costs for the purchase of water or land, or to secure an easement other than a construction easement. These costs are not eligible project costs under this NOFO.

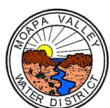
FUNDING PLAN AND LETTERS OF FUNDING COMMITMENT

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

This WaterSMART Grant application for small-scale water efficiency projects is requesting \$100,000 in federal funding from the Bureau of Reclamation. MVWD will fund the remaining \$113,350 for the project using in-kind services and cash reserves. No other federal funding has been requested for this project and there are no other pending funding requests. This project will not incur any costs prior to the estimated start date. Table 3 summarizes the proposed financing sources for this project.

Table 3. Project funding sources

FUNDING SOURCES	AMOUNT
Reimbursed with Requested Federal Funding	\$ 100,000
Costs to be paid by Moapa Valley Water District	\$ 113,350
Third-Party Contributions	\$ -
Total Project Cost	\$ 213,350



Since this project is not requesting funding from other third parties, no letters of commitment from partnering funding agencies are required. MVWD has already designated matching funds and resources in its budget for this fiscal year.

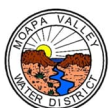
BUDGET PROPOSAL

The total project cost (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. Note: The budget proposal must include the cost of all equipment, materials and supplies, and labor or contractual costs to complete the project. Applicants must include the costs of all equipment, materials and supplies, and labor required to complete the project in the budget proposal.

A summary of the proposed project budget is provided in Table 4. The budget narrative explains the proposed budget in more detail.

Table 4. Summary of Proposed Budget

BUDGET ITEM DESCRIPTION	COMPUTATION		UNIT TYPE	TOTAL COST
	S/Unit	Quantity		
Salaries and Wages				
Lon Dalley - Project Manager	\$ 45.67	200	HR	\$ 9,134
Victor Bitter - Maintenance Serviceman	\$ 35.00	530	HR	\$ 18,550
Dandy Sutphin - Maintenance Worker	\$ 19.00	1,300	HR	\$ 24,700
Fringe Benefits				
Lon Dalley - Project Manager	\$ 19.70	200	HR	\$ 3,940
Victor Bitter - Maintenance Serviceman	\$ 14.35	530	HR	\$ 7,606
Dandy Sutphin - Maintenance Worker	\$ 7.23	1,300	HR	\$ 9,399
Equipment				
3/4-Ton Truck	\$ 17.00	530	HR	\$ 9,010
Backhoe/Loader	\$ 25.00	70	HR	\$ 1,750
Supplies and Materials				
5/8-inch Meter	\$ 67.00	400	EA	\$ 26,800
HRE 8 Encoder	\$ 69.00	400	EA	\$ 27,600
Cellular Endpoint	\$ 127.00	400	EA	\$ 50,800
DFW Meter Box	\$ 118.68	64	EA	\$ 7,595
DFW Meter Box Lid	\$ 60.99	270	EA	\$ 16,466
Contractual / Construction				
N/A				
Environmental				
N/A				
TOTAL DIRECT COSTS				\$ 213,350
Indirect Costs				
N/A				
TOTAL ESTIMATED PROJECT COSTS				\$ 213,350



BUDGET NARRATIVE

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Salaries and Wages

The proposed budget includes estimated time for MVWD employees administering and overseeing the project including meetings and consultations with the District's engineers, project visits, all required paperwork, reporting, and other duties involved with the project. Salaries and wages are based on 2022 figures and represent an in-kind or cash matching contribution to the project by MVWD. MVWD will prepare the following reports and submit them to Reclamation: SF-425 Federal Finance Report, an interim performance report, and a final report.

The employee positions tasked with the project are Project Manager, Maintenance Serviceman, and Maintenance Worker. The Project Manager responsibilities include those of administration and coordination with Reclamation. The Serviceman works as the lead of the crew assigned to installing the new meters while the Maintenance Worker will provide the majority of the labor required for meter installation.

Fringe Benefits

The provisional fringe benefits rates for MVWD personnel are based on 2022 benefits expenses and averages 41% of the base wage for the listed employees. Fringe benefits include Medicare, retirement, and insurance. Fringe benefits anticipated for the project represent an in-kind or cash matching contribution to the project by MVWD.

Travel

Travel related expenses are not eligible for reimbursement under this FOA and as such are not included in the project budget. Local travel costs are included in vehicle usage rates as part of the Equipment section.

Equipment

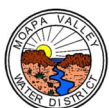
Equipment costs incurred are for use of MVWD owned equipment. Local vehicle travel costs and loader operating costs are included as part of the proposed budget. All equipment rates have been determined using the Army Corps of Engineers recommended rates and represent an in-kind or cash matching contribution to the project by MVWD.

Materials and Supplies

MVWD will purchase all 400 meters and cellular endpoints required for upgrade directly from the manufacturer, Badger Meter. Pricing for additional supplies such as meter boxes and miscellaneous fittings has been compared to various local suppliers to verify appropriate costs. Requested funding from Reclamation is proposed to be applied towards materials and supplies costs.

Contractual

Whereas MVWD will install the upgraded meters with in-house crews, a contractor will not be retained to complete the work. MVWD anticipates using Sunrise Engineering, Inc. under the existing on-call services agreement between the parties where necessary to support MVWD's efforts in reporting/coordinating with Reclamation. However, these services are not included as part of the project budget.



Environmental and Regulatory Compliance Costs

Discussions with representatives of the Bureau of Reclamation have determined that there will likely be no Environmental Compliance costs associated with a project of this nature.

Indirect Cost

No indirect costs are anticipated as part of this project and as such have not been included in the proposed budget.

Total Costs

The estimated total project cost for the Water Meter and Data Management Upgrade project is \$213,350. The requested federal share is \$100,000 and the remaining balance of \$113,350 will be provided by MVWD.

ENVIRONMENTAL AND CULTURAL RESOURCES 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.*

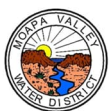
The proposed project will occur at 400 specific locations within MVWD's service area. Whereas the project contemplates replacing existing meters with improved technology, the sites have already been disturbed and no new disturbance is expected. Excavation activities will be minimal for some sites and non-existent at most sites. Minimal dust may occur but is not expected to affect air, water, or animal habitat. Activities are not expected to result in a significant impact to the local environment.

- *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?*

Several endangered, threatened, or sensitive species, such as the Moapa Dace, are located within MVWD's service area boundaries; the majority of these species are found at Warm Springs Natural Area. None of the species will be directly affected by activity at the proposed meter upgrade locations since the work is local to the meters only. By contrast, many of the species will be benefited by the water conservation results of 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.*

Whereas the improvements will occur at specific meter sites within MVWD's service area boundaries, no impact to wetlands or other surface waters will occur.



- ***When was the water delivery system constructed?***

MVWD was created in 1983 as a political subdivision of the State of Nevada which replaced two prior water companies in Moapa Valley. Portions of the current water delivery system were in place prior to the creation of MVWD while most of the system has been constructed incrementally over time as population growth demands have required. The domestic water meters to be upgraded are of varying ages but represent those that are in most need of replacement now.

- ***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 has no effect on an irrigation system, other than to promote conservation of resources for use in other areas, including the MVIC system.

- ***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.***

This project has no effect on an irrigation system or any buildings, structures, or features listed or eligible for listing on the National Register of Historic Places. The improvements are limited to the meter assemblies only.

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

No sites are known. The improvements will be made at specific meter sites which have already been disturbed. No new disturbances are anticipated.

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

No. The proposed project will improve service to low income and minority populations. Upgraded meters will promote early leak detection and provide more accurate and fair billing for water use at all improved connections.

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

The proposed project will benefit members of the Moapa Band of Paiute Indians on the Moapa River Indian Reservation.

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

No.

REQUIRED PERMITS OR APPROVALS

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

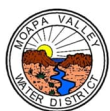
No permits are required for this project. It will be completed as a maintenance project under Nevada Division of Environmental Protection (NDEP) Bureau of Safe Drinking Water (BSDW) rules.



OFFICIAL RESOLUTION

An official resolution meeting the requirements set forth above is mandatory. If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline.

An official resolution has been drafted and approved by MVWD's Board of Directors. The signed resolution is attached to this application.



OFFICIAL RESOLUTION
OF THE
Moapa Valley Water District
Resolution No. 2022-01

The Chairman of the Moapa Valley Water District, Randy Tobler, and the Board of Directors, have reviewed and support the application for a contribution grant for an upgraded culinary water metering project focused on conserving water in Southern Nevada. The grant request in the amount of \$100,000, with an in-kind labor and cash match for an approximate \$225,000 project, would greatly benefit the local residents and the Moapa Valley Water District in efforts to reduce error and water usage cost, while increasing water efficiency.

WHEREAS, the Department of the Interior, Bureau of Reclamation, has made grant funding available under the Small-Scale Water Efficiency Projects for FY22, the Moapa Valley Water District in Overton, Nevada is submitting a grant application requesting grant funds in the amount of \$100,000 for the upgraded metering materials.

WHEREAS, the Moapa Valley Water District supports the proposed FY22 WaterSMART Small-Scale Water Efficiency Program grant request and is committed to provide the required funding support for the application budget necessary for a successful project.

NOW THEREFORE, BE IT RESOLVED, the Moapa Valley Water District commits the remaining budget balance of up to \$125,000, if necessary, through in-kind labor and cash reserves to comply with the FY22 WaterSMART Small-Scale Water Efficiency Program grant budget.

NOW THEREFORE, BE IT RESOLVED, the Moapa Valley Water District will work with Reclamation to meet environmental compliance and established deadlines for the entering into a grant or cooperative agreement.

PASSED AND APPROVED by the Board of Directors of the Moapa Valley Water District this April 14th, 2021.



Randy Tobler, Chairman

ATTEST:


Muddy Valley Irrigation Company

P.O. Box 665, Overton, NV 89040
2625 N. Moapa Valley Blvd., Logandale, NV 89021
Phone: (702) 398-7310 Fax: (702) 398-7307

April 18, 2022

Bureau of Reclamation
Financial Assistance Support Section
Attn: NOFO Team
P.O. Box 25007, MS4-27133
Denver, CO 80225

Re: FY21 Water SMART Grant: Small-Scale Water Efficiency Project for Moapa Valley Water District

To Whom it may concern,

Muddy Valley Irrigation Company whole-heartedly supports Moapa Valley Water District's application for the Small-Scale Water Efficiency Project Water SMART Grant to upgrade the water system's metering infrastructure. We believe this effort to be a vital component in the overall strategy for conserving water resources in Moapa Valley for the benefit of all interested parties.

As with all communities in southern Nevada, Muddy Valley Irrigation Company understands the importance of protecting and conserving the desert's most precious resource - water. Moapa Valley Water District's mandate is to operate a domestic water system that provides water to system users while operating efficiently. Installing technologically advanced infrastructure is an important strategy the district employs to ensure effective management of the water.

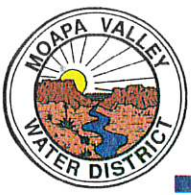
Muddy Valley Irrigation Company has considerable water interests in Moapa Valley, and we rely heavily on the infrastructure to beneficially use local water resources. We hope to see the community grow and prosper as a fundamental part of the economy in Southern Nevada, but this can only be achieved if we act as responsible stewards of our natural resources. We believe this water efficiency project put forth by Moapa Valley Water District will provide much-needed water conservation and boost the overall health of the local communities.

Muddy Valley Irrigation Company appreciates the opportunity to support Moapa Valley Water District in its endeavors to improve water infrastructure and water efficiency. If you need anything further, please do not hesitate to contact Scott Millington at (702) 398-7310 or at muddyvalley@mvdsi.com.

Sincerely,



Scott Millington
General Manager
Muddy Valley Irrigation Company



601 N. Moapa Valley Boulevard * Post Office Box 257 * Logandale, Nevada * 89021
Telephone (702) 397-6893 * Facsimile (702) 397-6894

April 14, 2022

Bureau of Reclamation
Financial Assistance Support Section
Attn: NOFO Team
Denver, Colorado 80225

Re: Bureau of Reclamation Funding Opportunity Number R22AS00195 WaterSMART Grant: Small-Scale Water Efficiency Project for Moapa Valley Water District

Dear NOFO Team,

The Board of Directors of the Moapa Valley Water District whole-heartedly support the District's application for the Small-Scale Water Efficiency Project WaterSMART Grant to upgrade the system's metering infrastructure. We believe this effort to be a vital component in the overall strategy for conserving water resources in Moapa Valley for the benefit of all interested parties.

As with all communities in Southern Nevada, the District understands the importance of protecting and conserving the desert's precious resource-water. Moapa Valley Water District's mandate is to operate a domestic water system that provides water to system users while operating efficiently. Installing technology advanced infrastructure is an important strategy the District employs to ensure effective management of the water.

The District has considerable water interests in Moapa Valley, and we rely on the infrastructure to beneficially use local water resources and deliver them to local users. We hope to see the community grow and prosper as a fundamental part of the economy in Southern Nevada, but this can only be achieved if we act as responsible stewards of our natural resources. We believe this water efficiency project will provide much-needed water conservation and boost the overall health of the local communities.

The Board of Directors appreciate the assistance of the Bureau of Reclamation in its efforts to improve water infrastructure and water efficiency in our valley. If you need anything further, please do not hesitate to contact Randy Tobler at 702-379-9553 or at chairman@moapawater.com.

Sincerely,

A handwritten signature in blue ink that reads "Randy Tobler".

Randy Tobler, Chairman
Board of Directors
Moapa Valley Water District

Moapa Valley Water District is an equal opportunity provider and employer