



## LOW RESOLUTION METER REPLACEMENT PROJECT, PHASE I

WaterSMART: Water and Energy Efficiency Grants for FY 2022  
FOA: R22AS00023  
November 3, 2021

**Proposal Submitted to:** U.S. Bureau of Reclamation via Grants.gov  
Financial Assistance Operations  
Attn: NOFO Team  
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# Moulton Niguel Water District Low Resolution Meter Replacement Project, Phase I Technical Proposal and Evaluation Criteria

## 1 EXECUTIVE SUMMARY

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**Submittal Date:** November 3, 2021

**Applicant:** Moulton Niguel Water District  
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**Applicant Type:** A

**Funding Group:** Tier 1

**Grant Funding Requested:** \$444,490

**Local Matching Funds:** \$543,267.56

**Project Duration:** 24 months

**Estimated Project Completion Date (mm/yyyy):** 10/2024

### 1.1 PROJECT SUMMARY

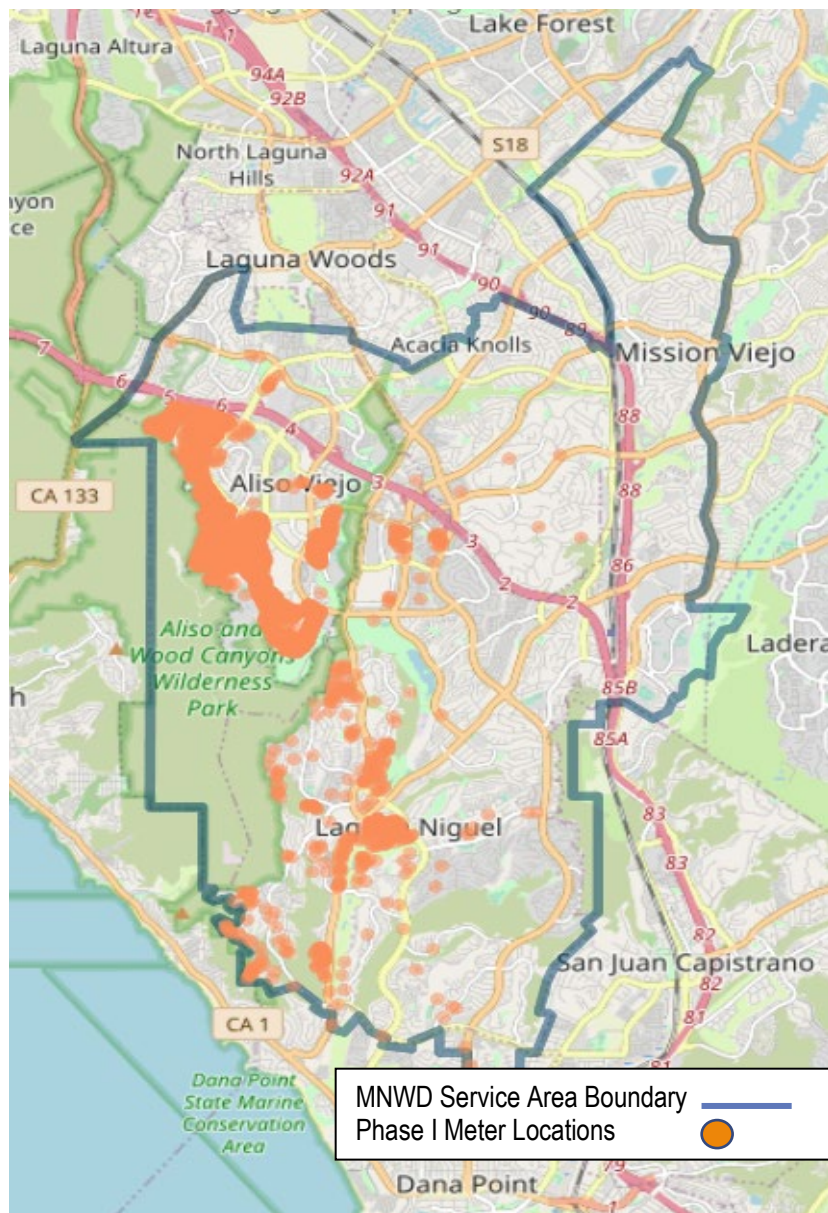
Moulton Niguel Water District (“District” or MNWD) strives to promote water sustainability by increasing water use efficiency and conservation efforts. The purpose of this project is to replace existing meters that are unable to detect low flow water use and are incompatible with Advanced Meter Infrastructure (AMI) radio systems. Phase I proposed for funding will replace 2,800 - ¾” and 1” meters with new, high resolution ultrasonic meters capable of detecting water use as low as 0.015 gallons per minute, plus AMI endpoints. It is estimated that this upgrade will result in an estimated annual water savings of 1,843.25 AFY after project completion.

The proposed project is not located on a Federal Facility.

## 2 PROJECT LOCATION

The following Figure 1 denotes the District service area boundary in blue and the orange spots represent the location of the meters that will be replaced during this phase. The project will be located within the cities of Aliso Viejo and Laguna Niguel, California.

Figure 1: Geographic Location of Project Area



### **3 BACKGROUND DATA**

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#### **3.1 PROJECT BACKGROUND**

##### **3.1.1 Water Supply and Water Rights**

Established in 1960, the District provides water, recycled water, and wastewater service to more than 170,000 people within a 37 square mile service area located within the southern portion of Orange County within the cities of Aliso Viejo, Laguna Niguel, Laguna Hills, Mission Viejo, San Juan Capistrano, and Dana Point.

All of the potable water supply for the District is imported from the Metropolitan Water District of southern California (MWD) via its wholesale supplier, the Municipal Water District of Orange County (MWDOC). The imported water is treated at the Diemer Filtration Plant or at the Baker Water Treatment Plant and delivered to the District through three dedicated pipelines. The District operates and maintains approximately 650 miles of potable water distribution pipelines. In addition, the District has 26 steel tank reservoirs and two pre-stressed concrete operational storage reservoirs for a total potable water storage capacity within the District of approximately 70 million gallons. The District owns capacity rights in several adjoining water agencies' reservoirs and pipelines such as El Toro Water District R-6 Reservoir; Santa Margarita Water District (SMWD) Upper Chiquita Reservoir; Joint Transmission Main (a joint powers agreement between the District and other water agencies); Eastern Transmission Main jointly owned by the District and the City of San Juan Capistrano; and the South County Pipeline, which conveys water from the Allen McCulloch Pipeline to several south county water agencies. The District also operates 24 pump stations to pump water from lower pressure zones to the higher-pressure zones and 16 pressure reducing stations and flow control facilities to convey water from high to low zones. All of the District's potable water demand is met with imported water. On average, approximately 43 percent of the imported water has been from the State Water Project and 57 percent has been from the Colorado River Aqueduct. The San Juan Basin Authority has water rights for approximately 10,000 AFY, and the District is a member of the San Juan Basin Authority; however, due to the brackish water quality and the very limited supply, the District has not been able to utilize any of this water.

In 1974, the District became one of the first water providers in Orange County to deliver recycled water for irrigation use. The District owns two Advanced Wastewater Treatment (AWT) facilities providing expansive recycled water service for landscaping. The District has constructed approximately 150 miles of recycled water distribution pipelines with five pre-stressed concrete and six steel storage reservoirs to service the recycled water system. In addition, the District owns 1,000 acre-feet of capacity rights in the Upper Oso recycled water reservoir, owned by Santa Margarita Water District. Tertiary treated wastewater that would otherwise be sent to the ocean is locally sourced, treated, and recycled, providing approximately 21 percent of the District's overall water supply. Currently, approximately two-thirds of all dedicated irrigation water use is met with recycled water.

The climate of the District's service area is characterized by mild, dry summers and winters with temperatures ranging from an average of 55 degrees Fahrenheit in January to 73 degrees Fahrenheit in August, and occasional interruptions of periods of hot weather and strong winter storms. Rainfall averages 14 inches annually.

All of the District's water connections are metered. Most commercial customers and multi-family properties have two metered connections, an irrigation meter and an indoor meter, while residential customers have a single metered connection. Over the past 5 years the District has been upgrading customer meters to AMI, installed the AMI communication network, and implemented back-office software to manage the AMI meters. A customer portal was also created to allow customers to access real-time water use data, access water conservation tips and incentives, and receive alerts regarding water use changes and leaks.

***Sales to Other Agencies:***

The District supplies the City of San Juan Capistrano annually with approximately 50 AF of recycled water. The District also conveys El Toro Water District's share of the water treated at the Baker Water Treatment Plant (approximately 350 AF per month) through its system. The District does not export water to other agencies except in the case of emergencies.

**3.1.2 Water Use by Customer Type**

There are currently 55,142 potable and recycled customer connections to the District water distribution system. All of the connections in the District system are metered, and it is anticipated that approximately 1,000 more connections will be added to the system by 2035. The majority of the water demand is residential and accounts for approximately 60 percent of the total water demand.

Commercial/industrial/institutional (CII) use, including dedicated landscape, consumes about 40 percent of the system water supply. There is no water supply for agricultural use, with the exception of water used by commercial nursery operations, which are accounted for in the commercial sector use figures.

The potable water demand for Fiscal Year 2021 was 25,145 acre-feet (78 percent) and recycled water demand was 6,973 acre-feet (22 percent). Prior to the current ongoing drought, a demand high of 41,692 acre-feet occurred (in Fiscal Year 2007). Since 2007, the District implemented active conservation measures have contributed to the reduction in water demand.

Residential use accounts for approximately 54 percent of the total water demand, with only 6% used by multi-family properties.

Non-Residential customer accounts consist of a mix of commercial uses (i.e., markets, restaurants, etc.), public entities (i.e., schools, fire stations, and government offices), office complexes, light industrial, warehouses, and facilities serving the public within the District service area. Approximately 17 percent of the total demand is from CII water uses excluding large landscape, and the remaining 19 percent is attributed to demands from large landscapes, such as golf courses and parks that use recycled water. The remaining 10 percent is non-revenue water.

Table 3-1 shows the total Fiscal Year 2019-2020 water use within the District by customer class.

*Table 3-1: Water Use By Customer Class*

Use Type	FY 2020 21 Actual		
Water Use Sector	Additional Description (as needed)	Level of Treatment When Delivered	Volume (AFY)
Single-Family		Drinking Water	15,366
Multi-Family		Drinking Water	2,059
Commercial	Commercial and Institutional	Drinking Water	5,542
Landscape		Recycled Water	6,221
Non-Revenue			2,930
<b>Total</b>			32,118
Notes: The District does not have any industrial water use in the service area. Institutional is not tracked separately from commercial water use, hence they are grouped together. Units of measure in AFY.			

**Non-Revenue Water**

Non-revenue water is defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. There are three primary components of non-revenue water: (1) unbilled authorized consumption (i.e., hydrant flushing and firefighting); (2) real losses (i.e., leakage in mains and service lines); and (3) apparent losses (i.e., unauthorized consumption and metering inaccuracies).

**4 TECHNICAL PROJECT DESCRIPTION**

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The MNWD Low Resolution Meter Replacement Project, Phase 1 will replace 2,800 potable water meters located within the cities of Aliso Viejo and Laguna Niguel. These meters are unable to detect low water flows below 748 gallons (aka 1 cubic foot); therefore, these meters were upgraded during previous phases of the District’s AMI program. Table 4-1 lists the customer class, size, and quantities of the meters to be replaced during this phase.



Table 4-1: Low Resolution Meter Replacement List

Class	Size	Quantity	Total
Commercial	¾"	33	88
	1"	55	
Fire Protection	¾"	0	33
	1"	33	
Irrigation	¾"	9	33
	1"	24	
Residential	¾"	1,338	2,646
	1"	1,308	
			<b>2,800</b>

**Standard Meter Installation:**

1. Meters will be located in outdoor meter boxes or, if access is restricted, the meter installer will obtain access from the property owner during normal business hours. For several properties, the meter replacement will be required to occur after business hours to avoid disruption to businesses.
2. Existing meter will be removed and properly disposed.
3. New meter and AMI endpoint radio will be installed.
4. No additional labor or groundwork is anticipated to access meters, including but not limited to cutting, removal and replacement of asphalt, tree roots, shrubbery, or landscaping obstructions.
5. Installer shall verify the meter connects to the District’s Meter Data Management System ( MDMS) system and works properly. Installation on the network is accomplished via a hand-held set up device or self-discovery.

**Meter Specifications:**

Kamstrup FlowIQ 3101 – Ultrasonic, metal-body water meter with AMI encoded output and is IP-68 rated. This meter is able to record consumption data visually from the display as well as via the separate AMI system.

The Kamstrup FlowIQ 3101 is a hermetically closed static water meter, for cold water use. Using ultrasonic technology, this meter has no moving parts to ensure a high and consistent level of accuracy capable of detecting water flows as low as 0.015 gallons per minute(gpm) for the ¾" meters and 0.04 gpm for the 1" meter, increasing the ability to accurately measure low water flows and leaks. The volume is measured with this meter using bidirectional technology that uses two ultrasonic transducers that send sound signals against, and with, the water flow. The time difference between the two signals can be converted into flow velocity and, thereby, the volumetric flow rate can be calculated.

The accumulated water consumption is displaced in gallons or cubic feet with nine digits and up to three decimals to clearly display usage data.

The meter's intelligent alarms enable the District and its customers to quickly and efficiently detect bursts, leaks as well as any instances of reverse flows or tampering attempts. This quick detection reduces water loss and the possible collateral damage to the distribution network that otherwise would occur.

The Kamstrup FlowIQ 3101 meter is fitted with a lithium battery that has a 20-year useful life.

#### **AMI Radio Endpoint Specifications:**

**Note: The following information is the specification for the AMI Radio Endpoints. The District has pre-purchased the necessary radios, therefore the cost is not included in the proposed project budget. The following description is provided to present a complete description of the project benefits for this ready-to-proceed project.**

- Sensus SmartPoints with two-way and one-way wireless communication options.
- SmartPoints transmit and receive data via the FlexNet AMI Communications Network to provide meter readings, on-demand information, remote disconnect and reconnect, diagnostic data, and to receive and validate configuration changes, new protocols and modulation, and firmware updates.
- The SmartPoints communicate with base transceiver stations ( BTS) in multiple modes including the following:
  - Normal mode allowing for direct communication to the BTS
  - Poll/Response mode allowing a clear channel for responses from tower commands
  - Alarm mode
  - Boost Mode for improved communications in very difficult RF environments

The SmartPoint uses Sensus FlexNet IP communications or native FlexNet communications to communicate with the network. These are configurable parameters. Future protocols can be supported via firmware download. Additional information on the SmartPoint transmitter includes:

- High-power, two-way radio transmission for expanded reading range and reliability which provides for more efficient and safer meter readings
- Reliable operation from within buildings to flooded meter pits
- 20-year published warranty on SmartPoint and battery
- Migratable WalkBy/DriveBy RadioRead® and FlexNet AMI System Fixed Base system capability
- MultiRead expansion capability
- Programmable daily, hourly, 15 and 5-minute data intervals, or on-demand reads
- Tamper theft detection
- CRC-32 protected, redundant data messages
- 128-bit data encryption
- The use of cycle codes, class codes and passwords to enhance system integrity and flexibility with the system
- Real-time data for management and billing
- Automated re-reads
- 30-day data backup at receivers
- Primary use FCC license; potential interferers can be legally removed

- The FlexNet Meter Module provides data redundancy in the message and retransmits multiple copies of the message that include a lossless compression of the past 18 to 60 readings. Therefore, if a catastrophic event destroyed a FlexNet outfitted tower and a new one could not be installed in 2 weeks, no metering data would be lost.

## 5 EVALUATION CRITERIA

### 5.1 EVALUATION CRITERION A: QUANTIFIABLE WATER SAVINGS

#### 1) Describe the amount of estimated water savings.

The proposed project will save an estimated 1,843.25 acre-feet of water annually as shown in Table 5-1.

*Table 5-1: Estimated Water Savings per Customer Class*

Class	Average Leakage Rate (gal per hour)	Total Meters	Potential Daily Savings (gallons)	Potential Annual Savings (AF)
<b>Commercial</b>	136.80	88	288,922	323.63
<b>Fire Protection</b>	29.92	33	23,697	26.54
<b>Irrigation</b>	209.29	33	165,758	185.67
<b>Residential</b>	18.38	2,646	1,167,204	1307.44
<b>Total</b>		<b>2,800</b>	<b>1,645,581</b>	<b>1843.29</b>

#### 2) Current Water Losses

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

***Explain where current losses are going and how the lost water is being used.***

Installing high-resolution ultrasonic meters will make a significant difference in managing water demand. The District cannot manage what is not measured, and the current Sensus ICE SR meters are not able to measure low flows, which means small leaks go undetected and water use is also not accounted for until usage reaches the minimum usage amount of 7.48 gallons.

MNWD has replaced some of the Sensus ICE SR meters with the Kamstrup FlowIQ 3101 meters, and significant amounts of water losses were detected by these new meters. The water conservation savings estimates noted in Table 5-1 were calculated based on data of actual water losses recorded by these recently installed meters. These low-flow leaks are occurring without the customer's or District's knowledge where Sensus ICE SR meters are still installed.

The District's Water Audit Report for FY 2019-20 shows that 88 percent of the current water losses are physical water losses from pressurized system and utility's storage tanks, up to the point of customer consumption. The remaining 12 percent of losses are apparent losses which includes unauthorized consumption, customer metering inaccuracies, and systematic data handling errors.

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

The low flow leaks that are occurring indoors would lead to the sewers. The District's wastewater is treated and recycled for irrigation usage.

**3) Describe the support/documentation of estimated water savings:**

The estimated water savings detailed in Table 5-1 were calculated using real data from recently installed Kamstrup FlowIQ 3101 meters that replaced the analog Sensus meters in similar customer classes.

The current Sensus meters in use are not able to detect leaks or low flows. High water use bills are the only method the District currently has to identify potential leaks for customers with these meters.

**5.1.1 Infrastructure Project Type: Municipal Metering**

The District is proposing implementation of the Low Resolution Meter Replacement Project, Phase I to replace 50% of the District's low resolution  $\frac{3}{4}$ " and 1" meters.

**How has the estimated average annual water savings that will result from the project been determined?**

The District utilized leak alert data for installed Kamstrup FlowIQ 3101 meters. The data provides a leak rate that is averaged within each class type. The leakage rate is multiplied by the number of meters per class type. Prior to the installation of these meters, there were no leak alerts.

**How the potential for reductions in water use by individual users been determined?**

The District evaluated the data from recently installed Kamstrup meters in similar applications and these data revealed the average amount of gallons leaking per hour for each customer type. These leaks represent low and ultra-low flow leaks that were occurring and unknown to the customer. Detection of these low flowing leaks were noticed to the customer via multiple methods including through the customer portal, phone calls, text messaging, and bill inserts/messaging. Customers who have signed up for access via the customer portal can view real-time water use information and receive suggestions for locating and repairing the leaks. Thus far, the District is already beginning to see customers address these low flowing leaks when notified by the District, as well as proactively when they review information through the customer portal.

**Studies Relevant to Water Use Patterns and Reducing Water Use**

*Evaluation of Optimal AMI Technology Platform*

The District began evaluating AMI technologies, customer portal providers, and utility data management systems in 2015. The District completed a thorough evaluation of all available technologies and completed a competitive proposal and procurement process to select the most beneficial and cost-effective solution with the greatest promise for long-term success. The District evaluated several AMI technologies available including Badger, Neptune, and Sensus, and potential customer portal providers include WaterSmart and AquaHawk. Additionally, utility data management systems such as the OSIssoft PI Program and FlexNet were explored. These are non-exhaustive lists of potential vendors, and a complete and thorough evaluation of the most optimal AMI technologies and software systems was conducted. The District has experience with manual, automatic meter reading (AMR), and AMI meter reading technologies and practices and determined the best long-term solution for the District based on experiences and lessons learned to evaluate these options. The District’s evaluation also included acoustic sensors technologies to aid in leak detection to round out the water use efficiency management program. Lastly, the District evaluated the complete package, including installation, training, and ongoing system maintenance, to ensure the best fit and value for the District.

When the District first developed its AMI program, 1,368 potable irrigation connections and 1,301 recycled water connections, which account for over 36 percent of the current water demand. Installation of AMI for the entire recycled water system allowed the District to perform a system-wide analysis on the benefits and effects of AMI on optimizing water consumption and minimizing water losses. There were also approximately 1,800 existing residential connections with AMI installed. The customer portal that was launched also provided reliable, secure, and real-time access to individual water usage data by customers and also by the District. During this initial phase, a water savings of 11 percent was achieved, when comparing historic water use to water use 6-months post project.

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

Size	Quantity	Meter Manufacturer/Model	AMI Endpoint Manufacturer/Model
¾"	1,380	Kamstrup FlowIQ 3101	Sensus MXU 520M SmartPoint
1"	1,420	Kamstrup FlowIQ 3101	Sensus MXU 520M SmartPoint
<b>Total</b>	<b>2,800</b>		

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

The District will be able to do water balance reads daily on the system instead of once a year to be more proactive in real water loss reductions.

Water budgets with tiered rates are used as a demand side management tool, and the AMI technology coupled with the customer portal will aid customers in improving water usage patterns while being able to track regular usage more regularly than a monthly bill. The customer portal is updated with daily evapotranspiration data and water needs, and the District currently receives evapotranspiration data by microzone. There are 110 microzones within the District for each square kilometer of the District. The new Kamstrup meters and AMI system will help to provide data to build an integrated portal to monitor demand and water needs, identify more leaks daily and/or near real-time as opposed to the current system where leaks are not identified until the end of the monthly billing cycle or upon citizen notification.

Actual water savings will be verified upon completion of the project through the use of utility data management software to conduct a water balance in the system. All usage data for all meters equipped with AMI will be compared to historical values to determine water savings due to increased water use efficiency.

## 5.2 EVALUATION CRITERION B: RENEWABLE ENERGY

The proposed project does not include renewable energy; however, increased energy efficiency will be achieved through improved water management and a reduction in overall water use.

### 5.2.1 Subcriterion B.2: *Increasing Energy Efficiency in Water Management*

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

The importation of water is extremely energy intensive. “Energy Down the Drain: The Hidden Costs of California’s Water Supply,” by the National Resources Defense Council indicates that the amount of energy used to deliver water from the State Water Project to Southern California over the Tehachapi Mountains is equivalent to one-third of the total average household electric use in the region. This estimate does not include the energy required to import water to Southern California from the Colorado River Aqueduct, and any reduction in water loss and overall consumption would reduce the overall energy consumption from system operations.

An energy intensity study by the University of California, Santa Barbara, estimated that approximately 3,000 kilowatt-hours (kWh) per acre foot of water is required to convey water from the State Water Project to West Basin Municipal Water District, and approximately 2,000 kWh per acre foot is required to convey water from the Colorado River Aqueduct. Historically, approximately 43 percent has been imported from the State Water Project and 57 percent from the Colorado River Aqueduct to meet the District’s water demands. In addition, the distribution and treatment of potable water throughout the District’s system

requires approximately 482.7 kWh per acre foot of potable water<sup>1</sup>. This was determined using metered data from the electrical providers, Southern California Edison and San Diego Gas & Electric and included within the Urban Water Management Plan.

Implementation of this project could eliminate the need to purchase up to 1,843 AFY of potable water, which would result in an estimated savings of 3,962,450 kWh for importing water and 889,616 kWh for treating and distributing the potable throughout the District.

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

By saving 4,237,057 kWh of electricity, greenhouse gas emissions will be reduced by approximately 3,003 metric tons, according to the US EPA Greenhouse Gas Equivalencies Calculator.<sup>2</sup>

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

MNWD operates and maintains 650 miles of potable water distribution pipelines. MNWD also operates 24 potable pump stations to pump water from lower pressure zones to the higher-pressure zones and 16 potable water pressure reducing stations and flow control facilities to convey water from high to low zones. Reducing the amount of potable water used will reduce the energy needed to move water, thereby reducing offsetting some of the rising electrical costs associated with water distribution.

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

Yes, the calculation for calculation of 482.7 kWh/AF includes the energy to treat the water locally.

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

Yes, this project will reduce the vehicle miles driven to collect water use data for billing purposes. Meter reading vehicle trips driven equal approximately 1,427 miles driven annually. A reduction in these miles driven will reduce greenhouse gas emissions carbon dioxide equivalent of approximately 1,254 pounds.

This greenhouse gas reduction was calculated using the US EPA Greenhouse Gas Equivalency Calculator website using the following parameters:

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<sup>1</sup> MNWD 2020 Urban Water Management Plan, Appendix F.

<sup>2</sup>US EPA Greenhouse Gas Equivalencies Calculator <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>, accessed 11/1/2021.

1,427 miles / 22.5 average miles per gallon (US EPA GHG Calculator notes) = 63.42 gallons of gasoline.

63.42 gallons of gasoline inserted into the US EPA GHG Equivalency Calculator, which generated a carbon dioxide equivalent reduction of 1,254 pounds.

***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).***

Not applicable.

### 5.3 EVALUATION CRITERION C- SUSTAINABILITY BENEFITS

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

Not applicable.

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

Not applicable.

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

Not applicable.

***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? Please describe the plan to monitor improved streamflows or aquatic habitat benefits over a five-year period once the project has been completed. Provide detail on the steps to be taken to carry out the plan.***

Not applicable.

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



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

California has faced many droughts and strong storm cycles, and portions of the District are also plagued by severe, high temperature on-shore winds known as the Santa Ana Winds. During periods of drought, the water shortages and the restrictions on imported water have a very serious impact on the communities the District serves, since all of the potable water is from imported sources. The District's reliance on imported water also increases the impact of a drought on the region since the District has no alternate water supply source such as groundwater or local surface water to reduce the need for imported water. Therefore, any effort to reduce the District's water demand will also benefit other communities that rely on imported water sources. The District has 28 storage reservoirs to help mitigate the impact of water shortages, however, these resources can only sustain the water supply for approximately 24 days. The use of meters capable of detecting very low water use/leaks combined with AMI technology to identify water losses and water waste is of great importance to the District due to its reliance on imported water.

In California, water supply sustainability has been an increasing concern as the state's water utility districts work to manage water demands versus environmental impacts. On January 17, 2014, California Governor Edmund G. Brown Jr. declared a State of Emergency and directed state officials to take all necessary actions to prepare for the drought conditions and called upon every Californian to conserve water. As water supplies continued to diminish, the Governor's office called on all water agencies to implement drought measures to reduce water demands and the Department of Water Resources reduced SWP allocations for southern California contractors to zero on January 31, 2014, and then 5% for 2014. Water resources remained very low throughout the entire State with DWR restricting SWP suppliers to 15-20 percent of their requested allotments until the drought ended in April of 2017. Unfortunately, California is experiencing yet another drought with a new declaration of emergency by Governor Newsom. This is the second year of a statewide drought that climate models predict may persist a third year. Currently, the governor is asking Californians to voluntarily reduce water use by 15 percent. No mandatory reductions are in effect; however, this may change. The District has six stages of water restriction under its Water Shortage Contingency Plan, which was implemented during the previous drought and may be implemented if the current drought persists.

***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.***

MNWD serves communities located within Orange County. This area, much like many areas throughout the state and the country are very reliant upon fossil fuels for maintaining operations and vehicles. Power outages occur infrequently, however, due to the Santa Anna Winds and the need for wildfire precaution, periods of power shutdowns may occur. The area also experiences periods of poor air quality due to fires and ozone concentrations during the warmer months.

***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 proposed project will allow the District to issue real-time alerts to customers concerning conservation, water use, water leaks, and permit the District staff to remotely read meters. Remote meter reading reduces greenhouse gases by eliminating the generation of CO<sub>2</sub> generated by vehicles driving throughout the District to read meters.

Being dependent on imported water to provide potable water services to more than 170,000 people, plus business, schools, etc. requires that the District consider reliability in all project planning. There is no substitute for accurate water meter data and AMI technology. Accurate, low-flow water meter data from the high-resolution ultrasonic meters provides near-real time usage data that can be compared to District supplies, allowing the staff to better manage water resources. Water meters with AMI provides fast alerts concerning potential water losses and/or waste to both the District and the customer, providing two points of notification to facilitate a faster resolution to stop the water loss. When water resources are finite as they are by restricted water rights and dependence upon imported sources, implementation of all projects that improve reliability and help the District to consistently meet water demands is essential. Significant contributions to the sustainability of local water supplies will be made by detecting low-water flows to accurately manage water and identify low-flow leaks, which supports long-term water reliability and drought resiliency.

***Please address where any conserved water as a result of the project will go and how it will be used.***

100% of the conserved water will be used to reduce the amount of imported water supplies and/or allow the District to store more water for drought resiliency.

***Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use. Indicate the quantity of conserved water that will be used for the intended purpose(s).***

The District could opt to reduce the amount of imported water purchased, which does not require any additional action or mechanism. Additionally, the District has 28 large steel storage tanks to store potable water, if some or all of the conserved water needed to be stored for future use during drought.

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

- (1) Combating the Climate Crisis: E.O. 14008: Tackling the Climate Crisis at Home and Abroad, focuses on increasing resilience to climate change and supporting climate resilient development. For additional information on the impacts of climate change throughout the***

**western United States, see:**

<https://www.usbr.gov/climate/secure/docs/2021secure/2021SECUREReport.pdf> .

**Please describe how the project will address climate change, including the following:**

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

According to the Metropolitan Water District 2015 Integrated Regional Plan (MWD, 2016), the past years have given Southern California a glimpse of the challenges that climate change will pose. Climate variability is a challenge to water reliability for Southern California, because it could result in long-term changes in local temperature and precipitation patterns. The District relies on imported water, which is highly variable due to climate and hydrology. Climate variability is an uncertainty that MNWD considers in ensuring that current and future water demands for our community are met. Consideration of potential climate variability impacts on local water demands is essential when developing a long-term forecast. Warmer temperatures in Southern California will affect water demands by increasing the outdoor water requirements for plant life and landscapes (MWD, 2016). As average temperatures increase, outdoor irrigation water use is also expected to increase due to increased evapotranspiration rates. Warming temperatures increase the severity of our natural drought cycle, which most greatly impacts areas that depend on surface water flows (California Natural Resources Agency, et. al, 2020). The 2020 Water Resilience Portfolio stated historical hydrological patterns can no longer serve water managers as a trustworthy guide around which to plan, and climate science and projections have become increasingly important. Future conditions will continue to change and require ongoing adjustment and adaptation of water management (California Natural Resources Agency, et. al, 2020). While it is uncertain as to the extent to which the climate changing in Southern California is impacting water demands, and specifically how climate change is impacting availability of water supplies generated outside of Southern California, the potential outcomes of a variable climate affect both supplies and demands.

These uncertainties increase the importance of monitoring water use and detecting water loss. Meters that are able to detect low flows for non-residential customers promotes better water management to forecast long-term local demands and improves water conservation by detecting even small water leaks. The added AMI function also supports increased water conservation and improves water management through improving customer water use awareness and faster leak detection and repair.

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

Yes, this project strengthens water supply sustainability to increase resilience to climate change by reducing water supply water losses. The conserved water can be stored by the District for use during dry seasons and/or reduce the amount of imported water received. As climate changes induce longer periods of drought locally and throughout the Western US, local water conservation efforts become increasingly important to strengthen water supply resilience.

- c. Will the proposed project establish and utilize a renewable energy source? No**

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

e. Yes, the following table summarizes how the project will result in lower greenhouse gas emissions.

<b>Activity</b>	<b>GHG Emission (Carbon Dioxide Equivalent) Reduction Amount (lbs)</b>
Reduced Water Imports	3,962,450
Reduced quantity of potable water treated	1,389,916
Reduced vehicle miles	1,254
<b>Total</b>	<b>5,353,620</b>

**(2) Disadvantaged or Underserved Communities and Tribes:**

MNWD’s service area does not include disadvantaged, under-served communities or Tribes directly. However, the proposed project improves water supply reliability for the District and reduces the amount of imported water needed, which allow more regional supplies for other communities including Native American Tribes and disadvantaged communities who are also reliant on imported water supplies.

**(4) Other Benefits: Will the project address water and/or energy sustainability in other ways not described above, such as:**

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

The State of California has co-equal goals that are defined in the Amended Memorandum of Agreement Regarding Collaboration on Planning, Design, and Environmental Compliance for the Delta Habitat Conservation and Conveyance Program in Connection with the California Bay Delta Conservation Plan (December 13, 2013). The establishment of co-equal goals is part of an effort to improve reliability of the water supply for California by protecting, restoring, and enhancing the Delta ecosystem and habitat (SB 1, Steinberg – Section 85054). The proposed project would help meet the co-equal goals by providing water management strategies to help relieve some of the stress on California’s water resources, and any reduction in water consumption by increasing water use efficiency and promoting conservation helps reduce the amount of water required for import from the California State Water Project and the Colorado River Aqueduct.

This project, when combined with other efforts underway and/or planned for the future, help to prevent a water-related crisis or conflict by improving the District’s water reliability, water efficiency, and provides best management tools for monitoring for water losses and for managing water usage.

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

All potable water supply for the District is imported from the California State Water Project and the Colorado River Aqueduct. Therefore, any reduction in water consumption would ultimately benefit the endangered species affected by either the California State Water Project or the Colorado River Aqueduct. Projects that reduce demand on imported water supplies are key for enhancing the Delta, the most significant infrastructure problem in California.

The installation of the proposed high-resolution ultrasonic meters and AMI endpoints will provide customers from multiple sectors, including commercial, government, industrial, recreation, multi-family, fire protection, and irrigation, with the capability to view and obtain water consumption data regularly, allowing for optimization of operations and greater flexibility in the timing of water deliveries to aid in the restoration of Delta habitat. This optimization would ultimately provide a means for identifying and adjusting water demands during environmentally sensitive periods to foster greater recovery of the endangered Delta species.

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

The District uses water budgets and rate tiers to use a fee per use approach to encourage customers to use less water to avoid an expensive water bill. For all customers, usage above the individually calculated water budget results in payment of higher rates. The revenue derived from the tiers above the Tier 2 rate is used to fund conservation and water use efficiency programs, education, outreach, and staffing to analyze agency water use efficiency and target funding to maximize effectiveness. In addition, the water use efficiency revenue can be used to construct new supply projects.

Completion of this project will allow the District to better monitor water use and determine if there is water waste or a leak, and the customer will be able to access near real-time data regarding water use and be better able to adjust water usage, versus waiting until when the month end bill arrives and shows total use has increased, but there is no way of knowing when it occurred or whether it is due to indoor use or outdoor use.

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

The proposed project is focused on improving meter accuracy, low-flow leak detection and AMI, all of which are examples of best practices to manage water resources and adapt to changes in the environment.

The Colorado River Basin (Basin) Water Supply and Demand Study confirms that without future actions, the Basin faces a range of potential future imbalances between supply and demand. The Basin is experiencing an unprecedented 20+ year drought, combined with increasing populations in the states dependent on this water supply. In the foreseeable future, tensions and or litigation may become a concern if these conditions persist.

As the District is completely reliant on imported water sources, availability of water supply from the State Water Project and Colorado River Aqueduct are critical. One of the primary adaptation strategies identified in this study included water use efficiency and reuse. This project would help increase water use efficiency of potable water used by single-family residential customers, who consume 80% potable water demand. Greater water use efficiency would reduce the stress on the Basin and its limited water supply. Being heavily dependent on the Colorado River, the District is very interested in working together with Reclamation to continue to implement best practices to manage water resources.

The proposed project will help reduce competition for limited water supplies through the Delta and the Colorado River Basin, promote increased water supply reliability, and ultimately allow more water to be available within the region and improve the overall water supply situation and health within the region.

#### 5.4 EVALUATION CRITERION D- COMPLEMENTING ON-FARM IRRIGATION IMPROVEMENTS

Not applicable.

#### 5.5 EVALUATION CRITERION E: IMPLEMENTATION AND RESULTS

##### 5.5.1 Subcriterion E.1 --- Project Planning

***Does the applicant have a Water Conservation Plan and/or System Optimization Review in Place?  
Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study?***

Multiple plans have either been developed directly by or for MNWD, or MNWD has been a stakeholder in the development of regional plans that address water supplies, water reliability, and water quality. The District self-certifies water conservation planning has been completed both locally and as regional partner. Summaries of these plans are included below:

- The MNWD 2020 Urban Water Management Plan (UWMP) provides the framework for managing the water supplies and includes water conservation actions. MNWD self-certifies that this plan includes water conservation planning under chapters 5, 7, and 8. This plan is updated every five years and is accessible at this link, [https://www.mnwd.com/app/uploads/2021/06/2020-Urban-Water-Management-Plan\\_Adopted.pdf](https://www.mnwd.com/app/uploads/2021/06/2020-Urban-Water-Management-Plan_Adopted.pdf).
- The MNWD Long-Range Water Reliability Plan that was developed in December 2014 and updated in March 2021 and accessible at this website link, [https://www.mnwd.com/app/uploads/2021/03/Final\\_2020-LRWRP-Update\\_03082021.pdf](https://www.mnwd.com/app/uploads/2021/03/Final_2020-LRWRP-Update_03082021.pdf). This plan was created to address water supply and system challenges, quantify water supply and system reliability needs, identify potential projects to meet those needs, and develop an adaptive strategy for implementation.

- The Reclamation Colorado River Basin Study identifies water use efficiency as a priority and states, “municipal and industrial providers in the metropolitan areas that receive Colorado River water will continue to increase water use efficiency and reuse.”
- 2015 Metropolitan Water District of Southern California Integrated Water Resources plan, a regional plan that addresses long-range water supply planning, water supply reliability, understanding changing needs, and determining how individual actions can cost-effectively address challenges for member agencies.
- UC Riverside School of Public Policy completed a Water Conservation Study for the District in 2016 with an update in 2017. This study analyzed water conservation drivers for effective water management, current District water conservation programs, and surveyed customers to determine the most beneficial conservation programs and policies for the District.

The proposed project conforms to and meets the goals of the noted planning documents as follows:

- *MNWD 2020 Urban Water Management Plan (UWMP)*, Water Conservation and Waste Prevention is discussed in Section 8.1.1. Meter accuracy is noted as a top priority in this section and is a primary focus of the proposed meter replacement project.
- *MNWD Long-Range Water Reliability Plan: Objective to Optimize Water Reliability and minimize water shortages.*
- The *2015 Colorado River Basin Phase I Study* identifies water use efficiency as a priority and states, “municipal and industrial providers in the metropolitan areas that receive Colorado River water will continue to increase water use efficiency and reuse. These efforts play an important role in meeting future demands, reducing or delaying needs for additional water supplies and increasing the future reliability of water supplies.” This study identified advanced metering infrastructure as a potential action, *Opportunity 8: Implement Measures to Reduce System Water Loss with Specific Metrics and Benchmarking*, with a goal of 100 percent implementation.

#### **5.5.2 Subcriterion E.2— Readiness to Proceed**

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

This is described under Section 4, Technical Description.

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

No permits or approvals are required for the proposed project.

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

**Project Specific Planning Work:** The District began evaluating AMI technologies, customer portal providers, and utility data management systems in 2015. The District completed a thorough evaluation of all available technologies and completed a competitive proposal and procurement process to select the most beneficial and cost-effective solution with the greatest promise for long-term success. The District installed AMI for all 1,368 potable irrigation connections and 1,301 recycled water connections, which account for over 36 percent of the current water demand. Installation of AMI for the entire recycled water system allows the District to perform a system-wide analysis on the benefits and effects of AMI on optimizing water consumption and minimizing water losses. There were also approximately 1,800 existing residential connections with AMI installed. The customer portal that was launched to provide reliable, secure, and real time access to individual water usage data by customers and the District.

The District's AMI Implementation Program focused on the installation of the radio network and the installation of endpoint radios on existing meters compatible for the AMI upgrade. This proposed project is to replace existing low resolution meters with new, ultrasonic high-resolution meters with AMI.

The District staff have field inspected the meters and identified a total of 5,600 low resolution meters to replace. This phase will focus on the replacement of 2,800 located in the cities of Aliso Viejo and Laguna Niguel, with the remaining meters to be replaced in a future phase. The Project Location Map identified the locations of the meters to be replaced during this phase.

Upon receiving a notice of grant award, the District is prepared to begin work on the project. The District will solicit competitive quotes for the purchase of the Kamstrup meters. The meter replacement and AMI installation will be completed by District Customer Service Field staff; therefore, this is a ready-to-proceed project.

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

No new policies or administrative actions are required to implement the proposed project. The project has been identified and included within the District's Capital Improvement Plan.



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

<b>Milestone / Task / Activity</b>	<b>Planned Start Date</b>	<b>Planned Completion Date</b>
Environmental Compliance – CEQA Notice of Exemption	May 2022	May 2022
Meter Procurement – RFP solicitation	May 2022	June 2022
Purchase and Receive All meters*	June 2022	November 2022
Meter Replacement and AMI Endpoint Installation– 50% complete	November 2022	October 2023
Purchase and Installation AMI meters – 100% complete	October 2023	October 2024
Water Conservation Analysis Period	May 2023	October 2024

\*Normally meters are delivered within 6-8 weeks of placing a purchase order. However, the District is aware of COVID-19 delays causing meter delivery to be 5-6 months. If this changes next year, the installations can begin sooner, and the project be completed sooner as well.

## 5.6 EVALUATION CRITERION F – COLLABORATION

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

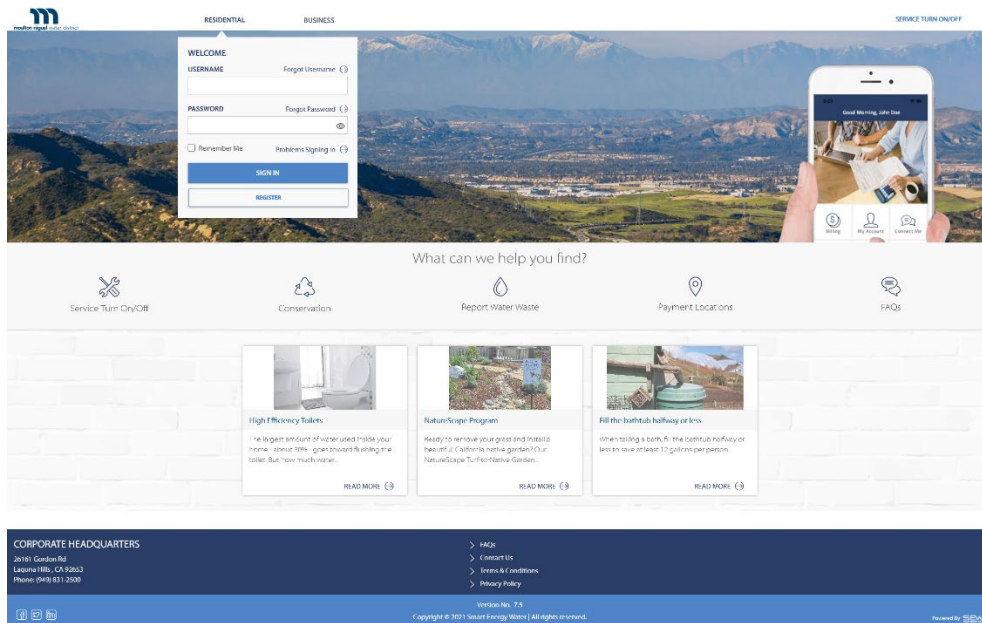
**Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process? What is the significance of the collaboration/support?**

Public outreach and engagement is a critical component of the MNWD AMI Implementation Program. Without proper outreach and education, the benefits of the customer portal would not be maximized. In order to ensure that the customers are aware of and able to fully utilize the customer portal, a proactive public outreach and engagement campaign has been developed and incorporated into the overall AMI Implementation Program. The District offers hands-on demonstration opportunities and thoroughly review the capabilities of the customer portal with customers during workshops and outreach events. The District commits to hosting focus groups with portal users and gathering customer feedback to make these portal tools more intuitive, and therefore more likely to be adopted by customers.

Public outreach and engagement endeavors utilizing the Citizen Advisory Committee (CAC) and receive feedback and input on the effectiveness of these efforts. The District will continue to schedule outreach to the different customer classes and employ a customized approach to highlight key topics of interest and concern for the various customer classes and types. The District has worked proactively to build strong relationships with its customers, and the CAC is actively engaged in providing feedback and input to the District. The District also has a robust speakers' bureau program that regularly provides informational presentations to local organizations, chambers of commerce, homeowner associations, and more. In addition to in-person interactions, the District has a wide-reaching newsletter and interactive website with increasing traffic, and these tools will also be used to inform the customers about the program with

consideration for COVID-19 recommendations. All of these resources have been incorporated into the District's public outreach and engagement campaign to ensure dissemination of information regarding the MNWD AMI Implementation Program and its customer portal (See below).

Figure 2: Moulton Niguel Water District Customer Portal Webpage



<https://mywater.mnwd.com/portal/>

The District worked with local stakeholders including the County of Orange, City of Laguna Niguel, City of Aliso Viejo, City of Mission Viejo, City of Laguna Hills, City of Dana Point, Laguna Bluebelt Coalition and Orange County Coastkeeper signed a historic Memorandum of Understanding to reduce urban runoff. As part of the District's rollout of AMI, the District is working with its stakeholder group to encourage further engagement by the targeted customer groups and to collaborate on outreach efforts to cross market.

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

A key aspect of the proposed project is to increase water conservation by water users by providing customers with clear data concerning water consumption, detecting leaks within the customers' fixtures and irrigation and customer notifications methods to facilitate behavior changes, upgrades to water efficient devices/appliances, and repair low flowing leaks that customers are likely unaware are occurring. Long-term water conservation begins with customers reducing demands. These new meters capable of detecting very low water flows will provide better data that the District can use to inform and effect change in customer water use.

The water savings expected from replacing these meters is anticipated to be significant due to the increased ability to detect water use at less than one gallon per minute. It is widely known that metered accounts with meters that are unable to detect the low flows are experiencing water losses known as "non-

revenue” losses. This project will provide data to industry professionals to better calculate the extent of these losses and capture lost revenue if they also replace existing meters with higher resolution functionality. In the short term, reported customer use may increase as these low flows are detected and recorded. The District will work with customers to understand this may occur and educate customers about improvements and actions they can take to avoid increased water costs and conserve water.

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

Multiple entities support the project and three have provided letters to show their support (See attached Letters of Support). These organizations include Orange County Coastkeeper, California Assembly Member Davies, California Senator Bates, and U.S Representative Steel.

### 5.7 EVALUATION CRITERION G— ADDITIONAL NON-FEDERAL FUNDING

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding	55%	\$543,267.56
Reclamation Funding	45%	\$444,490.00
<b>Totals</b>	<b>100%</b>	<b>\$987,757.56</b>

### 5.8 EVALUATION CRITERION H— NEXUS TO RECLAMATION

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

- **Does the applicant have a water service, repayment, or O&M contract with Reclamation? No**
- **If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?**  
The District receives water from the Metropolitan Water District of Southern California (MWD), which currently relies on the Colorado River Aqueduct and the State Water Project as its primary sources of water.
- **Will the proposed work benefit a Reclamation project area or activity?**  
The project itself does not directly involve Reclamation project lands or Reclamation facilities, but the proposed project would increase the availability of the overall water supply through improvements in water use efficiency and conservation and ultimately benefit the Colorado River Basin. Any increase in water reliability and greater availability in overall water supply resulting from water use efficiency and conservation efforts would also help Reclamation in meeting the federal Indian trust responsibility, a

legally enforceable fiduciary obligation on the part of the United States to protect tribal treaty rights, lands, assets, and resources, to the tribes.

- **Is the applicant a Tribe? No**

## 5.9 PERFORMANCE MEASURES

The MNWD Low Resolution Meter Replacement Project is anticipated to allow for improved water management by the District and more conscientious use by the customers through the availability of the customer portal. The following is a non-exhaustive list of performance measures that will be used to track and monitor the effectiveness of the program. This information will be compared to historical data for evaluation purposes.

1. Conducting a water loss audit periodically using the AWWA methodology adopted in the District's current Water Loss Audit Report, which includes:
  - a. Identifying and quantifying the number of line breaks on a monthly basis;
  - b. Estimating and quantifying the average gallons of water loss due to each line break incident;
  - c. Identifying and quantifying the number of line breaks repaired each month;
  - d. Identifying and quantifying the number of leaks detected on a monthly basis;
  - e. Identifying and quantifying the number of leaks repaired each month;
  - f. Identifying and quantifying the unauthorized consumption of water each month;
  - g. Quantifying the water consumption by customer class each month; and
  - h. Quantifying the water imported each month for potable water customers.

The District provides monthly data reports on water production and consumption, and a Water Loss Control Program is currently in place. The District currently performs annual water loss audits each year. The most recent completed water loss audit performed as part of the Water Loss Control Program was completed in October 2020. The District has a clear baseline of historical water distribution and billing data to compare with current and future records once AMI has been installed and the customer portal has been put into place. The District will use these tools to analyze the performance for this project.

The District actively monitors and analyzes energy efficiency throughout District operations. Energy efficiencies achieved as a result of the implementation of this project will be using time of use demand response decision support software which will also identify the energy intensity of each pressure zone in the District's distribution system to calculate actual energy savings from water savings.

For example, the software program has the capability to integrate water consumption data with GIS data to quickly assess any areas with potential leaks and determine the magnitude of the issue at hand.

## 6 PROJECT BUDGET

### 6.1 FUNDING PLAN AND LETTERS OF COMMITMENT

The District will finance project costs not funded by Reclamation. The District has a AAA Fitch rating and AAA S&P rating and has maintained a strong financial standing over the years. A copy of the Comprehensive Annual Financial Report for the most recently completed fiscal year and monthly financial statements that are available to the Board of Directors and the public are available on the District website at [Finance - Moulton Niguel Water District \(mnwd.com\)](http://Finance - Moulton Niguel Water District (mnwd.com))

The funding plan for this project anticipates that WaterSMART grant funds will be used in conjunction with District funds to purchase new, high resolution ultrasonic meters. The AMI endpoint radios have already been purchased by the District and are not included in this budget. The District is committed to the project as proposed herein, and the District plans on budgeting funds for the MNWD Low Resolution Meter Replacement Project, Phase I as part of the Capital Improvement Program budget for the next fiscal year.

There are no other funding partners associated with this project, and there are no other funds requested from other Federal partners. Aside from this WaterSMART FY 2022 funding request, there are no other pending funding requests. The following table outlines the proposed project funding sources.

### 6.2 BUDGET PROPOSAL

A budget proposal is provided in the following tables. **Table 6-1** shows the percentage of cost shares per funding source, and Table 6-2 outlines the proposed budget by item.

*Table 6-1: Project Funding Sources*

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding	55%	\$543,267.56
Reclamation Funding	45%	\$444,490.00
Other Federal Funding	0%	\$0.00
<b>Totals</b>	<b>100%</b>	<b>\$987,757.56</b>

Table 6-2: Proposed Project Budget

	Computation		Total Cost
	Units (Hr)	Unit Cost	
<b>Salaries and Wages</b>			
Customer Service Field Technician I	500	\$ 27.54	\$ 13,770.00
Customer Service Field Technician II	500	\$ 30.99	\$ 15,493.80
Customer Service Field Technician III	1200	\$ 34.84	\$ 41,811.84
Senior Customer Service Field Technician	608	\$ 39.19	\$ 23,826.55
Customer Service Field Supervisor	400	\$ 48.45	\$ 19,380.00
Superintendent of Operations	200	\$ 71.20	\$ 14,239.20
Financial Planning Manager/Controller	200	\$ 69.72	\$ 13,943.40
<b>Salaries and Wages Subtotal</b>			<b>\$ 142,464.79</b>
<b>Fringe Benefits</b>			
45% of base salaries	1	45%	\$ 64,109.15
<b>Fringe Benefits Subtotal</b>			<b>\$ 64,109.15</b>
<b>Equipment</b>			
None			\$ -
			-
<b>Materials and Supplies</b>			
¾ " High Resolution Ultrasonic Meters	1,380	\$ 242.56	\$ 334,733.49
1" High Resolution Ultrasonic Meters	1,420	\$ 314.40	\$ 446,450.13
<b>Materials and Supplies Subtotal</b>			<b>\$ 781,183.62</b>
<b>Contractual</b>			
Not applicable			
<b>Contractual Subtotal</b>			-
<b>Environmental</b>			
Not applicable			-
<b>Total Direct Costs</b>			<b>\$ 987,757.56</b>
<b>Indirect Costs</b>			-
<b>Total Project Costs</b>			<b>\$ 987,757.56</b>

### 6.3 BUDGET NARRATIVE

#### Salaries and Wages

The salaries listed are based on mid-range salaries listed on the District's 2021-2022 approved salary schedules, plus a 2% cost of living increase that will be in effect for 2022-2023. Actual hourly rates may be lower or higher based on the specific employees' step schedule rate.

District Staff Work Title	Hours	Hourly Rate	Totals
<b>Salaries and Wages</b>			
Customer Service Field Technician I	500	\$ 27.54	\$ 13,770.00
Customer Service Field Technician II	500	\$ 30.99	\$ 15,493.80
Customer Service Field Technician III	1200	\$ 34.84	\$ 41,811.84
Senior Customer Service Field Technician	608	\$ 39.19	\$ 23,826.55
Customer Service Field Supervisor	400	\$ 48.45	\$ 19,380.00
Superintendent of Operations	200	\$ 71.20	\$ 14,239.20
Financial Planning Manager/Controller	200	\$ 69.72	\$ 13,943.40
<b>Salaries and Wages Subtotal</b>			<b>\$ 142,464.79</b>

Meter installations will be completed by the Leak Detection Technician II. Some installations will occur at night to avoid interruption to business operations. It is estimated that each meter replacement work will be completed by one (1) workers and take approximately 60 minutes per meter. This duration includes time for travel, removal and replacement of the meter, completion of minor repairs (as needed), and installation of the AMI endpoint radio and activation.

The meter installation crews will be supervised by the Customer Services Field Supervisors, who will be responsible for coordinating and scheduling work.

The Communications Coordinator will be responsible for communicating with customers informing of installation schedules and addressing customer questions/concerns.

The Customer Services Field Supervisors will verify AMI radio integration with District software systems.

The Superintendent of Operations will be the project manager for the project, providing oversight, managing meter procurement, project planning and quality assurance.

The Financial Planning Manager/Controller will provide general oversight on the project and compile and submit required reports to Reclamation.

**Fringe Benefits**

The fringe benefit package for the District employees varies according to negotiations with employee classifications. The average fringe benefit package is valued at approximately 45% of the hourly salaries.

**Travel**

The District is not including travel in the budget proposal.

**Equipment**

Equipment is defined as assets with a unit cost of \$5,000 or greater. There will be no equipment purchased or leased for implementation of this project.

**Materials and Supplies**

The cost of the meters is based on a formal quote and an executed agreement for a previous meter replacement project . This quote is the basis of the cost for this project, plus an increase of 5%, assuming a price increase will be likely. A copy of the quote and agreement is included in the Attachments.

<b>Materials and Supplies</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Total Cost</b>
¾ " High Resolution Ultrasonic Meters	1,380	\$ 242.56	334,733.49
1" High Resolution Ultrasonic Meters	1,420	\$ 314.40	446,450.13
<b>Materials and Supplies Subtotal</b>			<b>781,183.62</b>

**Contractual**

Not applicable

**Environmental and Regulatory Compliance Costs**

The District does not anticipate any environmental and regulatory compliance costs.

The Moulton Niguel Water District staff will file a Notice of Exemption with the County prior to the implementation of the project. The cost to complete this filing is minimal and the staff time associated with this task is included in the estimated staff hours.

**Other Expenses:** None

**Indirect Costs:** None



## 6.4 ENVIRONMENTAL AND CULTURAL RESOURCES 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 the NEPA, ESA, and NHPA requirements.

The MNWD Low Resolution Meter Replacement Project, Phase I, involves the removal of existing potable water meters with new high resolution ultrasonic meters and AMI radios on the new water meters. There are no anticipated environmental or cultural resources impacts with the proposed project.

- 1) ***Will the 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.***

There are no anticipated impacts to the surrounding environment.

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

No, it is not anticipated that any species would be affected by any activities associated with the proposed project.

- 3) ***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 project may have.***

No, there are no wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “waters of the United States.”

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

Much of the water delivery system was originally constructed in the 1960s. Major construction and expansion of the delivery system continued in the 1980s and 2000s. Subsequent system expansions, repair, and rehabilitation projects have been ongoing since the time of original construction.

- 5) ***Will the project result in any modifications 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.***

No, the project will not result in any modifications or effects to individual features of an irrigation system.

- 6) 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.**

No, there are no buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places.

- 7) Are there any known archaeological sites in the proposed project area?**

No, there are no known archaeological sites in the proposed project area.

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

No, the project will not have a disproportionately high and adverse effect on low income or minority populations.

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

No, the project will not limit access to and ceremonial use of Indian sacred sites or result in other negative impacts on tribal lands. The project itself could, however, potentially benefit anyone receiving water from the State Water Project or the Colorado River Aqueduct by the increased water supply freed up from water use efficiency activities that are a major component of this proposed project.

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

The project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native species known to occur in the area.

## **7 REQUIRED PERMITS OR APPROVALS**

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There are no required permits anticipated for this project. All of the project work will be conducted at current meter locations. All project-related approvals will be handled by the District and will be executed in a timely and efficient manner. Final approval from the District Board of Directors would be required prior to proceeding with the project.

All work will be completed in accordance with local, state, and federal regulations.

## **8 LETTERS OF SUPPORT**

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The following letters of support are attached to the application.

- California Assembly Member Laurie Davies
- California Senator Patricia Bates
- Orange County Coastkeeper Letter
- U.S. Congressional Representative Steel

## **9 OFFICIAL RESOLUTION**

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A copy of the official resolution to be adopted by the District Board of Directors, on November 15, 2021, is enclosed. The executed resolution will be submitted to Reclamation under separate cover no later than December 3, 2021. The proposed project is included in the Capital Improvement Program for the District, and the District will work with Reclamation to meet established deadlines for entering into a cooperative agreement. Final approval from the District Board of Directors would be required prior to proceeding with the project.

**\*\*DRAFT\*\***

**RESOLUTION NO. 21-**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF  
MOULTON NIGUEL WATER DISTRICT  
AUTHORIZING THE GENERAL MANAGER, OR DESIGNEE, TO APPLY FOR,  
RECEIVE, AND ENTER INTO A COOPERATIVE AGREEMENT, AND  
ADMINISTER A GRANT FOR THE 2022 BUREAU OF RECLAMATION  
WATERSMART: WATER AND ENERGY EFFICIENCY GRANT.**

**BE IT RESOLVED**, by the Moulton Niguel Water District Board of Directors (“Board”) that the District General Manager or his/her designee is hereby authorized and directed to sign and file, for and on behalf of the Moulton Niguel Water District (“District”), a WaterSMART: Water and Energy Efficiency Grant Application for a grant from the U.S. Bureau of Reclamation in the amount not to exceed \$500,000; and

**BE IT RESOLVED**, the District General Manager, or his/her designee, is hereby authorized to acknowledge and approve of the application and the information submitted for consideration, and is further authorized to certify that the District has and will provide the amount of funding and/or in-kind contributions specified in the funding plan; and

**BE IT RESOLVED**, that the Board hereby agrees and further does authorize the aforementioned representative or his/her designee to certify that the District has and will comply with all statutory and regulatory requirements related to any grant funds, and

**BE IT FURTHER RESOLVED**, that the General Manager or his/her designee is hereby authorized to negotiate and execute a grant and any amendments or change order thereto on behalf of the District received and will work with the U.S Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

**ADOPTED, SIGNED and APPROVED** this 15<sup>th</sup> day of November, 2021.

**MOULTON NIGUEL WATER DISTRICT**

\_\_\_\_\_  
President  
MOULTON NIGUEL WATER DISTRICT  
and the Board of Directors thereof

\_\_\_\_\_  
Secretary  
MOULTON NIGUEL WATER DISTRICT  
and the Board of Directors thereof

## ATTACHMENTS

- Letters of Support
- Budget Support
- US EPA Greenhouse Gas Emissions Calculator Report

STATE CAPITOL  
P.O. BOX 942849  
SACRAMENTO, CA 94249-0073  
(916) 319-2073  
FAX (916) 319-2173

DISTRICT OFFICE  
31473 RANCHO VIEJO ROAD, SUITE 104  
SAN JUAN CAPISTRANO, CA 92675  
(949) 240-7300  
FAX (949) 240-7313

E-MAIL  
Assemblymember.Davies@assembly.ca.gov

# Assembly California Legislature



**Laurie Davies**  
ASSEMBLYMEMBER, SEVENTY-THIRD DISTRICT

COMMITTEES  
VICE CHAIR: HUMAN SERVICES  
APPROPRIATIONS  
COMMUNICATIONS AND CONVEYANCE  
GOVERNMENTAL ORGANIZATION  
JUDICIARY  
TRANSPORTATION

November 2, 2021

Joone Lopez  
General Manager  
Moulton Niguel Water District  
26161 Gordon Road  
Laguna Hills, CA 92652

**RE: Support for U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant Application**

Dear General Manager Lopez,

On behalf of the 73<sup>rd</sup> Assembly District, it's my privilege to offer support for Moulton Niguel Water District's U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant application for the District's Low-Resolution Meter Replacement Project.

Moulton Niguel is dedicated to serving its customers with reliable, economical, high-quality water, wastewater, and recycled water services. The Water and Energy Efficiency Grant would allow Moulton Niguel to deliver additional and meaningful benefits to our community by generating an estimated water savings of 1,843 acre-feet per year by replacing the District's low-resolution meters.

By replacing its low-resolution meters with modern ones, the District will be able to increase water use efficiency and conservation through the availability of near real-time data on usage and daily water needs. Additionally, the new meters will assist the District in proactively identifying leaks, reducing real system losses, and efficiently allowing meter data to be acquired in the office as opposed to driving around the District's service area to read meters.

Moulton Niguel's service area includes six cities in our Congressional district (i.e., Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Mission Viejo, and San Juan Capistrano) and they would definitely benefit from having additional resources to become more water efficient as we enter another year of drought.

The District is requesting \$500,000 in funding and committed to provide a financial match as well. The District's previous success in receiving grants from US Bureau of Reclamation WaterSMART program shows their ability to deliver projects that result in significant and measurable water savings.

**STATE CAPITOL**  
P.O. BOX 942849  
SACRAMENTO, CA 94249-0073  
(916) 319-2073  
FAX (916) 319-2173

**DISTRICT OFFICE**  
31473 RANCHO VIEJO ROAD, SUITE 104  
SAN JUAN CAPISTRANO, CA 92675  
(949) 240-7300  
FAX (949) 240-7313

**E-MAIL**  
Assemblymember.Davies@assembly.ca.gov

*Assembly  
California Legislature*



**LAURIE DAVIES**  
ASSEMBLYMEMBER, SEVENTY-THIRD DISTRICT

**COMMITTEES**  
VICE CHAIR: HUMAN SERVICES  
APPROPRIATIONS  
COMMUNICATIONS AND CONVEYANCE  
GOVERNMENTAL ORGANIZATION  
JUDICIARY  
TRANSPORTATION

I thank you in advance for considering this important grant request. If you have any further questions, please feel free to contact me or my Chief of Staff-Jennifer Beall at 949-240-7300.

Sincerely,

A handwritten signature in cursive script that reads "Laurie Davies".

Laurie Davies  
California State Assembly Member  
73rd Congressional District



November 2, 2021

Joone Lopez  
General Manager  
Moulton Niguel Water District  
26161 Gordon Road  
Laguna Hills, CA 92652

3151 Airway Avenue, Suite F-110  
Costa Mesa, CA 92626  
Phone 714-850-1965  
Fax 714-850-1592  
[www.Coastkeeper.org](http://www.Coastkeeper.org)

**RE: Support for U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant Application**

Dear General Manager Lopez,

On behalf of Orange County Coastkeeper, we would like to express our enthusiastic support for Moulton Niguel Water District's U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant application for the District's Low-Resolution Meter Replacement Project.

Orange County Coastkeeper is a nonprofit clean water organization that serves as a steward of our fresh- and saltwater ecosystems in Orange County. We work with groups in the public and private sectors to achieve healthy, accessible, and sustainable water resources for the region. We understand many of the environmental and water project needs in our home county, and that's why we are supporting Moulton Niguel's grant application.

Moulton Niguel Water District is dedicated to serving its customers with reliable, economical, high-quality water, wastewater, and recycled water services. With this Water and Energy Efficiency Grant, Moulton Niguel would deliver additional and meaningful benefits to our community by generating an estimated water savings of 1,843 acre-feet per year.

By replacing its low-resolution meters with modern ones, the District will be able to increase water use efficiency and conservation through the availability of near real-time data on usage and daily water needs. Additionally, the new meters will assist the District in proactively identifying leaks, reducing real system losses, and efficiently allowing meter data to be acquired in the office as opposed to driving around the District's service area to read meters.

The District is requesting \$500,000 in funding and committed to provide a financial match as well. The District's previous success in receiving grants from US Bureau of Reclamation WaterSMART program shows their ability to deliver projects that result in significant and measurable water savings.

As stewards for our local environmental resources, Orange County Coastkeeper is proud to support Moulton Niguel's grant application. If you have any questions, please feel free to contact me at (714) 850-1965 or [garry@coastkeeper.org](mailto:garry@coastkeeper.org).

Sincerely,

A handwritten signature in blue ink that reads "Garry Brown". The signature is written in a cursive, flowing style.

Garry Brown  
President & CEO  
Orange County Coastkeeper



CAPITOL OFFICE  
STATE CAPITOL, ROOM 3063  
SACRAMENTO, CA 95814  
TEL (916) 651-4036  
FAX (916) 651-4936

DISTRICT OFFICES  
24031 EL TORO ROAD  
SUITE 201A  
LAGUNA HILLS, CA 92653  
TEL (949) 598-5850  
FAX (949) 598-5855

169 SAXONY ROAD  
SUITE 103  
ENCINITAS, CA 92024  
TEL (760) 642-0809  
FAX (760) 642-0814

SENATOR.BATES@SENATE.CA.GOV  
WWW.SENATE.CA.GOV/BATES

# California State Senate

SENATOR  
**PATRICIA C. BATES**

THIRTY-SIXTH SENATE DISTRICT



## COMMITTEES

APPROPRIATIONS  
VICE CHAIR

ENVIRONMENTAL QUALITY  
VICE CHAIR

HOUSING  
VICE CHAIR

RULES  
VICE CHAIR

TRANSPORTATION  
VICE CHAIR

BUSINESS, PROFESSIONS AND  
ECONOMIC DEVELOPMENT

INSURANCE

November 2, 2021

Joone Lopez  
General Manager  
Moulton Niguel Water District  
26161 Gordon Road  
Laguna Hills, CA 92652

RE: Support for U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant Application

Dear General Manager Lopez,

It is a pleasure to support the Moulton Niguel Water District's U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant application for the District's Low-Resolution Meter Replacement Project.

Moulton Niguel is dedicated to serving its customers with reliable, economical, high-quality water, wastewater, and recycled water services. The Water and Energy Efficiency Grant would allow Moulton Niguel to deliver additional and meaningful benefits to our community by generating an estimated water savings of 1,843 acre-feet per year by replacing the District's low-resolution meters.

By replacing its low-resolution meters with modern ones, the District will be able to increase water use efficiency and conservation through the availability of near real-time data on usage and daily water needs. Additionally, the new meters will assist the District in proactively identifying leaks, reducing real system losses, and efficiently allowing meter data to be acquired in the office as opposed to driving around the District's service area to read meters.

Moulton Niguel's service area includes six cities in the 36th Senate District including: Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Mission Viejo, and San Juan Capistrano. These communities would benefit from having additional resources to become more water efficient as we enter another year of drought.

The District is requesting \$500,000 in funding and has committed to provide a financial match as well. The District's previous success in receiving grants from US Bureau of Reclamation WaterSMART program shows its ability to deliver projects that result in significant and measurable water savings.

Thank you in advance for considering this important grant request. If you have any further questions, please feel free to contact me or Erik Weigand on my staff at (949) 598-5850.

Sincerely,

A handwritten signature in blue ink that reads "Patricia C. Bates".

PATRICIA C. BATES  
Senator, 36<sup>th</sup> District

MICHELLE STEEL  
48TH DISTRICT, CALIFORNIA  
STEEL.HOUSE.GOV

COMMITTEE ON TRANSPORTATION  
AND INFRASTRUCTURE

COMMITTEE ON EDUCATION  
AND LABOR

1113 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-2415

17011 BEACH BOULEVARD,  
SUITE 570  
HUNTINGTON BEACH, CA 92647  
(714) 960-6483

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-0548

November 2, 2021

Joone Lopez  
General Manager  
Moulton Niguel Water District  
26161 Gordon Road  
Laguna Hills, CA 92652

**RE: Support for U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant Application**

Dear General Manager Lopez,

I am writing to offer my strong support for Moulton Niguel Water District's U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant application for the District's Low-Resolution Meter Replacement Project.

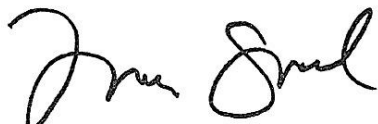
Moulton Niguel Water District is dedicated to serving its customers with reliable, economical, high-quality water, wastewater, and recycled water services. The Water and Energy Efficiency Grant would allow Moulton Niguel to deliver additional and meaningful benefits to our community by generating an estimated water savings of 1,843 acre-feet per year by replacing the District's low resolution meters.

By replacing its low-resolution meters with modern ones, the District will be able to increase water use efficiency and conservation through the availability of near real-time data on usage and daily water needs. Additionally, the new meters will assist the District in proactively identifying leaks, reducing real system losses, and efficiently allowing meter data to be acquired in the office as opposed to driving around the District's service area to read meters.

The District is requesting \$500,000 in funding and committed to provide a financial match as well. The District's previous success in receiving grants from US Bureau of Reclamation WaterSMART program shows their ability to successfully deliver projects that result in significant and measurable water savings.

Thank you in advance for considering this important grant request for our community.

Sincerely,



Michelle Steel  
Member of Congress