Advanced Metering Infrastructure (AMI) Water Use Efficiency Project (Phases 9 & 10)

WaterSMART: Water and Energy Efficiency Grants for FY 2023 No. R23AS00008

Prepared For:
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****Provide a brief, informative, and descriptive title for the proposed work that indicates the nature of the project. Include the applicant's name and address and the Project Manager's name and address, e-mail address, and telephone number.***

July 28, 2022

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The full application, including attachments, cannot exceed 100 pages. If the application exceeds 100 pages, only the first 100 pages will be considered in the evaluation.

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SECTION 1: TECHNICAL PROPOSAL AND EVALUATION CRITERIA

THIS SECTION IS LIMITED TO 50 PAGES

Executive Summary

Date: 7/28/2022	**Applicant Name**: Olivenhain Municipal Water District
City: Encinitas	**Project Length of Time:** 24 Months
County: San Diego	**Estimated Completion Date:** June 2025
State: California	**Located on a Federal Facility:** No

Olivenhain Municipal Water District (OMWD, the District) is a Category 'A' applicant. The District is seeking funding from the Bureau of Reclamation's (Reclamation) Water Energy and Efficiency Grant (WEEG) for FY2023 in order to implement the final two phases of the Advanced Meter Infrastructure (AMI) Installation Project (Project). The Project will upgrade 4,027 existing water meters in OMWD's service area to be AMI compatible by installing Meter Transmitting Units (MXUs) saving an expected **297 acre-feet-per-year (AFY) (3,570 acre-feet for the lifetime of the Project or AFL).** The Project caps multiple years of extensive planning efforts and previous-phase project implementation by OMWD in upgrading the entire service area to AMI technology.

In addition to improved water management, the Project will also provide OMWD's customers with a public outreach initiative intended to educate customers on the availability and functionality of OMWD's online Customer Engagement Portal (CEP). The CEP will promote customer consumption awareness that will ultimately provide time sensitive leak detection capability, strong participation in landscape transformation, and irrigation device incentive programs available through the regional SoCalWaterSmart Rebate Program.

Implementation of the Project directly aligns with Reclamation's WEEG FY2023 Program in that it will result in quantifiable water and energy savings, as well as support widespread water reliability benefits by providing the following:

- Estimated water savings of **297 acre-feet per year (AFY), and energy savings of 77,493 kilowatt-hours (kWh) per year.**
- Reduced time, labor, cost, energy, and Greenhouse Gas (GHG) emissions compared to the existing metering system by reducing meter reading routes
- Immediate water leakage detection, which will reduce energy consumption and water waste
- Improved individual water consumption patterns

Project Location

OMWD's service area is located in northern San Diego County, California and spans over 48 square miles encompassing parts of the cities of Encinitas, Carlsbad, San Diego, Solana Beach, San Marcos and surrounding unincorporated communities. The final phases of the Project will

install AMI-capable MXUs at various locations throughout the central and northeastern portions of the service area. Please refer to **Figures 1 and 2** for specific locations for both Phase 9 and Phase 10. The approximate Project latitude and longitude are 33.051017 and -117.248811, respectively.

Figure 1. Phase 9 Location Map

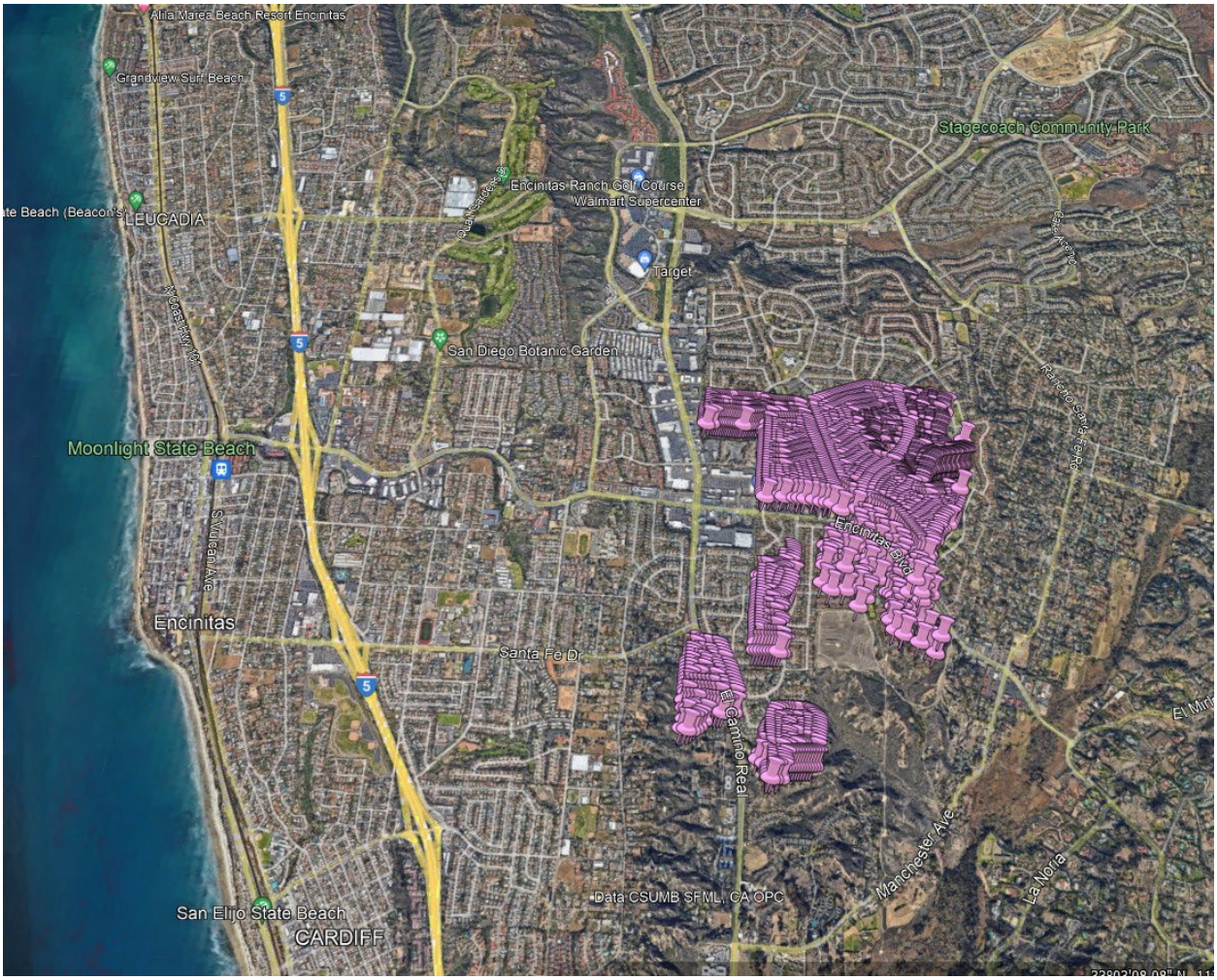
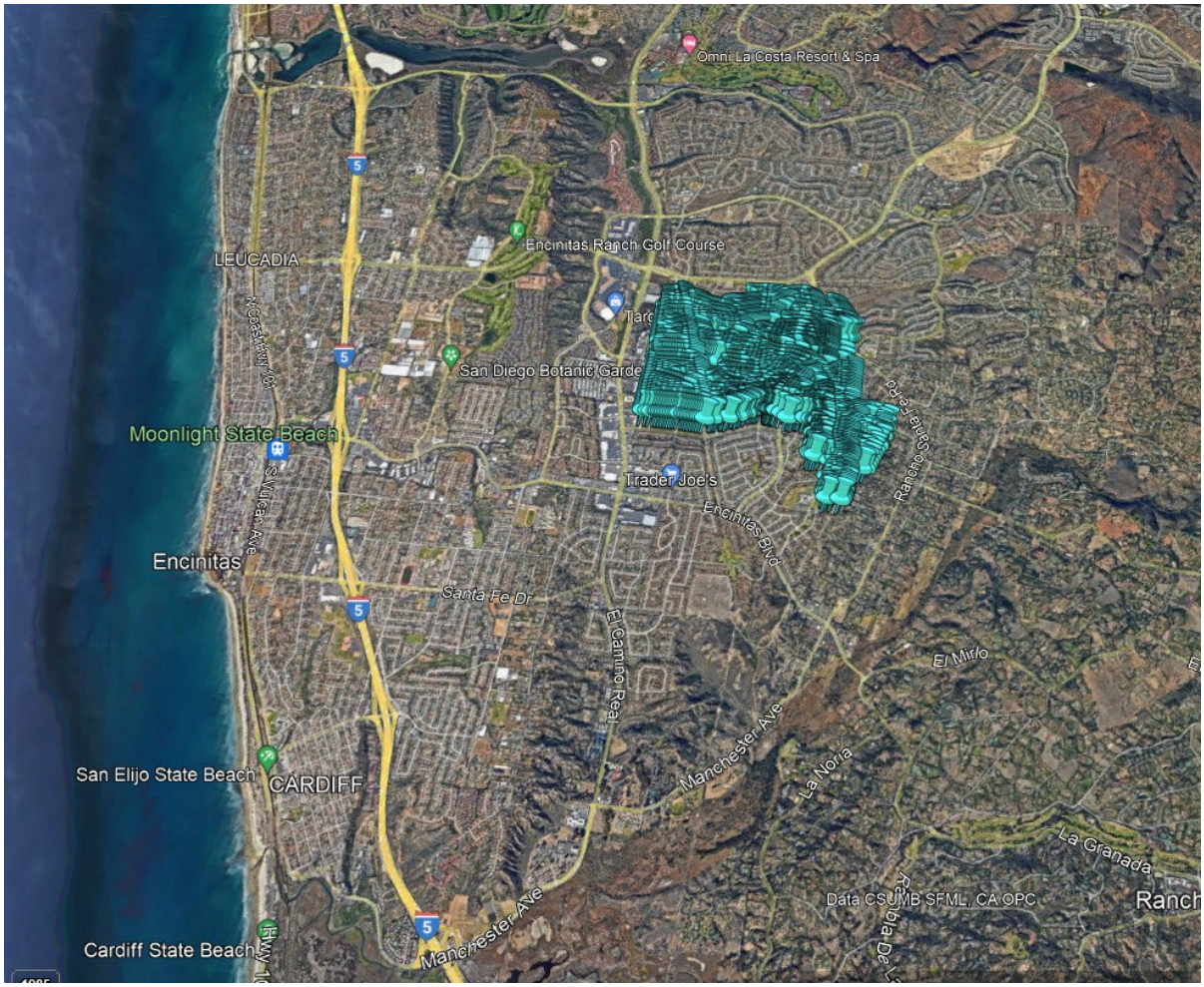


Figure 2. Phase 10 Location Map



Technical Project Description

The Project will have two technical components which are as follows:

1. Install MXU equipment onto 4,027 existing meters to make them AMI compatible
2. Integrate the newly equipped meters to the CEP system to allow customers to observe real-time water use data

The 4,027 meters involved in Phase 9 and 10 of the Project currently require monthly monitoring routes to collect metering data. By installing AMI-capable MXUs on these meters, OMWD will no longer have to complete the monthly driving routes associated with the meters. Therefore, the Project will not only contribute substantial water savings, but also significantly reduce the District's energy consumption and carbon footprint through reduced vehicular greenhouse gas (GHG) emissions. The meters will be equipped with Sensus Single and Double Port 520Ms. All MXU installations will be completed by OMWD in-house personnel.

To ensure that all AMI meters will accurately transmit and record data to OMWD, a Propagation Study was completed to identify low transmission zones and OMWD installed the required fixed base receivers in prior phases. The current AMI system is already equipped with Sensus FlexNet equipment, therefore, the meters in Phases 9 and 10 will be equipped with Sensus products to guarantee network compatibility and functionality.

The last component of the Project involves connecting the MXU equipped meters to the existing CEP to provide customers with the tools and information in real-time to understand, monitor, and adjust their water consumption patterns and promptly detect and address leaks.

Both components of the Project do not require earth disturbing work and therefore will not adversely impact the surrounding environment. The Project is expected to be exempt from California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) environmental review processes.

OMWD staff will be responsible for all grant compliance efforts following the award, execution of the grant agreement, reporting and submittal of reimbursements, and final completion report to meet the set Reclamation requirements.

Evaluation Criteria

Evaluation Criterion A-Quantifiable Water Savings (28 points)

Up to 28 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency, supporting the goals of E.O. 14008. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.

1. *Describe the amount of estimated water savings: For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project. (Please include a specific quantifiable water savings estimate, do not include a range of potential water savings)*

   As a direct result of equipping the existing meters with AMI compatible equipment, OMWD is anticipated to conserve **297 AFY** of water that would otherwise be lost due to undetected leaks and no access to real time water consumption data for customers prior.

2. *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 (eg., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

OMWD performs an audit of water losses in the potable water distribution system on an annual basis using the American Water Works Association (AWWA) Water Audit Software (WAS) v5.0. From January to December 2020, OMWD supplied 18,329 AF of potable water. Of the total water provided, 1,188 AF (6.5%) of water was lost from OMWD's system and was unable to be used by customers. Water losses from OMWD's water system are typically caused by system leaks (778.5 AFY), unauthorized connections (45.8 AFY), customer metering inaccuracies (321.1 AFY), and systematic data handling errors (42.4 AFY) as reported in the 2020 Water Audit.

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?

As previously mentioned, the majority of water loss OMWD's water system is currently experiencing is from system leaks. This water is not returned into the system for future recoverable use, rather it is lost through seepage into the ground or is contaminated by urban runoff from impervious surfaces and diverted to the storm drain system.

Other major sources of water losses are from metering inaccuracies and unauthorized connections. These losses are being used, but not properly accounted or charged for which results in loss of financial and environmental resources for OMWD.

The Project will help detect leaks, improve metering inaccuracies, and detect and remove any unauthorized connections.

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

There are no known benefits associated with OMWD's water system losses.

3. *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. In addition, please note that the use of visual observations alone to calculate water savings without additional documentation/data are not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

The Project will produce water savings by allowing OMWD to monitor water consumption resulting in better management of its water resources. When the AMI Project is fully built

out, customers will be able to view their water consumption in near real-time as well which would further increase conservation.

The Project will produce water savings in four separate ways:

1. Timely identification and correction of leaks.
2. Improved monitoring of water consumption and respective improvement in management of OMWD's water resources.
3. Changes in customer's water consumption behavior in response to the availability of near-real time consumption data provided through the customer web portal.
4. Customer installation of water efficient devices as reflected in customer participation in the SoCalWaterSmart Rebate Program.

Two prominent vendors of CEPs (WaterSMART and Smart Water Energy) have documented water reductions ranging from 4-7%. Additionally, East Bay Municipal Utilities District (EBMUD) released the results of an independent study conducted in 2014 which indicated that providing information to help households compare their water use to neighborhood averages reduces residential water use by 5%. OMWD based its assumptions on this study that customer access to and utilization of the CEP would result in water savings of 5%, which is applied to 4,027 of OMWD's customers/services that will be connected to the CEP as a result of phases 9 and 10 of the Project. Studies regarding the total number of years over which savings will accrue were not available, therefore a conservative five years is assumed to be the lifetime of accrued savings.

Water savings estimates resulting from reductions in water losses is based on an Environmental Protection Agency (EPA) report on water loss control for public water systems that up to 75% of water loss in systems is recoverable (EPA, 2013). Another case study on the implementation of AMI in the City of Santa Maria, California found that AMI was able to reduce its non-revenue water loss by two-thirds, from 6% down to 2% (Godwin, 2011). In our water savings analysis, we estimated that two-thirds of OMWD's non-revenue water losses were recoverable due to implementation of the AMI system. Therefore, of OMWD's 6.5% of water losses, 4.4% is estimated to be recovered and therefore additional water savings. Please see **Table 1** for the detailed calculations.

Table 1. Water Savings Calculations

Water Savings Calculation Variable	Value	Unit	Calculation	Source
Total Number of Active Service Connections	23,385	Meters		OMWD
ERTs installed as part of the Project	4,027	Meters		
Percentage of total smart meters connected to AMI through the Project	17.20%		4,027/23,385	
Total Water Supplied by OMWD in 2020	18,329	AFY		2020 Water Loss Audit
Estimated Volume of Water Supplies by AMI fitted smart meters within Project	3,156	AFY	17.2% x 18,329	
Percentage of System Water Losses in 2020	6.50%			2020 Water Loss Audit
Percentage of Recoverable Losses	4.40%		2/3* 6.5%	1) Goodwin,2011, 2) EPA, 2013
Annual Recoverable Water Losses	**139**	**AFY**	**4.4% x 3,156**	
Water Savings from Reduced Water Loss (20-years)	**2,780**	**AFL**	**132 x 20**	
% Water Savings from Customer Web Portal (29.7% of all meters/customers-formula assumes equal % consumption by each meter)	0.86%		5% x 17.2%	EBMUD, 2014
Annual Water Savings from Customer Web Portal	**158**	**AFY**	**0.86% x 18,329**	
Total Water Savings from Customer Web Portal (assumed 5-year life)	**790**	**AFY**	**158 x 5**	
Total Annual Water Savings	**297**	**AFY**	**139 + 158**	
Total Project Lifetime Water Savngs	**3,570**	**AFL**	**2,780 + 790**	

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

Municipal Metering: Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tired 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.*

The annual water savings provided by the Project were calculated by including direct water system savings from MXU installation and estimated water savings influenced by the customer web portal and SoCalWaterSmart Rebate Program. The District has implemented

other phases of the Project that have displayed the estimated water savings, so the same methodology was used. Additionally, it has been proven that if customers have access to a platform that shows and describes their water consumption, they will aim to reduce water use through changes in personal use patterns or new appliances, whether it be for financial or environmental benefits. Please see **Table 1** above for a step-by-step process on how both water savings were calculated and applicable data sources.

b. How have current system losses and/or the potential for reductions in water use by individual users been determined?

As previously noted, OMWD prepares an AWWA Water Audit on an annual basis. This water audit provides OMWD with specifics on system water loss volumes and causes of such losses. Using the data provided by the 2020 Water Audit, industry guidelines established by EPA and other reputable sources were incorporated to calculate the water usage based on the number of meters proposed in this project, which would provide the equivalent water savings.

The additional potential for reduction in water consumption was based on the Environmental Protection Agency (EPA) WaterSMART tool, Smart Water Energy, and the EBMUD 2014 study which all assume that individual water use decreases anywhere from 4-7% following AMI installation.

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.

Above mentioned studies are:

1. East Bay Municipal Utilities District (EBMUD), 2014. "New technology reduces home water use by 5 percent". January 14, 2014.
2. Environmental Protection Agency (EPA), 2013. "Water Audits and Water Loss Control for Public Water Systems". July 2013.
3. Godwin, Angela, 2011. "Advanced Metering Infrastructure: Drivers and Benefits in the Water Industry". Water World, August 1, 2011.

The Project is the beneficiary of many years of work OMWD has done to introduce water and energy efficiency to its customers. The lack of local supplies and the difficulties associated with imported supplies have motivated OMWD to construct and operate one of the most efficient water delivery systems in California. Finalizing the remaining phases of the District's AMI Project (the proposed Project) furthers this effort. Additionally, the

Project conserves water through education, real time feedback to residential water users, and financial incentives.

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

OMWD has already constructed the entirety of its Sensus FlexNet communication network, which consists of a network of smart meters and MXUs that communicate via a dedicated radio spectrum to collect and transmit hourly water usage data from individual customer meters to the back-end system housed at OMWD.

The Project will install 3,873 single port Sensus 520M MXUs and 77 double port Sensus 520M MXUs and respective lids and covers of the same amount.

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

Actual water savings will be verified upon project completion by comparing to historical water records:

Performance Measure No. 1: Quantifiable Water Savings
A Final Project Implementation Report will be submitted to Reclamation to verify post-Project benefits. The post-project benefit objective for Performance Measure No. 1. is **297 AFY** of potable water saved annually through implementation of the project.

Performance Measure No. 2: Improved Water Management
The Final Project Implementation Report will contain a section entitled Improved Water Management. A portion of the project journal will be dedicated to documenting general management improvements.

Performance Measure No. 3: Implementing Energy Efficiency in Water Management
The Final Project Implementation Report will contain a section entitled Increased Energy Efficiency in Water Management. This will be achieved by comparison of billing from pre-project installation for water production and distribution cost due to reduction in demand. Other energy savings such as those in cost of vehicle usage and fuel costs will also be calculated.

Evaluation Criterion B-Renewable Energy (20 points)

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

Not applicable.

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

Up to 10 points may be awarded for projects that address energy demands and reduce greenhouse gas emissions by retrofitting equipment to increase energy efficiency and/or through water conservation improvements that result in reduced pumping or diversions.

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping):

- *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.*

The Project will directly provide energy savings in two ways:

1. Reduced vehicle use
2. Reduced conveyance of imported water

Currently, all 4,027 meters involved in the Project require monthly driven monitoring routes to collect metering data. By equipping these existing meters with AMI-capable MXUs, OMWD will be able to obtain this data remotely and will no longer need to complete the monthly driving routes associated with these meters. This AMI conversion will not only contribute to substantial water savings, but also reduce the District's carbon footprint through reduced vehicular GHG emissions. As demonstrated below, the total energy savings resulting from the Project is 77,493 kWh per year.

Energy Savings by Reducing OMWD's Water System Electrical Usage:

OMWD used the annual energy consumed to obtain and deliver water to its customers in kWh and divided it by the amount of water delivered in AF to obtain the water system's energy intensity of 200 kWh/AF of water. Therefore, the annual energy savings for OMWD as a result of Project implementation are as shown in Table 2.

Table 2. Energy Savings from Reduced Electrical Use

Energy Savings	Value	Unit	Calculation	Source
Annual Water Conserved	297	AFY	From Table 1	Project Application
Energy Used per Water Unit Produce	200	kWh / AF	Total Energy Consumed in Water System 3,418,194 kWh divided by Total Water Delivered of 17,100 AF	Olivenhain Municipal Water District 2020 UWMP
Total Energy Savings per Year	**59,400.00**	**kWH per Year**	**Annual Water Conserved (297 AFY) multiplied by Unit Energy Consumption (200 kWh)**	

Energy Savings from Reduced Vehicle Miles Driven:

Th Project would create additional energy savings through reducing vehicular fossil fuel consumption. By equipping meters with AMI-capable MXUs, OMWD staff will no longer need to drive to the 4,027 meter locations to record water consumption data. It is conservatively assumed that 0.2 miles is driven for each meter. The energy savings results from the reduced vehicle miles driven is 18,093 kWh per year as shown in Table 3.

Table 3. Energy Savings from Reduced Vehicle Miles Driven

Energy Savings	Value	Unit	Calculation	Source
Annual Mileage	9,665	miles/year	4,027 meters x 0.2 miles/meter x 12 meter reads/year	
Annual Gallons	494	gallons/year	9,665 miles/year / 21.5 miles/gallon *1.10	EPA- average MPG + 10% for stop-and-go conditions
Total Energy Savings per Year	**18,093**	**kWh/year**	494 gallons/year* 1.25 therms/gallon * 29.3 kWh/ therm	EPA

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

The Project will upgrade existing water meters with AMI technology, which will eliminate the need to drive to each individual meter location on a monthly basis to collect water usage data. In addition, the Project will allow for more prompt leak detection and increased conservation measures taken by consumers, which will result in less water deliveries by OMWD to meet demands. The water system's energy intensity is 200 kWh/AF of water treated and delivered. Therefore, every drop saved translates into lower energy consumption.

Climate change has become a serious and persistent challenge to the planet and all of its inhabitants from humans to animals to plants. Climate change is caused by human activities that emit heat trapping gasses into the atmosphere such as carbon dioxide. Carbon dioxide is the byproduct of many human activities, but the burning of fossil fuels is the biggest contributor, and automobiles take the lion share in this category.

As detailed above, the total energy savings resulting from the Project is 77,493 kWh per year. This energy savings is the result of less total water conveyed plus reduced vehicle miles driven. This is a substantial reduction of energy consumption that directly equates to less GHGs emitted into the atmosphere, thereby contributing to the fight against climate change.

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

  OMWD purchases 100% of its potable water from the San Diego County Water Authority (SDCWA). SDCWA receives a majority of its water supply from purchased imported water from the State Water Project (SWP) and Colorado River Aqueduct (CRA) delivered by the Metropolitan Water District of Southern California (MWD). However, in recent years SDCWA has begun utilizing local resources such as surface and groundwater to meet its demands. The 297 AFY of water savings provided by the Project can allow SDCWA to rely more heavily on surface water to meet its demands rather than groundwater and therefore reduce pumping.

- *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.*

  OMWD purchases both untreated and treated water from SDCWA for 100% of its potable water supply. The energy calculations use SDCWA as the point of origin. However, both treated and untreated water are distributed into OMWD's distribution system or water treatment plant with no storage or energy consumption.

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

  Yes. OMWD purchases untreated water from SDCWA. This water is then treated at OMWD's David C. McCollom Water Treatment Plant (DCMWTP). As previously mentioned, there is no energy consumed in water deliveries from SDCWA, so the majority of OMWD's energy consumption is associated with the treatment of these water deliveries.

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

  Yes, OMWD currently conducts monthly automated meter reading (AMR) drive-by routes alongside each meter to collect consumption data. Following Project implementation, these routes will be completely eliminated for 4,027 meters, resulting in a reduction of 9,195 miles per year driven by OMWD personnel.

- *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).*

  There are no renewable energy components to the Project.

Evaluation Criterion C-Sustainability l Benefits (20 points)

Up to 20 points may be awarded under this criterion. This criterion prioritizes projects that address a specific water and/or energy sustainability concern(s), including enhancing drought resilience, addressing current and future impacts of climate change, and resolving water related conflicts in the region. In addition, this criterion is focused on the benefits associated with the project, including benefits to Tribes, ecosystem benefits, and other benefits to water and/or energy supply sustainability.

Enhancing drought resiliency: In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that enhance drought resiliency, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will enhance drought resilience by benefiting the water supply and ecosystem, including the following:

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

  OMWD obtains 100% of its potable water supply from the SDCWA. 72% of SDCWA's water supply is comprised of water from the SWP and CRA supplied by MWD. SWP transports water that originates in the Sierra Nevada Mountains, flows through a network of rivers and streams and is stored in lakes and reservoirs. The water from the lakes and reservoirs then flows down natural river channels into the Delta. The Delta is a complex network of channels and reclaimed islands at the confluence of the Sacramento and San Joaquin Rivers. The SWP and the federal Central Valley Project (CVP) use Delta channels to convey water to the southern Delta for diversion, making the Delta a focal point for water distribution throughout the state. The Delta is an ecologically sensitive habitat, which is home to various species listed under the Federal and State Endangered Species Acts.

  The extreme impacts of climate change on water availability have become clear in recent years. All scientific research, as well as actual current drought patterns, indicate the frequency, severity and duration of droughts are increasing. The SWP and CRA have been the nation's most reliable and relied on sources of water until recent years due to the rising temperatures caused by climate change. In response to the historic lows, the Federal Government has declared a Tier 1 water shortage in the Colorado River for the first time ever in August 2021. This declaration has reduced water allocations from the River for Arizona, Nevada, and Mexico. In addition, Lake Powell and Lake Mead on the Colorado River, the two biggest water reservoirs in the U.S. are at historically low water levels due to severe drought conditions.

  Equipping the existing meters with AMI-capable MXUs will allow the District to promptly detect and address system leaks and allow customers to make more informed decisions with their water consumption with data provided by the CEP, which will contribute to

significant water savings of 297 AFY. The water savings provided by the Project will reduce the amount of water OMWD will need to purchase and therefore have SDCWA allocate for them. The Project will prevent water losses and promote personal changes in water consumption which will allow OMWD to become less reliant on the already scarce imported water supplies to meet its demands. The Project directly offsets the use of 297 AFY from the SWP/CRA, thus retaining that amount of water in the Delta/Colorado River to support critically sensitive habitats and their species.

- *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).*

  OMWD relies heavily on water from the Colorado River and the Delta from SDCWA to meet its potable water demands. The Project will conserve 297 AFY of water supplies, potentially allowing OMWD to reduce the volume and frequency of its imported water deliveries, allowing the conserved amount to remain in the Colorado River and the Delta. The Delta is ecologically sensitive habitat, which is home to various species listed under the Federal and State Endangered Species Acts and where species of flora and fauna rely on water to flourish. These species require specific water temperatures and levels for survival which will be supported through the Project benefits.

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

  Through reduced water imports from the Colorado River and the Delta, OMWD will allow more water to remain in these water sources.

  MWD diverts water from the Lower Colorado River to its member agencies throughout Southern California. These diversions to Southern California water users mean there is less water available in the Lower Colorado River to support its ecosystems. In 2004, a program called the Lower Colorado River Multi-Species Conservation Program (LCRMCP) identified 17 species that are not federally listed. The LCRMCP estimates that flow reductions could reach 1,574,000 AFY by 2051, which would result in lower water levels and higher concentrations of contaminants from agricultural runoff. Sufficient water supply in quality and quantity is fundamental to the health of the Colorado River and to the survival of the non-listed species. The Project will decrease OMWD's reliance on Colorado River supplies, thereby supporting the health of the Lower Colorado River and restoring and enhancing habitat for all of the species dependent on sufficient water flows. The health of the

Colorado River has economic benefits as well considering the Colorado River is a major factor in supporting a $25.6B regional economy.

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

  Climate change has induced many hazardous natural phenomena in conjunction to droughts. One of the most extreme hazards California suffers from annually is wildfires caused by increased global temperatures and drying vegetation, which are only expected to increase overtime. Wildfires require massive amounts of water to fight and control. By repairing system leaks in a timely manner and providing a customer consumption platform, the Project provides a source of approximately 297 AFY of water for its customers and to meet the service area's fire flow requirements. Having this additional water in OMWD's system will allow the area with the firefighting capabilities it needs to put out wildfires in a timely manner to reduce damage to California's ecosystems as best as possible.

- *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?*

  Yes, the primary goal of the Project is to increase water use efficiency and improve water management by reducing water losses associated with leaks, breaks, and inefficient water use at the agency and customer levels. Upgrading the existing meters to be AMI compatible will allow OMWD to promptly detect and repair water leaks to reduce the amount of water lost from the system. The Project will also encourage customers to reduce their water consumption by providing customers with real-time water use data through the customer web portal and installing higher efficiency devices on their properties through the SoCalWaterSmart Rebate Program, which will further improve water supply management.

  AMI also facilitates much easier billing though automation and accuracy. The water saved by the Project, combined with reduced labor needs for manual meter readings, will give OMWD more operational flexibility in allocating its resources.

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.*

  In recent years, the impacts of progressively intense climate change induced droughts on water supply availability and reliability have become overt. The latest statewide extreme drought lasted five years from 2012 to 2017. However, as of 2022, California is now

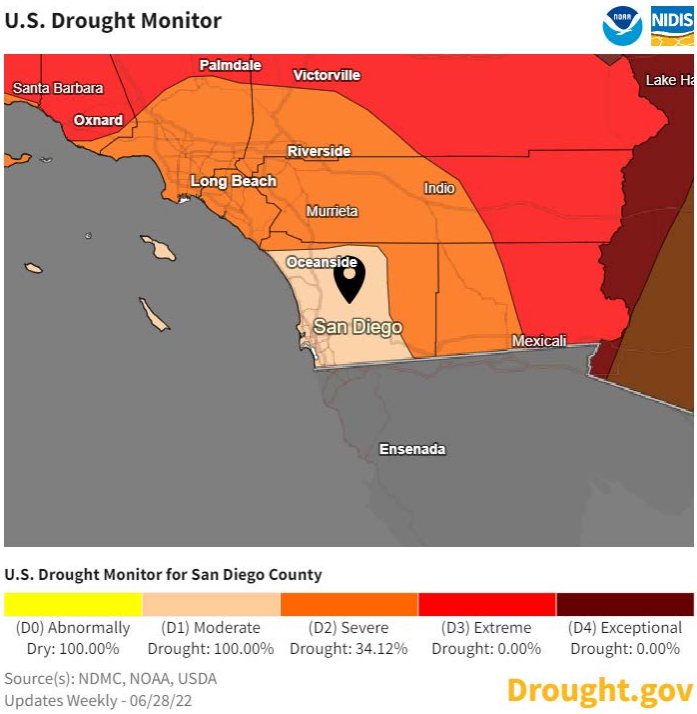
entering its third consecutive year of severe drought conditions with January, February, and March being the driest conditions recorded in over 100 years. All scientific research and recent drought patterns indicate that the frequency, intensity, and duration of droughts will continue to increase. For many years until recently, the SWP and CRA have been a substantial water source for many water purveyors throughout California. The water supplied from the SWP originates as snowpack in the Sierra Nevada Mountain Range, which gradually melts in the spring and summer flows down rivers, aqueducts, lakes, and reservoirs around the state where the water gets treated for human use. The Northern California Sierra Nevada Mountains were once a reliable source of consistent rain and snow fall. However, this region has recently been suffering from persistent droughts. The Sierra Nevadas are currently experiencing Category D4 – Exceptional Droughts and Category D3 – Extreme Droughts throughout the region (U.S. Drought Monitor). In addition, San Diego County (OMWD service area) is currently experiencing a Category D1 – Moderate Drought and Category D2 – Severe Drought according to the U.S. Drought Monitor. Figure 3 is the current map from the U.S. Drought Monitor.

Additionally, the Colorado River, which originates in the Colorado Rocky Mountains, has been a consistent water source for 40 million people, including seven Western U.S. states and Mexico. However, there has been a prolonged 22 year warming and drying trend that is pushing one of the nation's largest water supplies to record lows. In response to the historic lows, the Federal Government has declared a Tier 1 water shortage in the Colorado River for the first time ever in August 2021. This declaration has reduced water allocations from the River for Arizona, Nevada, and Mexico. The water shortage crisis has progressed even since last year. As of April 2022, the Colorado River has been ranked as the most endangered waterway in the nation due to the impacts of climate change and overuse.

OMWD relies solely on water from SDCWA to meet its potable, who receives 72% of its supply from imported water from these two severely threatened water resources; the SWP and Colorado River. As worsening drought conditions are practically inevitable, it is likely that these resources will become less and less available to SDCWA.

The persistent droughts of progressive duration, intensity, and frequency are making evident impacts on California's water supply and agencies are having to adapt accordingly. Drought resilience is crucial for California water purveyors to ensure there is adequate water supply to meet current and future demands.

Figure 3. U.S. Drought Monitor Map



- *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.*

  Climate change has induced many hazardous natural phenomena in conjunction to droughts. One of the most extreme hazards California suffers from annually is wildfires. As drought conditions progress, vegetation becomes dryer from increased temperatures and reduced water allocations. Dry vegetation and extreme temperatures are recipe for wildfires. In order to reduce the chances of a wildfires and protect the surrounding environment, energy providers, such as San Diego Gas and Electric, have been implementing public safety power shutoffs (PSPS) during major wind and dry events. Disruption in electricity may impact OMWD's ability to provide potable water services to its customers.

- *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?*

  The Project is estimated to conserve 297 AFY of water by equipping 4,027 existing meters throughout OMWD's service area with MXUs. This will allow OMWD to pinpoint system leaks and address them promptly to minimize water loss. In addition, the installation of smart meter registers, corresponding network, and online customer web portal will provide

OMWD customers with access to near-real time water consumption data, which would encourage customers to be more conscious of and ultimately reduce their water use, whether it be for financial or environmental incentives. Over the Project lifetime, it is anticipated that 3,570 AFY of potable water, that would otherwise be lost from the system, will be conserved in response to Project implementation. Please refer to Table 1 for detailed water savings calculations.

In the face of persistent and frequent droughts, water conservation is the most effective way in which to minimize shortages and the need for drastic measures that impact the daily lives and wellbeing of the community and economy.

- *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.*

  OMWD relies solely on water from SDCWA, which originates from the SWP and CRA. The 297 AFY of water conserved through Project implementation will directly offset the amount of water imported from SDCWA. Ultimately, water saved can remain at the source, either in the Delta or in the Colorado River. These two water bodies are experiencing unprecedented droughts and great pressures from water agency demands. Therefore, water must be conserved to keep these water bodies healthy and available for ecosystem survival and for human use.

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

  There is no mechanism required to put the conserved water to its intended use. The conserved water would be from reduced system leaks and more conscious and efficient customer use, and therefore stay at the source.

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

  297 AFY of water will be conserved within OMWD's water system that will be used to meet water demands and ultimately reduce the volume and frequency of water deliveries from SDCWA.

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. 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 impacts of the climate crisis can be observed in all aspects of life. The most obvious impact of climate change on OMWD is drought and the availability of water supplies. The Project will address the impacts of the climate crisis through **two mechanisms**. The first is by providing water savings that are realized through early leak detection and prompt repair, improved monitoring of water consumption and respective improvement in management of OMWD's water supplies, increased customer water consumption transparency provided by the CEP, and encouragement for customers to install water efficient devices as part of the SoCalWaterSmart Rebate Program. The online portal will provide near-real time water usage information to OMWD customers, which has historically encouraged lower water use and participation in measures to reduce water use, such as installing more efficient devices.

Through conserving 297 AFY of water resources, OMWD will have more operational flexibility during times of drought, which are inevitable for California., This will allow OMWD to better respond when water supplies dwindle. Additionally, the water savings will allow OMWD to reduce purchases of water from the SWP and CRA, which will thereby increase the flexibility for SWP and CRA contractors during times of drought.

The second mechanism to combat the climate crisis is energy savings realized by reducing the amount of water delivered to supplement water system leaks and by reducing the vehicle miles driven since AMI meters will not require driving to each meter location on a monthly basis unlike the existing AMR meters. The energy savings from these activities is expected to conserve 77,493 kWh of energy per year, thereby reducing OMWD's GHG emissions. As previously noted, GHG reduction is considered the single most effective measure to slow the progression of climate change.

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

OMWD's water supply resiliency has been severely affected by prolonged droughts and the potential for subsequent variability in its major water supplier's (SDCWA) SWP/CRA allocations and local ground and surface water supply. Considering one of SDCWA's primary water supplies is provided through the SWP and CRA, OMWD has been emphasizing water conservation to ensure every drop of its water resources is being put to use. This Project will allow OMWD to mitigate for the reduced reliability and reduce

its reliance on water supplies obtained from the SWP and CRA as a direct source of water.

As mentioned before, the Project will equip and connect 4,027 existing meters with MXUs, information transmission technology, and a customer web portal, which will result in 297 AFY of water savings and 77,493 kWh of energy savings. The conserved water will enable OMWD to reduce the frequency in water deliveries from SDCWA in dry years, thereby providing water supply sustainability and operational flexibility for OMWD and all SWP and CRA contractors.

The Project benefits described above work directly towards a more sustainable future for water and energy resources at a local and statewide level.

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

  There are no renewable energy components to the Project.

- *Will the project result in lower greenhouse gas emissions?*

  Yes, the Project will reduce energy consumption powered by fossil fuels, which emits GHGs, by 77,493 kWh per year through reducing OMWD's vehicle miles driven for AMR meter data collection and the energy required to treat and deliver water to its customers.

(2) Disadvantaged or Underserved Communities: E.O. 14008 and E.O. 13885 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:

- *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.*

  The OMWD service area does not contain entire census tracts specifically falling under the definitions of disadvantaged and underserved communities. However, OMWD serves approximately 87,000 people, some of whom are low income.

- *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 defined as a community with an annual median household income that is less than 100% of the*

statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.

Not applicable.

- *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.*

  Not applicable.

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

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

  There are no Federally recognized Tribes within OMWD's service area., However there are several Tribes within San Diego County, who rely on the same sources of water. SDCWA delivers water that originate from the SWP and CRA to several water agencies in San Diego County, including OMWD and surrounding Tribal regions. Additionally, the water saved by the Project will reduce water deliveries that originate from the CRA, which 30 Tribal nations rely on. Creating more operational flexibility for the SWP and CRA systems will inherently benefit Tribal communities.

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

  The Project will provide approximately 297 AFY of water savings, which will result in reduction in demand for imported water supplies by the same amount. Water conservation is an important measure to implement in order to achieve climate change resilience from intensifying drought conditions. The Project will provide the means for climate resilience through water savings for OMWD, SDCWA, and Tribal communities that rely on imported water from the SWP and CRA.

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

- *Will the project assist States and water users in complying with interstate compacts?*

  OMWD relies heavily on water from the CRA. An agreement known as the Colorado River Compact helps govern water allocations from the CRA between the seven states in the Colorado River Basin. The Project will provide conserved water supplies that will ultimately reduce OMWD's need for imported CRA water, which helps with remaining with the allotted water apportionments to ensure compliance with the interstate Colorado River Compact.

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

  OMWD provides water services to single-family residential, multi-family residential, commercial, institutional, and agricultural water users. The Project will benefit all sectors within OMWD's service area by providing OMWD with the ability to reduce water waste and better manage its water supplies, especially during dry years.

  Reducing water demands from SWP and CRA will promote healthy ecosystems and fisheries that in turn have economic benefits. For example, the Delta provides a variety of recreational opportunities including fishing, hunting, boating, camping, picnics, and viewing nature, which amount to approximately $809M in income and economic value added per year. Recreational activities on the Colorado River and its tributaries generate $17B in retail sales which stimulate jobs, tax revenues, and other benefits from the state and regional economies, resulting in a total value of around $25.6B.

  UWMP reports that commercial, industrial, and governmental (collectively, COM) usage is scaled upwards from existing use proportionate to employment projections in its service area. In addition, OMWD provides about 3% of its water deliveries to nearly 140 customers that irrigate at least one acre of agricultural land. Implementation of the AMI system and the availability of the CEP to growers will complement ongoing and future on-farm improvements by giving growers access to near real-time consumption data.

  Owners will be able to follow their water usage patterns on hourly basis, making informed decisions on usage and conservation with the incentive of having lower bills. Reduction of water waste and the energy expended for its production will result in water and energy efficiency and benefit the environment.

- *Will the project benefit a larger initiative to address sustainability?*

The State of California has developed many initiatives and governors issued executive orders to conserve water over the past 20 years in efforts to sustain this scarce resource and protect the environment. Most recently the State of California developed the Water Resilience Portfolio in 2020, a comprehensive blueprint to preserve California's water resource. The Portfolio is in accordance with Governor Gavin Newsom's Executive Order N-10-19. The Portfolio established goals aimed at addressing the unprecedented challenges threatening the state's scarce water resource. The policy emphasizes the diversity of solutions that need to be implemented to mitigate the issues facing the state's water supply and identifies four categories of solutions. One of the categories states "Each region must prepare for new threats, including flashier floods, deeper droughts, and hotter temperatures." The Project is a great example of an activity that is ultimately a benefit to all sectors and water users in the state.

The goal for OMWD is to continue to meet or exceed the statewide conservation targets and enhance prior strategies deployed for water conservation. Implementation of AMI provides a more targeted approach to conservation program and allows an effective partnership with customers by increasing transparency of information and gain better insight into water pricing options that support conservation.

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

  As mentioned above, OMWD relies on SWP and CRA water to serve its customers. These sources of water have seen legal battles, at times contentious, over this precious resource. SWP water supplies are threatened by prolonged drought periods and other legal and climatic restrictions which makes OMWD susceptible to the uncertainty of supply and delivery. OMWD has a set allocation of SWP/CRA water from SDCWA. However, with the persistent droughts that are forecast to become the norm, if the volume of water is not available, SDCWA will deliver a lesser amount, reducing water service reliability. Implementing the Project will help reduce the demand for OMWD, thereby lessening the chances for tensions and conflict over water.

Evaluation Criterion D-Complementing On-Farm Irrigation Improvements (10 points)

Not applicable.

Evaluation Criterion E-Planning and Implementation (8 points)

Up to 8 points may be awarded for these subcriteria.

Subcriterion E.1 Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study? *Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or link to the planning document may also be considered where appropriate.*

Provide the following information regarding project planning:

- *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.*

  OMWD maintains several documents and resources that address potential water reliability deficiencies and conservation measures at a local and regional level, including:

  - OMWD 2020 Urban Water Management Plan
  - OMWD Water Shortage Contingency Plan (Chapter 8 of UMWP)
  - SDCWA 2020 UWMP
  - SDCWA Water Shortage and Drought Planning (Section 11 of UMWP)
  - California Water Plan and Water Resilience Portfolio
  - San Diego 2019 Integrated Regional Water Management Plan

  The above-mentioned planning documents all cite conservation as the simplest, most cost-effective way to remedy a myriad resource management issues.

- *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).*

  In compliance with the Urban Water Management Planning Act in the California Water Code, OMWD completed and submitted an UWMP in 2020. The 2020 UWMP guidelines require a specific set of demand management measures (DMM) to be reported on in the UWMP, including Water Waste Prevention Ordinances, Metering, Conservation Pricing, Public Education and Outreach, Programs to Assess and Manage Distribution System Real Loss, and Water Conservation Program Coordination and Staffing Support. The metering DDM specifically discuses AMI.

  The UWMP section on OMWD's DMMs describes how each DMM is being implemented. Additionally, the UWMP lays out agency goals for reducing or maintaining per capita water

use to comply with water use targets required by the California Water Conservation Act of 2009, Senate Bill x7-7. This project is qualified as a conservation project and supports OMWD's DMMs.

The State of California maintains two strategic plans for managing and developing water resources statewide for current and future generations which is referred to as the Water Plan and the Water Resilience Portfolio. The Water Plan provides a collaborative planning framework for key representatives who are responsible with making informed decisions for California's water future and supports the actions in the Water Resilience Portfolio. The Water Plan is updated every five years. The Water Resilience Portfolio outlines the initiatives needed in order to build a robust water supply while optimizing water usage. A copy of the Water Plan and Water Resilience Portfolio can be found at these links above.

Additionally, OMWD is a stakeholder in the San Diego Integrated Regional Water Management Plan (SDIRWMP). The role of the SDIRWMP is to describe the region's physical setting, sources of water supply, water quality, environmental resources, planning objectives and targets, and acknowledge partnership and multi-benefit opportunities. The Project will help attain two objectives of SDRWMP, which are to Improve Water Supply and Address Climate Change. In regard to Improve Water Supply, the Project focuses on optimizing local water resources to reduce OMWD's reliance on imported water. The targets in the SDRWMP include conserving water through conservation measures and water use efficiency. The Project addresses both of these targets through increased water use efficiency and reduced loss of potable supplies. Additionally, the reduction in potable water demands will also contribute to lower demands on imported supplies for groundwater replenishment. The objective to address climate change focuses on adapting to and mitigating against climate change vulnerability with targets of increasing local supplies, implementing "no regret" adaptation strategies, and implementing mitigation strategies that decrease emissions of GHGs. The Project will help improve local supply reliability by reducing demands and will result in reductions in energy use and GHGs. As the Project will reduce water demand and consumption within OMWD's service area, it also contributes to the DMMs identified in the UWMP.

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

  The Project will conserve 297 AFY of water, which is consistent with the adaptive strategies of all WaterSMART Basin studies identified in the discussion above. The Project addresses both water and energy conservation will allow OMWD to adapt and demonstrate resilience to climate change.

Subcriterion E.2 Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement. Please note, if your project is selected, response provided in this section will be used to develop the scope of work that will be included in the financial agreement.

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 description. This section should focus on a summary of the major tasks to be accomplished as a part of the project.*

  The Project is a continuation of an on-going AMI implementation program that started in 2012. Project implementation could begin as soon as the grant agreement has been executed and will be complete within two years. The Project has the following major tasks:

  1. Procurement of MXU equipment necessary to upgrade the 4,027 existing meters to AMI.
  2. Installation of the MXU equipment, which will be completed by OMWD in-house personnel.
  3. Integration of the newly equipped meters to the CEP system to allow customers to observe real-time water use data.

  The Project does not require earth disturbing work and therefore will not adversely impact the surrounding environment. The Project is expected to be exempt from CEQA and NEPA environmental review processes.

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

  There are no permits or approvals required to implement the Project.

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

  The Project is the final phases of a long-term, rigorous water resources planning using best available science to identify best practices for managing water resources. OMWD continuously undertakes methodological planning efforts, including assessments of available and potential future supplies, and demand forecasting.

  All preliminary and assessment work for this project has been completed. OMWD prepared a strategic roadmap for implementation of the multi-phase AMI system and this project will

follow the prior efforts to complete this phase of it. OMWD has identified the AMI system components and the required equipment in the prior phases of the project and will be able to place the order for the equipment immediately upon getting the notice of award.

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

  There are no new policies or administrative actions required to implement the Project. OMWD board members are in full support of the Project as other phases have provided benefits.

- *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%), construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?*

Table 3. Estimated Project Schedule

Phase	Phase Start	Phase Finish
Notice of Award		May 2023
Equipment Order and Delivery	July 2023	July 2024
Project Implementation	July 2023	April 2025
Project and Grant Closeout	May 2025	June 2025

Evaluation Criterion F-Collaboration (6 points)

Up to 6 points may be awarded for projects that promote and encourage collaboration among parties in a way that helps increase the sustainability of the water supply.

- *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?*

  Yes, the Project will finalize OMWD's AMI Water Use Efficiency Project by connecting an additional 4,027 meters in OMWD's service area to the CEP system allowing customers and personnel to monitor water usage in real-time. OMWD has utilized a strong campaign by introducing water conservation as a crucial element for the District's water reliability moving forward. OMWD has also received several letters of support that can be found in **Appendix A.**

In addition, the Water Conservation Act of 2009 authorizes urban retail water suppliers to determine and report progress toward achieving conservation targets either on an individual agency basis, or collectively as part of a regional alliance of neighboring water agencies. Accordingly, OMWD, San Dieguito Water District (SDWD), Vallecitos Water District (VWD), and Rincon del Diablo Municipal Water District (RdDMWD) formed a regional alliance pursuant to the Water Conservation Act of 2009. All of these members are recipients of water from a common wholesale water supplier, in this case SDCWA, and all of the members are located within the South Coast Hydrologic Region. In accordance with the California Department of Water Resources (DWR) Guidebook and DWR Methodologies, the members have prepared an urban water use target and an interim urban water use target for the region, as presented in the UWMPs of each of the alliance members. Each member of the regional alliance has also developed its own set of interim and urban water use targets, along with other supporting data and determinations, all of which is included in each member's individual UWMP. Implementation of the proposed project will achieve the goals of local and regional conservation plans.

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

  OMWD is relying on the collaboration and proactive efforts of all its customers as partners in achieving water savings that can be attained through knowing and understanding water consumption patterns, promptly detecting and addressing leaks and breaks, and installing water efficient devices on their properties. This collaboration will reduce dependency on expensive and scarce imported water from SDCWA and MWD.

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

  The Project is the last phases of the District's AMI upgrade efforts. With all of the District's water meters converted to AMI, which has multiple, easy so see benefits, the Project can serve as a model for other agencies to examine and follow.

- *Please attach any relevant supporting documents (e.g. letters of support or memorandum of understanding)*

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

Evaluation Criterion G-Additional Non-Federal Funding (4 points)

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50% of the project costs. State the percentage of non-federal funding provided using the following calculation: (Non-federal funding/ Total Project Costs)

OMWD will be providing 67% of total project costs ($1,019,883/$1,519,883).

Table 5. Funding Match Amounts

Agency	Funding Provided	% of Total Costs
OMWD	$1,019,883	67%
Reclamation	$500,000	33%

Evaluation Criterion H-Nexus to Reclamation (4 points)

Up to 4 points may be awarded if the proposed project is connected to a Reclamation project or Reclamation activity. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

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?*

  OMWD does not receive any water directly from Reclamation. However, OMWD relies heavily on the successful operation of the Central Valley Project (CVP and the Parker Dam to convey SWP and CRA water supply to MWD and then SDCWA), which are both Reclamation projects.

- *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, OMWD relies solely on SDCWA for its potable water supply. SDCWA receives a majority of its water supply from imported water from MWD, who is a Reclamation contractor.

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

  OMWD receives 100% of its potable water supplies from SDCWA and SDCWA receives approximately 57% of its water supplies from MWD. MWD receives its supplies from two sources, the Colorado River via the CRA and the Delta via the SWP. Although neither of these projects are directly Reclamation projects, both the CRA and SWP rely on successful management of Reclamation projects.

  In the case of the CRA, Reclamation constructed the Parker Dam, which is vital to maintaining MWD's Colorado River supplies. The Parker Dam, in addition to creating hydropower, manages the levels of Lake Havasu which is located along the Colorado River. MWD diverts and delivers Colorado River water from Lake Havasu to its customers in Southern California via the CRA. Without the successful management of the Parker Dam, MWD would not be able to supply its Colorado River water to its customers such as SDCWA, and SDCWA would not be able to supply water to Olivenhain. Conversely, if OMWD

conserves more water, there will be less diversions needed from Lake Havasu which would increase the operational flexibility of Parker Dam and the entire Lower Colorado River Basin thus benefitting Reclamation.

The SWP derives its water supplies from the Delta, which contains a number of Reclamation projects, most notably the CVP. The SWP delivers water from the Delta to MWD's service territory which includes SDCWA and OMWD. By OMWD reducing its reliance on imported supplies, more water can be stored in the Delta which would increase operational flexibility for all Reclamation projects that are impacted by the increasingly stringent management of the Delta's water resources.

- *Is the applicant a Tribe?*

No, the applicant is not 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 (eg.; water saved or better managed, energy generated or saved).

All Water and Energy Efficiency Grants applicants are required to proposed a "performance measure" (a method of quantifying the actual benefits of their project once it is completed).

Actual water savings will be verified upon Project completion by comparing to historical water records:

Performance Measure No. 1: Quantifiable Water Savings
A Final Project Implementation Report will be submitted to Reclamation to verify post-Project benefits. The post-project benefit objective for Performance Measure No. 1. is **297 AFY** of potable water saved annually through implementation of the project.

Performance Measure No. 2: Improved Water Management
The Final Project Implementation Report will contain a section entitled Improved Water Management. A portion of the project journal will be dedicated to documenting general management improvements.

Performance Measure No. 3: Implementing Energy Efficiency in Water Management
The Final Project Implementation Report will contain a section entitled Increased Energy Efficiency in Water Management. This will be achieved by comparison of billing from pre-project installation for water production and distribution cost due to reduction in demand. Other energy savings such as those in cost of vehicle usage and fuel costs will also be calculated.

SECTION 2: PROJECT BUDGET

Funding Plan and Letters of Commitment

The Project is a key Project for OMWD as its implementation will finalize the Agency's AMI Water Use Efficiency Project and provide OMWD with improved water management and respective water conservation. There has been substantial expenditure to date to complete the Project plans and OMWD is eager and committed to start and complete this project upon award of this grant funding.

As shown in the OMWD Board Resolution approved on July 20, 2022, OMWD is committed to providing the remaining matching fund towards construction necessary to complete this project immediately.

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

Budget Proposal

Table 6. Total Project Cost Summary

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal Funding	$500,000
Costs to be paid by the applicant	$1,019,883
Value of third-party contributions	$0
TOTAL PROJECT COST	**$1,519,883**

Table 7. Non-Federal and Federal Funding Sources Summary

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1.Olivenhain Municipal Water District	$1,019,883
Non-Federal Subtotal	$1,019,883
REQUESTED RECLAMATION FUNDING	**$500,000**

Table 8. Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				**$ 79,515**
Customer Services Manager	$89.11	10	Hourly	$ 891
Field Services Supervisor	$47.59	20	Hourly	$ 952
Field Services Technician	$27.74	2,800	Hourly	$ 77,672
Fringe Benefits				**$ 167,776**
Customer Services Manager	211% of salary	10	Hourly	$ 1,880
Field Services Supervisor	211% of salary	20	Hourly	$ 2,008
Field Services Technician	211% of salary	2,800	Hourly	$ 163,888
Equipment				**$ 1,169,757**
Phase 9 MXU Single Port's	$ 209	1,775	Per Unit	$ 371,383.25
Phase 9 MXU Dual Port's	$ 237	48	Per Unit	$ 11,386.56
Phase 9 Lid & Covers (estimated cost)				$114,825.33
Phase 10 MXU Single Port's	$ 220	2,098	Per Unit	$ 462,063.52
Phase 10 MXU Dual Port's	$ 250	29	Per Unit	$ 7,241.59
Phase 10 Lid & Covers (estimated cost)				$202,856.78
Tax				**$ 88,725**
Other				**$ 6,000**
Refuse Container	$750	8	Per Dump	$ 6,000
Customer notification postcards	$1.80	3950	per postcard	$ 7,110
TOTAL DIRECT COSTS				**$ 1,518,883**
Indirect Costs				**$ 1,000**
Reclamation Environmental Review	$ 1,000	1	L.S.	$ 1,000
TOTAL ESTIMATED PROJECT COSTS				**$ 1,519,883**

Budget Narrative

Salaries and Wages

The Project requires oversight from a Customer Services Manager, Field Services Supervisor, and Field Services Technician. The costs associated for each are $89.11/hour for 10 hours, $47.59/hour for 20 hours, and $27.74/hour for 2,800 hours, respectively.

Fringe Benefits

The Project will be overseen by a Customer Services Manager, Field Services Supervisor, and Field Services Technician. All roles have a fringe benefits rate of 211% (2.11x) their hourly rates described above.

Travel

Not applicable.

Equipment

The equipment necessary for Project implementation includes single port MXUs, double port MXUs and lids and covers for Phases 9 and 10 for a total of 4,027 meters. Equipment tax has also been accounted for in this section. The costs per unit and quantity of each can be found in the Budget Proposal Table above.

Materials and Supplies

All materials and supplies needed for Project implementation are accounted for in the equipment section of the Budget Proposal.

Contractual

Not applicable. All contractual costs will be covered by OMWD in-house personnel.

Third-Party In-Kind Contributions

Not applicable.

Environmental and Regulatory Compliance Costs

OMWD has allocated $1,000 for Reclamation environmental review.

Other Expenses

It is assumed that there will be one refuse container located at a convenient dump site.

The Project also has a public outreach component which will mail postcards to inform customers about the CEP. These costs have been accounted for in this section and can be found in the table above.

Indirect Costs

Not applicable. All costs required for Project implementation have been accounted for in prior sections.

SECTION 3: ENVIRONMENTAL AND CULTURAL RESOURCES AND COMPLIANCE

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants must respond to the following list of questions focusing on 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 involves equipping existing meters with MXUs which does not require any earth disturbance. Therefore, the Project is expected to be categorically exempt from CEQA/NEPA review and no impact to the surrounding environment will occur.

- *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?*

The Project will not adversely impact any species listed as Federally threatened or endangered or any designated critical habitats.

- *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.*

The Project will not impact any wetlands or surface waters that are classified as Waters of the United States.

- *When was the water delivery system constructed?*

OMWD's water delivery system underwent construction in 1961.

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

The Project involves equipping existing meters with AMI equipment. No irrigation systems will be altered by the proposed Project.

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

The Project will take place at privately or District owned locations. No Historic Places are within the Project sites.

- *Are there any known archeological sites in the proposed project area?*
  There are no prehistoric or historic-archaeological resources that have been previously recorded within or near the Project sites.

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

The Project involves equipping existing meters with MXUs on privately or District owned property. No Tribal land is within the project sites and therefore no access to Tribal lands will be disturbed.

- *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?*

The Project involves the installation of MXUs on existing meters. No earth disturbing activities will take place and therefore no vegetation will be removed or introduced at the Project sites and therefore no noxious weeds or non-native species will be spread.

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

No; the proposed project will NOT have a disproportionately high and adverse effect on low income or minority populations. In fact, the proposed project will have **EQUAL** and **POSITIVE** effect on the local, including low income and minority populations. The local population will benefit from the energy efficiency and water savings that AMI implementation will bring.

SECTION 4: REQUIRED PERMITS OR APPROVALS

No permits or approvals other than the contract approvals that have been noted in the schedule section are anticipated to be required in order to implement the project.

SECTION 5: OVERLAP OR DUPLICATION OF EFFORTS STATEMENT

OMWD certifies that there is no overlap between the proposed Project or any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. Additionally, OMWD certifies that this proposal does not duplicate any proposal or project that has been submitted for funding consideration to any other potential funding sources.

SECTION 6: CONFLICT OF INTEREST DISCLOSURE

No actual or potential conflicts of interest associated with the implementation of this Project have been identified prior or during the time of submission of this application.

SECTION 7: UNIFORM AUDIT REPORTING STATEMENT

OMWD acknowledges the requirement for a Single Audit report and has/will continue to comply with this requirement.

SECTION 8: LETTERS OF SUPPORT AND LETTERS OF PARTNERSHIP

Please refer to Appendix A for Project Letters of Support.

SECTION 9: OFFICIAL RESOLUTION

RESOLUTION NO. 2022-17

RESOLUTION AUTHORIZING THE APPLICATION FOR FUNDING FROM THE UNITED STATES BUREAU OF RECLAMATION'S "WATERSMART GRANTS: WATER AND ENERGY EFFICIENCY GRANTS FOR FISCAL YEAR 2023" PROGRAM AND AUTHORIZING THE EXECUTION OF A GRANT AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION

WHEREAS, Olivenhain Municipal Water District has the authority to construct, operate, and maintain its water system; and

WHEREAS, Olivenhain Municipal Water District desires to leverage its money and resources by cost sharing with the United States Bureau of Reclamation on projects that result in quantifiable and sustained water savings and support broader water reliability benefits; and

WHEREAS, Olivenhain Municipal Water District has the legal authority to enter into an agreement with the Bureau of Reclamation; and

WHEREAS, Olivenhain Municipal Water District has the capability to provide the amount of funding and/or in-kind contributions that it specifies in project funding plans submitted to the Bureau of Reclamation; and

WHEREAS, Olivenhain Municipal Water District will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Olivenhain Municipal Water District that, pursuant and subject to all of the terms and provisions of the WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2023, that application be made to the Bureau of Reclamation for funding; and

BE IT FURTHER RESOLVED that the General Manager of Olivenhain Municipal Water District is hereby authorized and directed to cause the necessary data to be prepared and application to be signed and filed with the Bureau of Reclamation.

PASSED, ADOPTED AND APPROVED at a regular meeting of the Board of Directors of Olivenhain Municipal Water District held on July 20, 2022.

Lawrence A. Watt, President
Board of Directors
Olivenhain Municipal Water District

RESOLUTION NO. 2022-17 *continued*

ATTEST:

Kimberly A. Thorner, Assistant Secretary
General Manager
Olivenhain Municipal Water District

SECTION 10: PROOF OF SAM REGISTRATION

Dear J. Carnegie,

The registration for OLIVENHAIN MUNICIPAL WATER DISTRICT / 072505795 / 5XSQ0 is now active in the U.S. federal government's System for Award Management (SAM). If you did not provide a Commercial and Government Entity (CAGE) Code during the registration process, one has been assigned to you by the Defense Logistics Agency (DLA) CAGE Program.

To remain eligible to do business with the federal government, you must renew your entity's registration in SAM every year. The annual renewal date for the registration is 2022-10-04 12:34:12.074.

SECTION 11: APPENDICES

Appendix A: Project Letters of Support

Appendix B: 2020 Water Audit

APPENDIX A: LETTERS OF SUPPORT

Carlsbad
Municipal Water District

July 13, 2022

Olivenhain Municipal Water District
Attn: Kimberly Thorner
1966 Olivenhain Road
Encinitas, CA 92024

Subject: Letter of Support for OMWD's Grant Application

Dear Ms. Thorner,

The Carlsbad Municipal Water District supports Olivenhain Municipal Water District's application to the Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2023 program for funding of its Advanced Metering Infrastructure (AMI) expansion project.

By providing access to hourly water use data, AMI technology allows OMWD staff to find and address leaks faster, resulting in significantly reduced water loss. In addition, AMI technology minimizes the need for trucks to drive with meter readers, thus reducing the carbon footprint associated with traditional meter reading.

AMI conversion will allow for more precise implementation of district metered areas which cut back on water loss from agency level leaks. Additionally, AMI is the technology needed to utilize the customer engagement software which will provide customers with access to hourly water usage, consumption trends, and other conservation tools to manage water use and increase water efficiency.

The Carlsbad Municipal Water District strongly supports OMWD's application for grant funding to complete the remaining phases of their AMI expansion project. Once completed, the AMI expansion project will result in increased water efficiency by modifying customers' water use behaviors and facilitating prompt leak detection and repair at both the customer and agency level.

If you have any questions regarding our support of this application, please do not hesitate to contact me at 442-339-2343.

Sincerely,

Mario Remillard
Meter Services Supervisor
Water Conservation Coordinator

Carlsbad Municipal Water District
5950 El Camino Real | Carlsbad, CA 92008 | 760-438-2722 | www.carlsbadca.gov

San Dieguito WATER DISTRICT

160 CALLE MAGDALENA, ENCINITAS, CALIFORNIA 92024. TEL (760) 633-2650 FAX (760) 436-3592

July 13, 2022

Olivenhain Municipal Water District
Attn: Kimberly Thorner
1966 Olivenhain Road
Encinitas, CA 92024

Subject: Letter of Support for OMWD's Grant Application

Dear Ms. Thorner,

The City of Encinitas supports Olivenhain Municipal Water District's application to the Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2023 program for funding of its Advanced Metering Infrastructure (AMI) expansion project. By providing access to hourly water use data, AMI technology allows OMWD staff to find and address leaks faster, resulting in significantly reduced water loss. In addition, AMI technology minimizes the need for trucks to drive with meter readers, thus reducing the carbon footprint associated with traditional meter reading.

AMI conversion will allow for more precise implementation of district metered areas which cut back on water loss from agency level leaks. Additionally, AMI is the technology needed to utilize the customer engagement software which will provide customers with access to hourly water usage, consumption trends, and other conservation tools to manage water use and increase water efficiency.

City of Encinitas strongly supports OMWD's application for grant funding to complete the remaining phases of their AMI expansion project. Once completed, the AMI expansion project will result in increased water efficiency by modifying customers' water use behaviors and facilitating prompt leak detection and repair at both the customer and agency level.

If you have any questions regarding our support of this application, please do not hesitate to contact me at 7606332849.

Sincerely,

Isam Hireish, P.E.

Director of Utilities /General Manager

Our Region's Trusted Water Leader
San Diego County Water Authority

July 21, 2022

Olivenhain Municipal Water District
Attn: Kimberly Thorner
1966 Olivenhain Road
Encinitas, CA 92024

RE: **Letter of Support for OMWD's Grant Application**

Dear Ms. Thorner:

San Diego County Water Authority supports Olivenhain Municipal Water District's application to the Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2023 program for funding of its Advanced Metering Infrastructure (AMI) expansion project.

By providing access to hourly water use data, AMI technology allows OMWD staff to find and address leaks faster, resulting in significantly reduced water loss. In addition, AMI technology minimizes the need for trucks to drive with meter readers, thus reducing the carbon footprint associated with traditional meter reading.

The SDCWA previously supported OMWD's application for USBR's WaterSMART grant program in 2019 and in 2020, which resulted in nearly $800,000 in grant funding for the AMI expansion project.

AMI conversion will allow for more precise implementation of district metered areas which cut back on water loss from agency level leaks. Additionally, AMI is the technology needed to utilize the customer engagement software which will provide customers with access to hourly water usage, consumption trends, and other conservation tools to manage water use and increase water efficiency.

SDCWA strongly supports OMWD's application for grant funding to complete the remaining phases of their AMI expansion project. Once completed, the AMI expansion project will result in increased water efficiency by modifying customers' water use behaviors and facilitating prompt leak detection and repair at both the customer and agency level.

If you have any questions regarding our support of this application, please do not hesitate to contact me at kgage@sdcwa.org or 858-522-6741.

Sincerely,

Kelley Gage

Kelley Gage
Director of Water Resources

4677 Overland Avenue, San Diego, California 92123-1233 • (858) 522-6600 • FAX (858) 522-6568 • www.sdcwa.org

APPENDIX B: 2020 WATER AUDIT

Please refer to OMWD's 2020 Water Audit.