# Automatic Meter Reading / Advanced Metering Infrastructure Implementation Project


*Grant Applicant*:

Trabuco Canyon Water District
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## Table of Contents

## MANDATORY FEDERAL FORMS

The following forms were submitted electronically via grants.gov: SF-424 Application for Federal Assistance, SF-424C Budget Information – Construction Programs, SF-424D Assurances – Construction Programs, and SF-LLL Disclosure of Lobbying Activities.

## TECHNICAL PROPOSAL AND EVALUATION CRITERIA

### Executive Summary

**Date: September 16, 2020**

**Applicant Name:** Trabuco Canyon Water District, Mr. Michael Perea, Project Manager

**City:** Trabuco Canyon Water District serves the cities of Rancho Santa Margarita, Lake Forest, and Mission Viejo and unincorporated Orange County

**County:** Orange County

**State:** California

The Trabuco Canyon Water District (District), located in the southeastern portion of Orange County, California at the foothills of the Santa Ana Mountains, will complete the Automated Meter Reading/Advanced Metering Infrastructure (AMR/AMI) Implementation Project (Project) as part of its long-term goal of water supply reliability and efficient water management. The AMR/AMI Project includes the upgrade of 3,424 existing touch meters (currently read via walking) with an AMI fixed-base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency, improved water management, and energy savings. The AMR/AMI Project will allow the District to implement a full distribution system with AMI to provide hourly water usage information and high water usage and leak alerts that can be provided to customers. The District depends on imported water for 78% of its potable water demands; while recycled water and limited groundwater make up the remaining water demands, along with conservation and water use efficiency are key factors in improving water sustainability within the region. The District receives surface water imported by the Metropolitan Water District of Southern California (MWD) through the Municipal Water District of Orange County (MWDOC). MWD imports water from the Colorado River Aqueduct (CRA) and the State Water Project (SWP), which draws water from the San Francisco-San Joaquin Bay Delta. The Project is a top priority for the District and the expected sustainable annual water savings of 154.75 AF from the Project will allow this same amount of water to remain in the CRA and SWP for other uses.

Following the anticipated spring 2021 funding award, the AMR/AMI Project will begin immediately and is anticipated to be complete by December 2022 within the 2-year timeframe.

The AMR/AMI Implementation Project is not located on a federal facility.

## Project Location

The Automated Meter Reading/Advanced Metering Infrastructure (AMR/AMI) Project is being implemented throughout the Trabuco Canyon Water District service area. The District is located in the southeastern portion of Orange County, California at the foothills of the Santa Ana Mountains and encompasses approximately 8,200 acres (**Figure 1**). While the project includes the entire District service area, the latitude and longitude coordinates represent the District offices: 33°38'29.0"N 117°34'24.2"W (Lat. 33.641392, Lon. -117573390). The District has provided retail water and sewer services since 1962, serving a total population of approximately 14,000. The District's service area includes communities within the City of Rancho Santa Margarita, City of Lake Forest, City of Mission Viejo, Trabuco Canyon and other areas of unincorporated Orange County (**Figure 2**).The District receives imported water from the Metropolitan Water District of Southern California via the local wholesaler Municipal Water District of Orange County. The District is within the Municipal Water District of Orange County service area, the District wholesale water agency (**Figure 3).**The District's service area includes rural areas and master planned communities **(Figure 4).**

**Figure 1. Regional Location of Trabuco Canyon Water District**

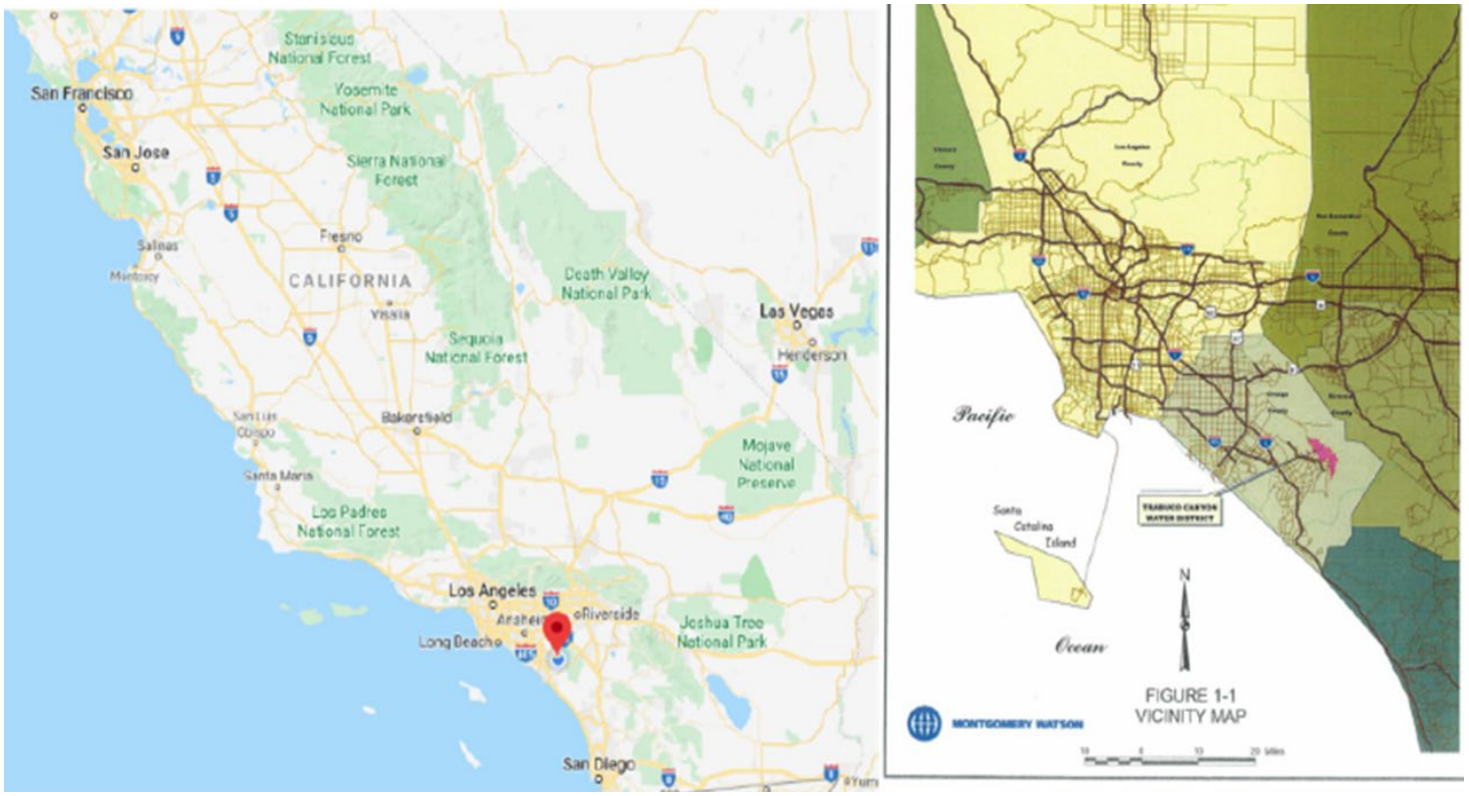


**Figure 2. Trabuco Canyon Water District Service Area**

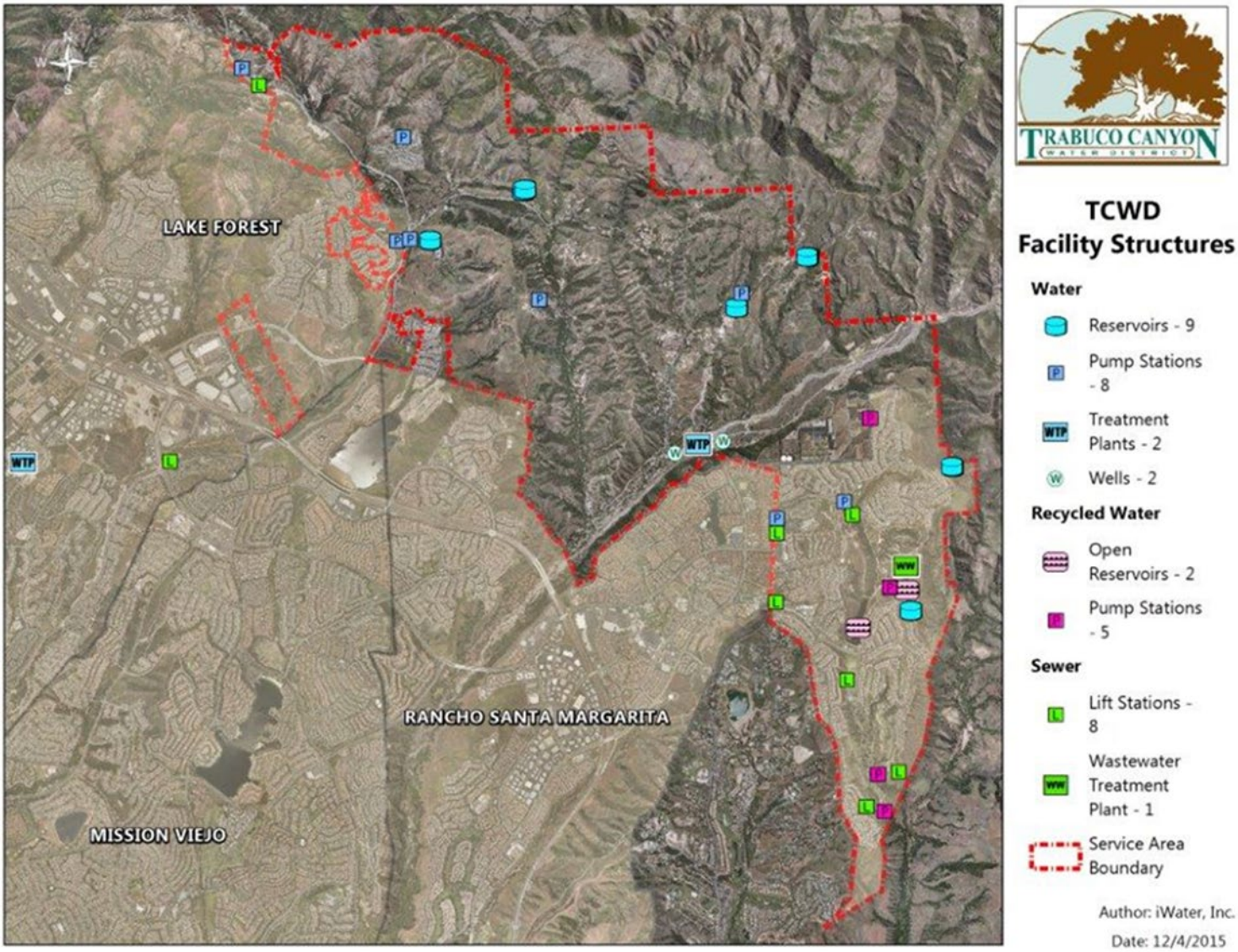


**Figure 3. District Location within the Municipal Water District of Orange County Service Area**

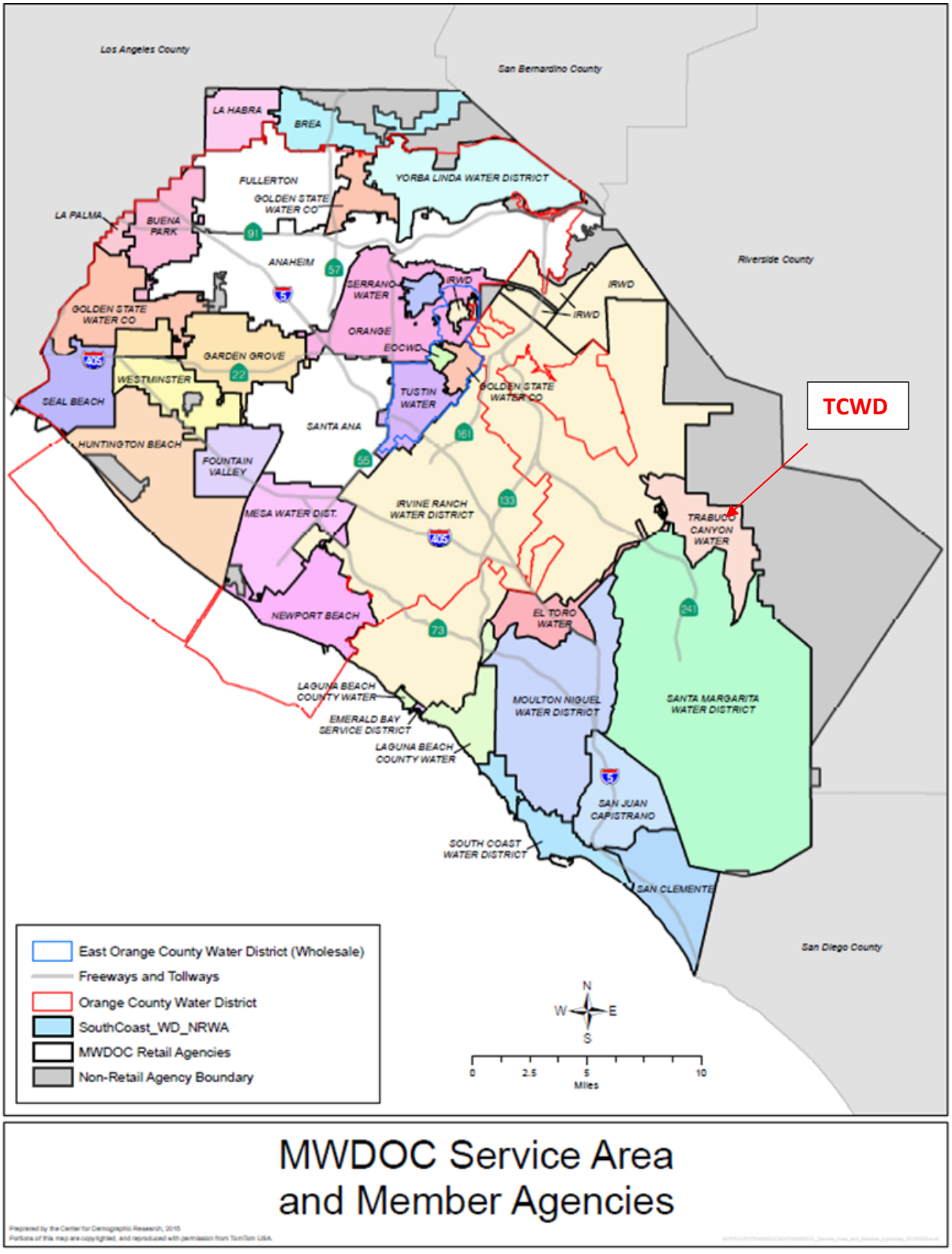
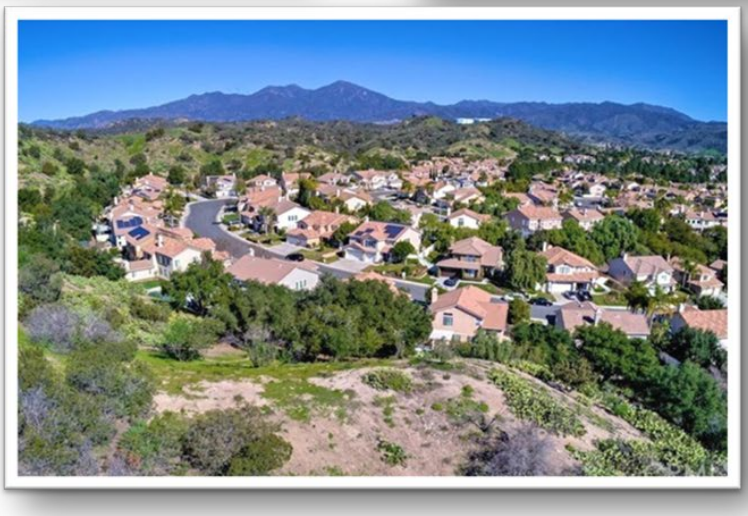


**Figure 4. Trabuco Canyon Water District Service Area Culture**

## Technical Project Description

The Trabuco Canyon Water District (District), located in the southeastern portion of Orange County, California at the foothills of the Santa Ana Mountains, will complete the Automated Meter Reading/Advanced Metering Infrastructure (AMR/AMI) Implementation Project (Project) as part of its long-term goal of water supply reliability and efficient water management.

The AMR/AMI Project is supported by the District's 2015 UWMP and the Annual Meter Replacement Program, which began in 2015 and creates an annual budget for replacing older meters with AMR meters. The AMR/AMI Project is identified as a priority demand management measure in Chapter 4, Demand Management Measures, Section 4.2 Metering, in the District's 2015 UWMP (June 2016).

The AMR/AMI Project includes the upgrade of 3,424 existing touch meters (currently read via walking) with an AMI fixed-base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency, improved water management, and energy savings. The District currently converted 812 meters to AMR, and when this Project is complete, a total of 4,236 meters will be AMR/AMI. The AMR/AMI Project will then allow the District to implement a full distribution system with AMI to provide hourly water usage information and high water usage and leak alerts that can be provided to customers. The AMR/AMI Project is a top priority for the District and the expected sustainable annual water savings of 154.75 AF from the Project will allow this same amount of water to remain in the Colorado River Aqueduct (CRA) and State Water Project (SWP) for other uses.

***Environmental Impact Technical Overview.*** The AMR/AMI Project involves an upgrade to existing meters and should pose no impact to the surrounding environment. Work will be performed on property that is considered already disturbed, and no further environmental requirements are needed. There are no required permits anticipated for the AMR/AMI Project. All of the AMR/AMI Project work will be conducted at current meter locations and District property. All Project-related approvals will be handled by the District and will be executed in a timely and efficient manner. The District Board of Directors will approve a resolution authorizing the application for grant funding and to proceed with the AMR/AMI Project.

The District has filed a Categorical Exemption pursuant to CEQA Title 14 (California Code of Regulations), Chapter 3, Article 19, Section 15302c for the Project, as shown in the Environmental and Cultural Compliance section **Exhibit A**, CEQA Notice of Exemption Filed for Trabuco Canyon Water District AMR/AMI Project. It is anticipated that a Categorical Exclusion or Finding of No Significant Impact (FONSI) under NEPA will be issued by Reclamation given the nature of the Project that includes simply replacing existing meters with upgraded AMI meters. A Categorical Exclusion or FONSI is anticipated since the AMR/AMI Project will likely not have a significant effect on the human environment and, therefore, neither an Environmental Assessment nor an Environmental Impact Statement would be required.

***Water Loss Technical Overview.*** To document the need for the AMR/AMI Project for conserving and better managing potable water served, the District evaluated its 2018 AWWA Water Loss Audit. As detailed in Evaluation Criterion A, the 2018 AWWA Water Loss Audit showed a total 2018 water loss of 193.15 AF and an avoidable 2018 water loss of 95.46 AF, a result of calculating Apparent Losses and Real Losses.

Of the total Apparent Losses, 56.95 AFY is attributable to meter inaccuracies, while the balance is 6.37 AFY of unauthorized consumption and 5.89 AFY of systemic data handling errors. This validates a strong need for the AMR/AMI Project, which will significantly improve meter accuracy and data handling.

To further support implementation of the AMR/AMI Project, the State Water Resources Control Board (SWRCB) is required to publish water loss standards, anticipated in November 2020, that feed into the handbook titled "*Making Water Conservation a California Way of Life – Primer of 2018 Legislation on Water Conservation and Drought Planning, Senate Bill 6060 and Assembly Bill 1668*" framework for Urban Retail Water Suppliers (URWS). The Primer outlines the key authorities, requirements, timeline, roles, and responsibilities of State agencies, water suppliers, and other entities during implementation of actions described in the 2018 legislation. The SWRCB has indicated that compliance standards will emphasize leakage recovery pilots, pressure monitoring and management, and apparent loss assessment. Additionally, the SWRCB has indicated that all URWSs will be required to submit a Real Loss Component Analysis (RLCA) by the end of 2022 and two additional RLCA's between 2023 and 2026. The RLCA uses system characteristics and repair records for known failures to disaggregate the volume of real loss calculated by the water audit. This disaggregation breaks real losses into meaningful categories that can better inform real loss management and intervention strategies.

### *AMR/AMI System Technical Description*

***Meter Selection and Installation.*** Through a process consistent with the District's Procurement Policy, a qualified Contractor will be selected for the AMR/AMI Project implementation, including procurement and installation of 3,424 AMR/AMI meters, provide training, and maintain a 20-year partnership with the District during the lifecycle of the system.

The AMR/AMI Project assumes procurement of the qualified contractor will occur immediately following execution of a funding agreement with Reclamation. For the bid process, the District will follow its Procurement Policy and issue a Notice Inviting Bids for Proposals for the AMR/AMI Project. Qualified contractors shall submit details on the required work including, but not limited to: 1) procurement of water meters; 2) procurement of AMI cellular transmitters, software, a web-based utility management portal and a web-based customer portal for utility users to access consumption; 3) integration of the AMI system into the District's customer information system; and 4) other items as determined.

The qualified contractor will have a proven track record for successful AMI projects, including both supply and installation of meters and AMI endpoints.

***Project Implementation Approach.*** The District will implement the AMR/AMI Project in the following four tasks (detailed in Evaluation Criterion F.3 Readiness to Proceed):

Task 1. Project Management and Reporting
Task 2. Environmental Review
Task 3. Procurement and Installation of AMR/AMI System
Task 4. Final Implementation

***Project Management and Reporting (Task 1)*** includes management of the grant agreement, coordination with Reclamation's environmental reviewer, and Reclamation reporting requirements, including Program Performance Reports, Financial Reports, and Financial Reimbursement Requests. This task also includes Contractor oversight, including coordination of District staff training, ensure site conditions are prepared and ready for installation of collectors and repeaters in accordance with the final network design, provide access to all work sites, provide storage facilities for project materials, and facilitate parking and office space for the Contractor team.

***Environmental Review (Task 2)*** includes completing CEQA and NEPA requirements. The District has already filed a Categorical Exemption pursuant to CEQA Title 14 (California Code of Regulations), Chapter 3, Article 19, Section 15302c for the Project. It is anticipated that a Categorical Exclusion or Finding of No Significant Impact (FONSI) under NEPA will be issued by Reclamation given the nature of the Project that

includes simply replacing existing meters with upgraded AMI meters. The District will coordinate with Reclamation staff who will perform the necessary environmental review and compliance for the Project.

***Procurement and Installation of AMR/AMI System (Task 3)*** includes the following four subtasks:

*3.1 Contractor Selection.* The District will follow its Procurement Policy and issue a Notice Inviting Bids for Design-Build Proposals for the AMR/AMI Project. Qualified contractors shall submit details on the required work, proposals will be evaluated, and a contractor will be selected.

*3.2 Installation of AMR/AMI Infrastructure and Training to Support AMR/AMI System* includes AMR/AMI Network infrastructure, AMR/AMI Network and deployment tools, and District staff training. The Contractor will develop a detailed Project Plan and Schedule to guide procurement and installation of the AMR/AMI System. The Contractor will then install all required Collectors and ancillary equipment for locations where Data Collectors have been sited. The installed network will be tested for coverage. The AMI network and deployment will use a handheld programmer to download the meter type, size, and start read into the new unit and then the unit will be programmed and synced to the AMI network. All customers can expect no service interruption since the exchange does not require turning off the water service**.**

The Contractor's training program will provide a foundation of knowledge for personnel to understand the AMI system functions quickly and accurately. The Contractor will provide a customized training program to address specific needs of District personnel, including meter readers, in-office software system operations as well as in-house technical support personnel. District personnel will be trained on the basic system functionality, communication hardware and software. System configuration, technical, and operational documentation will be for all AMI system hardware and software during training. The Contractor will ensure all content has been reviewed and all questions are answered.

Training will utilize actual equipment installed in the District's production AMI meter reading system. Software training will be made available through either remote or onsite at the preference of the District. Training protocol will be established during pre-project planning to most closely mirror the actual conditions and requirements based on the District personnel attendees.

*3.3 Meter Equipment Procurement* includes the procurement of water meters and electronic registers, water meter retrofit registers with endpoint, and other water meter related equipment.

The AMR/AMI system hardware will consist of the sizes and quantities shown in **Table 1**, *AMR/AMI Devices Installed in the Trabuco Canyon Water District Service Area*, of Evaluation Criterion A. A total of 3,424 existing water meters will be replaced, ranging from 5/8" to 10". These are approximate quantities; actual values may differ and be handled via change order. All products, including third-party products such as boxes and lids, will be approved by the District prior to purchase by the Contractor.

*3.4 Installation of AMR/AMI Meters* includes installation of water meters, registers, and endpoint; water meter retrofit with endpoint, water meter lids, and professional services. The Contractor will develop an Installation Plan and will manage installation of all meters, registers, nodes, and boxes, etc.

The Installation Plan will include community outreach and customer communication and notification of homeowners at time of meter installation, through a variety of measures approved by the District, such as a consumer water bill insert one month prior to meter installations, website outreach via Frequently Asked Questions (FAQ) section on website for AMR/AMI Project, social media, newsletters, and possibly telephone calls to alert residents of the meter project. In addition, door knock canvassing may be performed seven days prior to meter installation. If the owner is not present, a door hanger will be left alerting of the upcoming meter installation, along with contact information for inquiries.

The Contractor will establish an Installation Project Team to oversee daily operations, project operations and planning, field activity and issues, meter installation, customer notification and support, and field inspections. The Team may include an Install Project Manager, Assistant Install Project Manager, Field Manager, Meter Installers, and Quality Assurance/Quality Control (QA/QC) Staff.

Meters will be installed by cycle/route order, following the meter reading sequence (Installation Plan) that is agreed upon by the District, working to ensure route efficiency. Most meters are outside in a pit location making appointments unnecessary. Less than 0.5% is estimated to require an appointment, which will be handled on a case-by-case basis. Work will be performed between 8:00 a.m. and 4:00 p.m. daily. After-hours work requests will be agreed upon in advance of work being perform between Contractor and the District. Installation is performed following an established protocol (detail in Evaluation Criterion F.3).

***Final Implementation (Task 4)*** includes complete software integration and install any additional infrastructure required to gather the hourly consumption data.

*Software Integration Plan.* The Contractor and the District will collaboratively determine requirements and create a Software Integration Plan. The CIS and billing software integration may take approximately three (3) months. Basic AMI capabilities will include utility user interface, list of installed meters with last uploaded reading, deployment wide consumption graph, meter detail page for each meter, basic graphing of consumer consumption, customer information, account management, hourly reading on all meters, billing interface, CIS interface–periodic imports of customer updates from District's billing system, and meter reading schedule–daily upload of consumption and hourly reading, on demand upon request.

*Consumer Portal Integration Plan.* The Contractor and the District will collaboratively determine requirements of Consumer Portal and create a Consumer Portal Integration Plan. The software integration necessary to provide the Consumer Portal with interval meter reads will be performed. The District will deploy the Consumer Portal and provide access by customers providing customers with real-time consumption data. This will assist customers in managing their individual water usage more efficiently. Consumer workshops will also be provided to educate consumers on how to effectively use the Portal. It is estimated that the Consumer Portal integration, launching the Portal, and holding workshops will take approximately three (3) months.

***Materials and Equipment.*** The District will collaborate with the Contractor to select the appropriate equipment for the AMR/AMI Project, and only equipment, technologies, and capabilities that are currently commercially available, have been implemented in other agencies, and have a proven history of success. A preliminary network design will be completed based on the inputs provided to the Contractor, followed by a Final Network Design.

The Contractor is expected to propose a wireless technology for endpoint meter support with the built-in ability of the endpoints to be read in mobile AMR and fixed network AMI mode simultaneously to assure AMI network compatibility with mobile AMR backup support. This will eliminate significant costs associated with replacing and/or reprogramming endpoints regardless of reading system needs.

The system architecture should provide for both redundancy and reliability of endpoint and gateway communications. Overlapping gateway reception will provide a redundant communication path for end-devices, contributing to higher message success rates.

The network should be designed to withstand the harshest of weather conditions and events. Radios should require no programming in the field when installed, to save time and reduce costs. Batteries should be designed for use in extreme environments and feature the low self-discharge to ensure extended product life.

The Contractor should propose a Cloud-Based Data Management platform as the primary head-end systems (HES) which functions as a Meter Data Management System, processing readings from both the AMI and AMR network. The Contractor will be responsible for hosting the application and providing all software management activities to ensure the District's metering data is accurate, secure, and available anytime in support of District operations, billing, and customer care.

The Contractor will continually support the AMR/AMI system for the life of the equipment. The Contractor will also provide multiple layers of support and training, and warehouse local inventory and provide designated staff.

***Installation, Onboarding Activities, and Integration.*** The Contractor will provide a hosted solution where all installation efforts and onboarding activities are conducted by Contractor personnel. The Contractor also will assign an implementation specialist that will work to ensure successful integration with CIS/Billing software and, if applicable, any third party integration efforts through their Application Programming Interfaces. The implementation specialist will work with the District to ensure all configurations are complete prior to the customer handoff. As a standard practice, the Contractor should provide specifications to all CIS vendors during the initial phases of implementation requiring these vendors to supply a file based on the specification for testing and validation prior to final deployment.

The process for integration to the District's CIS is anticipated and summarized as follows:

- Districts' billing system will provide an interface to the HES via import/export files in the Contractor's record format. For billing purposes, the user will select which cycles and routes that are required for meter reading and billing.
- The data is paired to meter reading data captured from the field either through the AMI or AMR network. Routes with completed meter reading data are sent via an export file to the billing system.
- The billing system will process the readings from the export file for billing purposes.

***Contractor Software and AMI Network Support and Service Levels.*** The Contractor's platform should include an online help content management area, which is specifically focused on how to use the software.

The Contractor should also provide AMI Network Maintenance and Technical Support services with a toll-free Telephone Help Desk. Contractor agents should be trained in the use and application of all Contractor meter reading hardware and meter reading software products. Response time should typically be immediate, answering calls directly from the Support Line. Otherwise, a return call should be within 30 minutes.

## Evaluation Criteria

### *Evaluation Criterion A: Quantifiable Water Savings*

**Estimated Water Savings**
The AMR/AMI Project's total water savings estimate: **154.75 AFY**

Supporting documentation is included in the following sections.

**Current Losses**

***2018 AWWA Water Loss Audit.*** The District's 2018 AWWA Water Loss Audit shows Apparent Losses of 69.21 AFY (unauthorized consumption, metering inaccuracies, and systematic data handling errors), and Real Losses of 123.94 AFY (leakages on transmission/distribution mains, storage tanks, and service connections) for a total 2018 water loss of 193.15 AFY. This equals an 7.15% loss of total water supplied in 2018 (2,700 AF).

Of the total Apparent Losses, 56.95 AFY is attributable to meter inaccuracies, while the balance is 6.37 AFY of unauthorized consumption and 5.89 AFY of systemic data handling errors. This validates a strong need for the AMR/AMI Project, which will significantly improve meter accuracy and data handling.

The District's 2018 AWWA Water Loss Audit also recognizes Unavoidable Annual Real Losses (UARL) of 97.69 AF. The UARL is a theoretical reference value representing the technical low level of leakage that could be achieved if all of today's best technology could be applied. It is a key variable in the calculation in the Infrastructure Leakage Index used in the Audit. Striving to reduce system leakage to a level close to the UARL is needed when the water supply is unusually expensive, scarce, or both. Applying this water loss as unavoidable to the total water losses, this would leave an avoidable 2018 water loss of 95.46 AFY.

Water lost from leakages (Real Losses) is reasonably concluded to be seeping back into the ground and/or draining to a storm drain or the Pacific Ocean. Other water that will be conserved is water that is being consumed without authorization or accurately measuring it (Apparent Losses) and water consumption that will be reduced through water use efficiency and conservation.

**Support/Documentation of Estimated Water Savings**

**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 AMR/AMI Project will achieve water savings through three independent measures: 1) Water loss reduction from leakages; 2) Water loss reduction from correcting meter inaccuracies; and 3) Water conservation through Customer Portal usage.

These measures will be accomplished by implementing the AMR/AMI Project resulting in 1) faster identification and correction of water leaks (currently meters are read every month allowing leaks to go undetected and water to be wasted for a month before being noticed), 2) more accurate meter readings compared to aging meters (more than 3,424 of the District's meters are at replacement age and are likely erroneously registering lower water use than actual water use), and 3) reduced potable water usage resulting from customer education and behavioral changes through the Customer Portal real-time data on water usage.

Additionally, the AMI meters will help the District reduce operational costs incurred through the manual meter reading process in which crews drive by neighborhoods to collect consumer water usage data, as well as reduce its carbon footprint resulting from driving nearly 1,584 miles per year to read meters (66 total miles of pipeline x 12 months x 2 field technicians).

**Amount of average water saved/conserved (AFY) for Proposed AMR/AMI Project:**
Total estimated water savings: **154.75 AFY**

This amount exceeds the 2018 DWR Water Loss Audit total avoidable water losses (95.46 AF) by 59.29 AF, helping to address the total water losses in 2018 AWWA Water Loss Audit of 193.15 AF. The Project's conserved water demonstrates the tremendous value of implementing the AMR/AMI Implementation Project when linking the AMI meters and the Customer Portal to promote customer behavioral changes to conserve water.

**Calculation:**
(Water Loss Reduction–Leakages + Water Loss Reduction–Meter Inaccuracies + Reduction in Consumption–Customer Portal Use = Total Water Saved/Conserved)

30.98 AFY + 9.40 AFY + 114.37 AFY = **154.75 AFY Total Water Saved/Conserved**

This estimate is calculated by adding 30.98 AFY saved through early leak detection + 9.40 AFY saved from reduced metering inaccuracies + 114.37 AFY saved through water use behavioral changes through customer portal use, for a total of 154.75 AFY of water saved by implementing the proposed AMR/AMI Project.

**Detail and Supporting Calculations for Estimate**

**Water Loss Reduction for Proposed AMR/AMI Project**
The AWWA Water Loss Audit is conducted annually to comply with California Senate Bill 1420 (September 2014), which requires urban water suppliers that prepare Urban Water Management Plans (UWMP) to calculate annual system water losses using the water audit methodology developed by AWWA. Water losses are defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. The audit was developed by the IWA Water Loss Task Force as a universal methodology that could be applied to any water distribution system. The water loss summary was calculated over a 1-year period from available data.

When applied to the 2018 audited water loss of 193.15 AFY, the District could reduce the water loss from 7.15% (193.15 AF / 2,700 AF) to 1.4% (193.15 AF - 154.75 AF = 38.4 AF / 2,700 AF) of total potable demand (2,700 AF in 2018), through implementation of the AMR/AMI Project. When applied to the 2020 estimated total water demand of 2,200 AF, without implementation of the AMR/AMI Project, audited water loss would likely result in 177.65 AF of water loss (2,200 AF x 7.15%). With implementation of the AMR/AMI Project, an estimated water savings of 157.38 AF would be realized. Based on calculations shown below, 26.1% savings would be realized through water loss reduction (meter inaccuracies and leaks) and 73.9% through behavioral changes (Customer Portal). Applying 26.1% to the potential 154.75 AF of water loss in 2020, this would reduce the water loss reduction percentage to 5.2% (154.75 – [154.75 x 0.261] = 114.36 /2,200 = 5.2%).

**Water Loss Reduction/Savings from Customer Leaks**
Knowledge of customer water leaks with AMI data allows utilities to engage their customers and help them better understand the issue and identify the source. This, in turn, can lead to reduced time to correct the issue and increased water savings. The District currently reads meters manually and bills customers on a monthly basis. There is potential for smaller leaks to go undetected for as long as 30 days. With AMI, faster and quicker detection and customer notification is possible.

Valor Water Analytics partnered with Southern California Gas Company and two water utilities in 2016-2018 to track AMI utilization in water savings. Two pilot projects were commissioned by the California Public Utilities Commission; some early information can be found at http://www.cpuc.ca.gov/nexus_calculator/.

Valor provided customer leaks analytics and the water utilities sent out leak notifications via phone and text to customers upon detection of leaks.

The first pilot, conducted at an Inland Empire water utility, involved comparing 492 accounts with new meters and AMI hourly water reads (treatment group) and 492 accounts with existing meters and monthly water reads (control group) over a 12-month period. Over the course of the pilot, 172 water leaks were detected by AMI analytics and a total of 6,863,852 gallons of water savings due to leak reduction by AMI analytics was estimated. This equals an average water savings of 13,951 gallons/meter-year.

The second pilot, conducted at a coastal Southern California water utility, involved comparing 1,190 accounts with new meters and AMI hourly water reads (treatment group) and 1,190 accounts with existing meters and monthly water reads (control group) over a 12-month period. Over the course of this pilot, 188 water leaks were detected by AMI analytics and a total of 3,508,520 gallons of water savings due to leak reduction by AMI analytics was estimated. This equals an average water savings of 2,948 gallons/meter/year (3,508,520/1,190).

Aggregate water savings due to leak reduction by AMI analytics was estimated by examining the treatment group during the Post AMI period. The start and end time for each leak was recorded, and the flow rate of that leak was calculated by comparing the flow rate during the leak period to normal consumption periods. To calculate the water saved, it was assumed that the leak would have continued at this flow rate until the next bill date, at which point the customer is assumed to have identified the leak from the high bill and resolved the issue. This approach is an accepted way to estimate aggregate water savings; however, the approach does under-estimate water savings associated with leaks that span multiple months, since it assumes customers are prompted to action upon receipt of their bill which may not always be the case. Therefore, this assumption is consistent with the grant program requirement that water savings must be the result of reducing or eliminating a current ongoing loss, not the result of an expected future loss.

The District has selected and used the coastal Southern California utility as reference since it most closely represents the District's geography and climate. As a result, the following water savings from leaks is estimated with AMI:

**Water Loss Reduction/Savings from Customer Leaks Calculations**
3,424 meters * 2,948 gallons/meter/year = 10,093,952 gallons/year / 325,851 gallons/AF **= 30.98 AFY water saved**

**Water Loss Reduction/Savings from Customer Metering Inaccuracies**
The District's 2015 UWMP documented an opportunity to identify areas of high water loss and develop strategies to minimize those water losses.

Apparent water losses are the non-physical losses that occur in utility operations due to customer metering inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption. This is water that is consumed but not accurately measured, accounted for, or billed.

The District contracts with Westerly Meter Service Company to perform randomized annual meter audits consistent with Department of Water Resources (DWR) Water Loss Audit Reporting requirements since 2015. Additionally, District staff internally perform water meter performance assessments to identify customer metering inaccuracies on an ongoing basis since 2010. The analytics include detection and prioritization of meter under-registration, meter right sizing, and meter read errors issues. Meter under-registration involves the detection of mechanical meters whose accuracy is decreasing over time, causing the meters to register less water than is flowing through them. Meter right sizing detects if the customer has a water meter sized

differently than their demand, and meter read errors detects errors with meters reads like negative, unexpected consecutive zeros, and implausible reads.

The District recently completed an analysis of a sampling of 49 AMR meters installed between October 2018 and June 2019, comparing water consumption for the 12-month period before changing to an AMR meter and the 12-month period after the AMR meter was installed. The analysis showed that AMR meter accuracy improved registering water consumption on average by 19.45 percent.

Using an average water loss per meter of 383.45 gallons/month, which is based on 2018 water loss from meter inaccuracies (18,557,214 gallons [56.95 AF] / 12 months / 4,033 active meters in 2018), and assuming the same annual water loss for both residential and non-residential meters, the annual water loss reductions/savings from meter inaccuracies for 3,424 meters by installing new meters through the AMR/AMI Project will be:

**Water Loss Reduction/Savings from Customer Metering Inaccuracies**
3,424 meters X 383.45 gallons/month (average water loss/meter) x 19.45% efficiency x 12 months/year = 3,064,347 gallons/year savings for Residential Meters = **9.40 AFY water saved**

**Water Savings from Customer Portal Use**
Savings will also result from the deployment of a Customer Portal through water use behavioral change on the part of customers who access the data for the purpose of monitoring their consumption. Customers will be able to independently access their hourly consumption data, and the District will be able to promote routine conservation messaging as well as any new programs (e.g. water efficient fittings and appliances) to save water. Using the online customer portal, consumers have an option to set daily, weekly, or monthly water efficiency targets and receive notifications via an email or text message when their usage is continuous for a period of 72 hours.

Self-leak detection is not thought to be a major benefit of the Customer Portal; therefore, water savings associated with self-leak detection are projected in the earlier section *Water Loss Reduction/Savings from Customer Leaks* assuming the District will provide customers dedicated leak notifications.

Eastern Municipal Water District (EMWD), a wholesaler of water in Southern California, recently completed a demonstration project that included a Customer Portal like the proposed AMR/AMI Project. For the demonstration project, EMWD installed AMI units for a subset of its customer base, included daily water use information on customer water bills, and made flow data available to customers on EMWD's website. EMWD determined that implementation of the demonstration project realized an average annual savings of 0.027 AF per meter across all meters. Since the District's proposed AMR/AMI Project includes these same activities, it is anticipated that this same level of savings can be achieved at a minimum for all 3,424 AMI units through implementation of the Customer Portal. As the District has already started integrating AMR/AMI meters in its service area, there are 812 AMR meters currently in use, the total number of installed AMR/AMI meters installed in the District's service area will total 4,236.

Applying the same average savings of 0.027 AFY/meter to the proposed AMR/AMI Project, the following is the water savings calculation:

**Water Savings from Customer Portal Use**
0.027 AFY/meter * 4,236 meters = **114.37 AFY water saved**

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

The District's AWWA 2018 Water Loss Audit showed water losses totaled 193.15 AFY, which includes 69.21 AFY from apparent losses (metering inaccuracies and data handling errors) and 123.94 AFY from real losses (leaks and apparent losses). The District records daily production and demand data and reads all meters on a monthly basis to assess and manage distribution system real loss. All metered sales and other verifiable uses, such as backwash, flush water, and operation and maintenance, are recorded. In late 2019, the District completed a systemwide analysis, with the assistance of the Municipal Water District of Orange County, to detect and repair distribution system leaks. Much of the District's steel and ductile iron pipe is protected from early deterioration with a cathodic protection system. This system draws the negative current away from the pipe to a sacrificial anode that erodes instead of the piping. This prevents leakage on the piping and reduces water loss. Customer service field staff are available to assist customers with leak detection. If a customer suspects a leak on their property or experiences a higher than normal water bill, they are encouraged to contact the District's Customer Service Division and request that a staff member check the customer's water meter. District staff only assist customers in attempting to locate the problem, but the customer is responsible for fixing the leak or hiring someone to make repairs. In cases of water meter leaks, a Water Customer Service representative is sent to a customer's property to ascertain the cause of the leak and make repairs, such as replacing blown-out gaskets or replacing a damaged valve or meter. If the leak occurs on the service line from the meter to a home or business, it is the customer's responsibility to make repairs or hire a plumber. The District's water services replacement, valve maintenance, and hydrant maintenance programs help to prevent system losses by systematically inspecting, repairing, and replacing (when needed) aging or failing infrastructure.

California Senate Bill (SB) 1420 signed into law in September 2014 requires urban water suppliers that submit UWMPs to calculate annual system water losses using the water audit methodology developed by the AWWA. The AWWA water loss methodology determines the District's current distribution system losses and/or the potential for reductions in water use by individual users. Water losses are defined by the IWA as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. The audit was developed by the IWA Water Loss Task Force as a universal methodology that could be applied to any water distribution system. This audit meets the requirements of SB 1420. Understanding and controlling water loss from a distribution system is an effective way for the District to achieve regulatory standards and manage their existing resources.

Also described above in section (a), the potential for reductions in water use by individual users were determined based on EMWD's demonstration project, which realized an average annual savings of 0.027 AF per meter through implementation of their AMI Project. Some potential reasons for water loss include water used in operation and maintenance, pipe leaks, reservoir leaks, fire department use, meter error and unmetered water usage, as discussed in the District's 2015 UWMP.

**c. For installing individual water user meters, 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.**

Expected water use reduction and supporting documentation, including the EMWD's study on potential for reducing water use, are discussed above in sections (a) and (b).

**d. If installing distribution main meters will result in conserved water, provide support for this determination (including, but not limited to, leakage studies, previous leakage reduction projects, etc.).**

Not applicable. No distribution main meters will be installed.

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

The AMR/AMI Project will upgrade 3,424 existing manually read meters with a fixed-base AMI technology system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency, improved water management, and energy savings. A total of 3,424 meters will be replaced.

The hardware composing the AMI system will be installed in the sizes and quantities shown in **Table 1**. These are approximations known at this time and actual values may differ. All meters, registers, nodes, and boxes, etc., as well as the AMI network and host software will be installed and managed by the Contractor. All products, including third-party products, such as meter boxes will be approved by the District prior to purchase by the Contractor. All 3", 4", 6", and 1" meters are Turbine meters.

**Table 1. AMI Devices Installed in the Trabuco Canyon Water District Service Area**

| Item | Quantity |
|---|---|
| ***AMI Network Infrastructure*** | |
| Powered Gateways (Data Collector) | 9 |
| ***Meters with Registers*** | |
| 5/8" | 2,043 |
| 3/4" SL 7.5" Lay-Length | 733 |
| 1" | 112 |
| 1.5" | 36 |
| 2" | 114 |
| 3" | 19 |
| 4" | 4 |
| 6" | 5 |
| 10" | 2 |
| ***Retrofit Registers*** | |
| 5/8" | 263 |
| 3/4" | 47 |
| 1" | 11 |
| 1.5" | 7 |
| 2" | 22 |
| 3" | 4 |
| 4" | 1 |
| 6" | 1 |
| **Total Meters** | **3,424** |
| | |
| ***Optional Equipment*** | |
| Vehicle-Mounted Collector Equipment | 1 |
| Backup Powered Gateway (one on hand) | 1 |

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

Actual water savings will be verified upon completion of the AMR/AMI Project through the use of utility data management software to conduct a water balance in the system. Additionally, 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.

The District's 2018 potable water demand of 2,700 AFY was met through a small amount of locally extracted groundwater and mainly purchased imported water from MWDOC. An annual average of 2,500 AFY of purchased imported water from MWDOC is delivered to the District's service area for residential, commercial, and institutional customers. Water lost from any leakage is reasonably considered to be seeping back into the ground and/or flowing to a storm drain or ocean. A total of 154.75 AFY will be conserved by the proposed AMR/AMI Project. Water conserved as a result of the proposed Project's implementation represents a decrease in local water demand, which would decrease the amount imported by the District through MWDOC and MWD. Therefore, the conserved water will remain at its source, the Bay-Delta, and Colorado River, for environmental and other uses.

### *Evaluation Criterion B: Water Supply Reliability*

**1. Will the project address a specific water reliability concern?**

- ***Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?***

The proposed Project will address the water reliability concern of limited supply and drought conditions in California by saving 154.75 AFY of imported potable water. California's water supply sustainability has been an increasing concern as water districts work to manage water demands versus environmental impacts. California has experienced historic drought conditions across the state. According to the U.S. Drought Monitor's website, since 2000, the longest duration of drought in California lasted 376 weeks beginning on December 27, 2011 and ending March 5, 2019. California's drought conditions have been severe in the Project area and as recently as July 2019, Orange County was depicted as abnormally dry. Former California Governor Brown declared a drought emergency on January 17, 2014, 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 DWR reduced State Water Project (SWP) allocations for southern California contractors to zero on January 31, 2014, and then 5 percent 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 April of 2017 when heavy precipitation occurred across the state. This presented a new problem of landslides and flooding as severe storms swept through the area, resulting in a new declared emergency for severe storms. California has faced many droughts and strong precipitation cycles, and the District is also plagued by severe, dry desert winds with gusts up to 50 mph (known as the Santa Ana Winds) that blow through Trabuco Canyon from the Santa Ana foothills. The Santa Ana winds' low humidity, combined with the warm air mass and high wind speeds, create critical fire weather conditions, making them infamous for fanning regional wildfires. As such, the District has endured severe wildfires.

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 up to 78% 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's only other local source of potable supply, groundwater, is limited or non-existent when there is little

to no rainfall replenishing the groundwater basin from which the District pumps. Therefore, any effort to reduce the District's water demand will also benefit other communities that rely on imported water sources. The District maintains seven (7) reservoirs to help mitigate the impact of water shortages; however, these resources can only sustain the water supply for approximately 7 days.

The use of AMI technology to identify water losses and water waste is of great importance to the District due to its reliance on imported water. The District's improvements in water use efficiency will free up additional supply to address shortages elsewhere. Drought impacts to the region, including the District service area, are shown in **Table 2.**

**Table 2. Summary of Drought Impacts**

| Risk to Drinking Water | Risk to Ecosystem | Risk to Groundwater | Other Drought Related Impacts |
|---|---|---|---|
| - The South Orange County region is 90% reliant on imported water and the District is 78% reliant.<br>- County of Orange declared extreme drought in 2014 and severe drought in 2018<br>- Orange County regional threat of not receiving imported water supply for potable uses during catastrophic or drought conditions | - Coastal Sage Scrub does not tolerate repeated fire events<br>- Oak trees show signs of stress<br>-Instability in soil and slopes due to weak tree/vegetation roots | - During drought conditions, groundwater supply is low due to limited rainfall and surface water replenishing the groundwater basin<br>- Increased groundwater quality issues due to decreased flows infiltrating into basin | - Increase in water demands for landscape use due to higher temperatures<br>- Catastrophic wildfires, including Holy Jim fire<br>- Flashfloods in 2018 resulted in mandatory evacuations for the Trabuco Canyon burn scar areas<br>- Landslides/mudslides resulted from 2016 Holy Jim fire that burned 150 acres in Trabuco Canyon, Cleveland National Forest<br>- Limited imported water supply threatens residents, including disadvantaged communities and business, impacting real estate property values, if water is not available for irrigation<br>- Tension over finite supplies |

Despite moderate January 2020 precipitation in the Sierra Nevada and a very dry February 2020, a DWR manual snow survey conducted on February 27, 2020 at the Phillips Station revealed only 14 percent of the early-February average, "on track to be a below-average year in 2020". On April 1, 2020, the final manual survey of the year recorded 43.5 inches of snow depth and a snow water equivalent (SWE) of 16.5 inches, which is 66 percent of the April average for the location. The SWE measures the amount of water contained in the snowpack, which provides a more accurate forecast of spring runoff. Measurements from the 130 electronic snow sensors, scattered throughout the state, indicate that the statewide snowpack's water equivalent was 15.2 inches, or 53 percent of the April average. Typically, California relies on a handful of large storms. On average, the snowpack supplies about 30 percent of California's water needs as it melts in the spring and early summer. On March 10, 2020, the U.S. Drought Monitor declared the County of Orange, California, to be in a "abnormally dry" drought. As of April 1, 2020, California's six largest reservoirs held between 82 percent (San Luis) and 125 percent (Melones) of their historical averages for that date. Lake Shasta, California's largest surface reservoir, was 98 percent of its historical average and 79 percent of capacity.

On July 23, 2020, the U.S. Drought Monitor declared the County of Orange, California, to be in a "no drought situation." Drought conditions result in a heightened competition for finite water supplies and over-allocation within MWD's service area. The District is 100% reliant on imported water from the CRA and SWP for 78% of its potable water supplies. With nearly 19 million people in MWD's service area, Southern California is heavily reliant on imported water supplies to meet demands. It was forecasted by Reclamation that projected demands will exceed available supply in the Colorado River, and to reduce the supply gap, increased

conservation and water use efficiency measures will need to be implemented. Water conserved as a result of the proposed Project's implementation represents a decrease in the amount imported by the District through MWDOC and MWD; thereby, the conserved water will remain at its source, in the Bay-Delta and in the Colorado River, for other uses. The Project will yield real water supply benefits to urban water users in the short term by conserving 154.75 AFY, directly offsetting approximately 7% of the District's imported water demand (average 2,500 AFY). This benefit will be realized annually, year-round for the 20-year life of the Project.

- ***Describe how the project will address the water reliability concern. In your response, please address where the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.***

Water reliability is defined as the ability to meet water demands consistently. The District is 100% reliant on imported water for its potable supply when seasonal groundwater is limited or not available; groundwater is not available as a supply source every year. When seasonally available, groundwater makes up approximately 11% - 22% of the District's supply, while imported water makes up between 78% to 100% of its potable supply. This AMR/AMI Project will help address the issue of threatened water reliability by conserving 154.75 AFY of water, 100% toward imported potable water.

The water conserved by the Project will be used to offset imported water from MWD through MWDOC, and reduce demands on diversions from both the SWP and CRA. With nearly 19 million people in MWD's service area, Southern California is heavily reliant on imported water supplies to meet demands. It was forecasted by Reclamation that projected demands will exceed available supply in the Colorado River, and to reduce the supply gap, increased conservation and water use efficiency measures will need to be implemented. Water conserved as a result of the proposed Project's implementation represents a decrease in the amount imported by the District through MWDOC and MWD. Thereby, the conserved water will remain at its source, in the Colorado River and in the Bay Delta, for other uses. The Project will yield real water supply benefits to urban water users in the short term by conserving 154.75 AFY, directly offsetting approximately 7.0% of the District's imported water demand (current 2,200 AFY). This benefit will be realized annually, year-round for the 20-year life of the Project.

The greater South Orange County region is approximately 90% dependent on imported water, which poses a great risk during a water shortage. Imported pipelines cross five seismic faults several times, posing a high vulnerability to the region during times of drought, earthquake, or other catastrophic event. As such, the 2013 South Orange County Reliability Study identified the following Risks: Emergency shutdowns of outside facilities, prolonged drought, and lack of local project implementation.

The AMR/AMI Project will improve the reliability of water supplies from both the SWP and CRA, which would ultimately benefit people and the environment associated with both of these water supply sources. AMI technology provides near-real time usage data that can be compared to District supplies, allowing staff to better manage water resources. 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.

The AMR/AMI Project, if funded, could result in an additional availability of approximately 154.75 AFY of water that would otherwise be lost and unavailable to the District, the Orange County Region, or the

conserved water will remain at its source, mostly in the Colorado River and some in the Bay-Delta, for environmental and other uses.

California faced unmatched drought conditions in recent years – 2013 was the driest year ever recorded and 2014 was the hottest year on record. 2015 had some of the warmest and driest months on record, including a record low snowpack in the Sierra Nevada. In March 2019, for the first time since December 20, 2011, California was free of drought. The state had experienced some form of drought for 376 consecutive weeks – more than seven years. However, the dry start to 2020 has also reintroduced drought into California, which had been erased after a wet December 2019. Temperatures were above average during spring 2020 throughout much of the West. Widespread drier-than-normal conditions occurred in spring though some regions experienced wetter than normal months.

The SWP typically provides about a third of Southern California's water. Storage in the District's other supply source, the Colorado River, stood at less than 50% of capacity after 15 drought years in the Southwest in 2018. Imported water is impacted by climate variation by being greatly limited during the current and projected drought conditions. Climate variation presents unpredictable weather patterns and unreliable supplies of water. Therefore, the reliability of imported water availability has been significantly reduced.

The AMR/AMI Project will directly contribute to building drought resiliency by implementing a high caliber and proven water management strategy that emphasizes water reliability, conservation, and increase water use efficiency. All of these factors are critical for ensuring water supply sustainability in the future, given the increasing costs of imported water and the severe water supply challenges that Southern California constantly faces.

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

The conserved water will be reflected in reduced potable demands in the District's water supply, making more water available to support the CRA and SWP, and their ecosystems. Up to 78 percent of the District's potable water demand is met with imported water. On average over the past 5 years, approximately 5 percent of the imported water has been from the SWP and 95 percent has been from the CRA. The water saved as a result of this Project will allow the District to purchase less imported water which carries a higher cost than pumping local groundwater supply, when available. The District's groundwater supply is highly variable due to weather and drought conditions. For example, the District was unable to produce local groundwater during 2014-2015 due to drought conditions. The imported water supplies saved by the District's Project can provide water to other agencies for agricultural, municipal, industrial, environmental, and recreational purposes. Any water saved that reduces the District's demand for these imported water supplies provides more water for other SWP and CRA water users, benefiting multiple water users and the environment.

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

Up to 154.75 AFY will remain in the Bay-Delta or CRA.

**2. Will the project make water available to achieve multiple benefits or to benefit multiple water users?**

- ***Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?***
- ***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 or the species to the water supply, and whether the species is adversely affected by a Reclamation project.***

The AMR/AMI Project provides environmental benefits and improves the status of the state listed species by making more water available in the Bay-Delta to support the species and their habitats. Based on current and average data, approximately 2,500 AFY of imported water is moved from the northern California Bay-Delta area through the SWP and the Colorado River Aqueduct to meet the District's demand for water. With a reduction in this imported water demand by 154.75 AFY, the impact on the Delta Smelt, Salmon, and other state listed species currently impacted by water pumping activities will help to be alleviated.

The District's water supply consists of imported water obtained from MWDOC via MWD. The District typically receives raw CRA water through MWD, although may also receive blended CRA and SWP supplies before delivery to the District. As the AMR/AMI Project seeks to offset imported water deliveries to the District by 154.75 AFY, benefits also include alleviating stress on the Bay-Delta habitat. Rationing water supplies received from the Bay-Delta helps limit the ecological impact of importing water. Twenty-nine known species of fish once populated the estuary and currently 12 of those species are considered gone or threatened by extinction. The Bay-Delta is also home to the Delta Smelt, which is a protected species through a 2007 court order. With a reduction in this imported water demand, the impact on the Delta Smelt, Salmon and other species currently impacted by water pumping activities, will be alleviated to the extent of the AMR/AMI Project. Any reduction in water use from the SWP for this region has a positive impact on the species in and around the Bay-Delta area. The Project's AMI installation will provide customers 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 would ultimately provide a means for identifying and adjusting water demands during environmentally sensitive periods to foster greater recovery of the endangered Delta species.

Endemic to the upper Sacramento-San Joaquin Estuary of California, Delta Smelt mainly inhabit the freshwater-saltwater mixing zone of the estuary, except during its spawning season, when it migrates upstream to freshwater following winter "first flush" flow events (around March to May). It functions as an indicator species for the overall health of the Delta's ecosystem. Because of its one-year lifecycle and relatively low fecundity, it is very susceptible to changes in the environmental conditions of its native habitat. Efforts to protect the endangered fish from further decline have focused on limiting or modifying the large-scale pumping activities of state and federal water projects at the southern end of the estuary thereby limiting water available to farming. However, these efforts have not prevented the species from becoming functionally extinct in the wild. Historically, Delta Smelt were relatively abundant in the upper Sacramento-San Joaquin Estuary, with populations declining dramatically in the 1980s. They were listed as threatened by both federal and state governments in 1993, and sustained record-low abundance indices prompted their listing as endangered under the California Endangered Species Act in 2010.

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

The Project will benefit the larger water reliability initiatives to reduce statewide urban water use by 20%, support the Colorado River Basin Plan by reducing demand on water imported from the CRA, and support MWD's water reliability plans to reduce demand on the SWP. A total of 154.75 AFY will be conserved by the proposed AMR/AMI Project benefitting the larger municipal initiative to achieve the statewide goal of 20 percent reduction in urban water use by 2020 as mandated by SBX7-7. Up to 78 percent of the District's water supply consists solely of imported water obtained from MWD through MWDOC. The District uses some groundwater, but it is limited in the amount of groundwater it can pump each year. Hence, potable water savings from the Project will directly reduce the amount of imported water demand from the District and allow 154.75 AFY to be conserved in the CRA and to instream flows in the SWP (Bay-Delta). An average of 2,500 AFY of purchased imported water from MWDOC is currently being delivered to the District's service area for residential, commercial, and institutional customers. Water saved as a result of the proposed Project's implementation represents a decrease in imported demand by the District through MWDOC and MWD,

typically raw water from the CRA or a blend of supplies from the CRA with water allocated from the SWP. The Colorado River's long-term imbalance in future supply and demand is projected to be approximately 3.2 MAF by the year 2060. Approximately 40 million people rely on the Colorado River and its tributaries for water, with 5.5 million acres of land using Colorado River water for irrigation. From 2000–2015, there were only three years when the Colorado River flow was above average (MWD, 2015 UWMP, June 2016). The availability of water supplies from the SWP can be highly variable as well. In 2015, only 20% of the total allocation to MWD was available, while in 2016 only 60% of the total allocation to MWD was available. "Table A" water is the maximum entitlement of SWP water for each water contracting agency. In 2017, the final SWP Table A Allocation was 85% of the maximum allocation, amounting to 1.62 MAF to MWD. However, even with the rainfall during early 2019, Southern California was still in abnormally dry/drought conditions and is heavily reliant on imported water supplies from CRA and SWP, and in 2018 only 20% of the total allocation was available (MWDOC, email correspondence, 2/12/18). The Project's reduction on imported water demand supports state and federal water reliability initiatives.

- ***Will the project benefit Indian tribes?***

The Project will not directly benefit tribes nor help Reclamation meet trust responsibilities to tribes as there is no direct impact on tribes in the Project area. However, the Project may help Reclamation meet trust responsibilities in the SWP or CRA areas since the Project will be reducing demand on these sources. While the Project is not in the same basin as a Reclamation project or activity, it will contribute to a basin where a Reclamation project is located. The imported water savings attained through the AMR/AMI Project implementation will be the result of reduced imports from the Bay-Delta and the Colorado River, thereby impacting the Colorado River Basin. By reducing the amount of water imported, this water in effect remains in the basin from which it originates or is made available to meet demands in other areas of the State. Any increase in water reliability and greater availability in overall water supply 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.

- ***Will the project benefit rural or economically disadvantaged communities?***

Approximately 8% of the District's service area includes rural areas of unincorporated Orange County and, therefore, the Project will benefit this portion of its service area. The District's service area does not include economically disadvantaged communities (DACs); however, the District receives imported water from MWDOC, whose service area includes DACs within the Orange County region. The South Orange County region is highly reliant on imported water supply, with approximately 90% of its water supply coming from imported sources. The AMR/AMI Project is needed to reduce demand on imported water received from MWDOC to ensure DACs have a reliable potable supply of water. DACs are included in an area just outside of District's service area, as shown in the **Figure 5,** *Disadvantaged Communities Map*. The proposed AMR/AMI Project assists in reducing the region's reliance on imported water supply through saving 154.75 AFY.

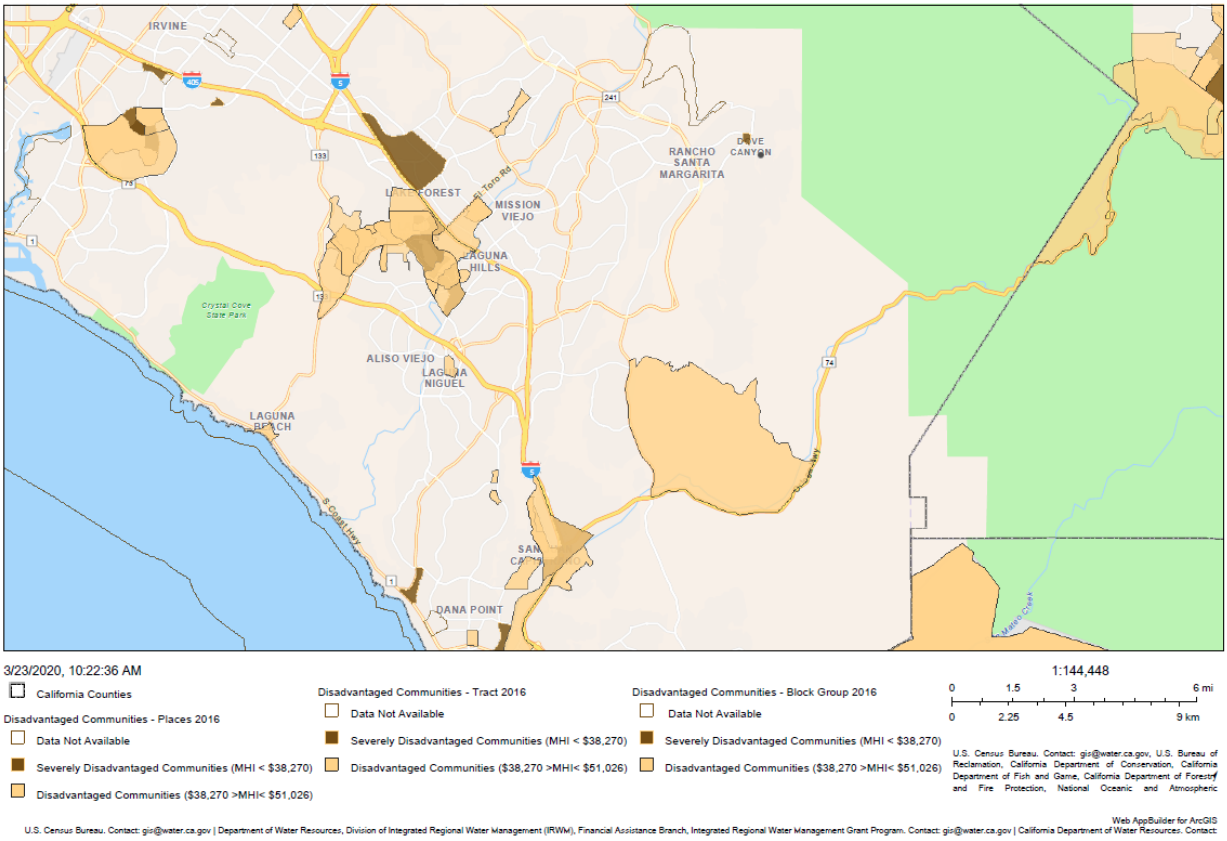
**3. Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?**

The AMR/AMI Project promotes and encourages collaboration to increase water supply reliability. The AMR/AMI Project will improve the reliability of water supplies from both the SWP and the CRA, which would ultimately benefit people, agriculture, and the environment associated with these water supply sources. The AMR/AMI Project enhances the District's partnership and collaboration with MWDOC and MWD toward greater regional water conservation and reliability efforts throughout Southern California.

The Project, when combined with MWDOC's efforts to prevent a water-related crisis or conflict, provides best

management tools for monitoring for water losses and for managing water usage. The AMI will allow the District to better monitor water use and determine if there is water waste or a leak. The customer will be able to access near real time data regarding water use and be better able to adjust water usage immediately, versus waiting until when the month-end bill arrives that shows total use has increased without a way to determine when it occurred or whether it is due to indoor use or outdoor use.

**Figure 5. Regional Disadvantaged Communities Map**




The District maintains a highly active public information program to promote and educate customers about water conservation The District's public education and outreach program is supplemented by MWDOC's extensive regional public education and outreach programs that assist its retail agencies in promoting water use efficiency awareness within their service areas.

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 AMR/AMI Implementation 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. Any reduction in water consumption by increasing water use efficiency and promoting conservation helps reduce the amount of water required for import from the SWP and the CRA.

- ***Is there widespread support for the project?***

Yes, there is widespread support for implementing AMR/AMI projects throughout the Orange County region, as multiple agencies have implemented these types of projects. Support for the District's proposed AMR/AMI

Project is demonstrated through letters of support that have been provided by MWD and MWDOC (**Exhibit B,** Letters of Support). The District referenced other local agencies who have implemented AMI projects, including Eastern Municipal Water District, about the results of AMI pilot studies and Laguna Beach County Water District, who was a recipient of a WaterSMART: Water and Energy Efficiency Grant from Reclamation in FY 2016. Laguna Beach County Water District (LBCWD) is also a MWDOC member agency. The LBCWD's funded project is similar in nature to the proposed AMR/AMI Project and therefore aided the District in gaining insight about the AMI system and provided support for the District's AMR/AMI Project.

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

Collaboration in support of implementation of the AMR/AMI Project advances measures toward water reliability in the region. The proposed AMR/AMI Project, if funded, could make available approximately 154.75 AFY of water that would otherwise be lost and unavailable to the District and the Orange County region. Increased collaboration between the District and its customers will also demonstrate acknowledgement of the District's progressive approach to increasing conservation through improved water management.

- ***Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?***

The potential for future water conservation improvements by other water users throughout the region would result by completion of the District's AMR/AMI Project. The AMR/AMI Project is market-transformative and could become mainstream based on beneficial results. The District's customers are already committed to and have been successful in maximizing water conservation. The AMR/AMI Project would assist the District in serving as an example of effective water use efficiency and water conservation to other water agencies that are nearly 100% dependent on imported water supplies. The region includes many other water suppliers that could use the collective results of the Project to advance water conservation improvement measures. For example, recent successful AMR/AMI project implementation by South Coast Water District, Laguna Beach County Water District, Moulton Niguel Water District, and others in the Orange County region were a key factor in the District proposing the AMR/AMI Project for its service area to reduce demand.

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

There is a water-related conflict within the Bay-Delta and the Colorado River (over limited water supplies) from which the District receives its imported water. This AMR/AMI Project will help to reduce the amount of water needed for import to southern California through the MWD system. In addition, this AMR/AMI Project may serve as a model to other agencies that are looking for ways to meet urban water use reductions. The District is 100% reliant on imported water supplies from the Bay-Delta and CRA for approximately 78% to 100% of its potable water supply depending on seasonal groundwater availability. The South Orange County region is 90% reliant on the same imported water supplies. Therefore, the water-related conflict within the Bay-Delta and Colorado River is significant and implementing the AMR/AMI Project will assist in increasing local water reliability and decreasing imported water demand. The District receives water from the Colorado River Basin, which experiences frequent tension over the water in the Colorado River Basin. Reducing the water demand on the Colorado River Basin will help to alleviate tension over the limited water supply.

- ***Describe the roles of any partners in the process. Please attach any relevant supporting documents.***

There are no specific local or regional partners for this Project. The District will partner with the Contractor to implement the Project.

**4. Will the project address water supply reliability in other ways not described above?**

The Project will address water reliability in other ways not described above, including providing the public with enhanced water use awareness and water conservation education. The customer portal will provide customers with access to hourly water usage data and serve as a dynamic tool to educate water users about the importance of water conservation and water use efficiency and emphasize the need to take a proactive role in their water use management. The District has a strong customer service program that has led to great partnerships and relationships with the water users in the District service area, and this Project will integrate a proactive outreach and education program to promote the capabilities and tools offered as part of the Project. Not only would the installation of AMI help reduce energy consumption due to decreased water loss and consumption, it would also benefit the overall energy consumption by eliminating energy costs associated with fuel costs. AMI would eliminate the need for field customer service representatives to drive nearly 1,584 miles per year throughout the service area (66 total miles of pipeline x 12 months x 2 field technicians).collecting meter readings (water usage data) each month, resulting in an estimated fuel savings of approximately 100 gallons each year, reducing its carbon footprint, in addition to savings on truck maintenance.

### *Evaluation Criterion C: Implementing Hydropower*

The proposed AMR/AMI Project does not include hydropower components.

### *Evaluation Criterion D: Complementing On-Farm Irrigation Improvements*

The proposed AMR/AMI Project indirectly complements on-farm irrigation improvements in the Bay Delta region by reducing imported water demand on the Bay Delta (via the SWP) by approximately 154.75 AFY, making this same amount of water available for farm and agricultural practices in the Bay Delta. Through the Bay Delta Initiative (BDI), the Natural Resources Conservation Service (NRCS) and its local partners aim to address the critical water quantity, water quality, and habitat restoration needs of the Bay Delta region. The Bay Delta region encompasses more than 38 million acres and is one of the most important estuary systems in the nation. This region provides drinking water for more than 23 million people and irrigation water to 4 million acres of farmland. More than $400 billion in economic activities occur in the region. America's stewardship of the Bay Delta is critical. Increased demand for limited water resources and declining water quality threaten the continued economic and environmental wellbeing of the region. For more than 75 years, the U.S. Department of Agriculture and NRCS have partnered with agricultural producers, forest landowners, urban and suburban residents, and other conservation partners to restore wetlands and enhance aquatic and other wildlife habitat on working agricultural land and private non-industrial forest land in the Bay watershed. The proposed AMR/AMI Project will support the BDI and on-farm water use efficiency, conservation, and overall irrigation improvements by allowing more water to remain in the Bay Delta.

### *Evaluation Criterion E: Department of the Interior and Bureau of Reclamation Priorities*

**Department of the Interior Priorities**

**1. Creating a Conservation Stewardship Legacy Second Only to Teddy Roosevelt**

**a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment***

The proposed AMR/AMI Project utilizes science to manage water resources by implementing AMI technology as a best practice for improved leak detection, reduced meter inaccuracies, and reduced water consumption through the customer portal. Reduced water consumption and improved water savings will positively impact land and water management by reducing non-point source pollutants from entering the Arroyo Trabuco

Creek, part of the San Juan Groundwater Basin, from which TCWD pumps groundwater, when available. In 2018, no groundwater was pumped; however, in 2019, 521 AF and in 2020, 207 AF of groundwater was pumped. By integrating water conservation and augmenting local groundwater supplies, the District reduces the region's dependence on imported water in compliance with its 2015 UWMP. The AMR/AMI Project also supports County of Orange unincorporated areas and considers the Natural Community Conservation Plan / Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion of Orange County California. The NCCP/HCP coordinates land management activities of public and private landowners within the 37,000-acre reserve system, conducts wildlife and habitat research and monitoring, and restores disturbed habitats.

**b. *Examine land use planning processes and land use designations that govern public use and access***

The District's service area can best be described as a predominately single and multi-family residential community located in southern Orange County. There are several golf courses, parks, and a regional park in the District. The AMR/AMI Project examines the land use planning process and land use designations that govern public use and access by considering UWMP planning principles. The U.S. Forest Service manages the Cleveland National Forest, adjacent to the District's service area. Per the Forest and Rangeland Renewable Resources Planning Act, as amended by the National Forest Management Act, the National Forest Service implements a process for developing, amending, and revising land management plans for units of the National Forest System. The Cleveland National Forest Land and Resource Management Plan, forest plan monitoring reports, and other assessments and planning documents were developed to oversee protection and management of the forest. The District's proposed AMR/AMI Project will protect the Forest lands and the management of the National Forest Service to protect public use and access to the parks.

**c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards***

The AMR/AMI Project is an example of the streamlined environmental and regulatory review process in that it has filed a Categorical Exemption per CEQA Title 14 (California Code of Regulations), Chapter 3, Article 19, Section 15302c (see **Exhibit A**), and it is anticipated that a Categorical Exclusion or Finding of No Significant Impacts under NEPA will be granted given the nature of the Project that includes simply replacing or retrofitting existing meters with upgraded AMI meters. A Categorical Exclusion seems appropriate since the AMR/AMI Project will likely not have a significant effect on the human environment and, therefore, neither an environmental assessment nor an environmental impact statement would be required.

**d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity***

The AMR/AMI Project will result in water savings and therefore, reduce imported water demand, which is supplied by MWDOC via MWD, which receives water from the SWP and CRA. The Project will help reduce water-related conflict (over limited water supplies) within the Bay-Delta and the Colorado River by leaving additional supplies in those systems.

**e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands***

As described above, the AMR/AMI Project also supports the NCCP/HCP for the Central and Coastal Subregion of Orange County California. The NCCP/HCP coordinates land management activities of public and private landowners within the 37,000-acre reserve system, conducts wildlife and habitat research and monitoring, and restores disturbed habitats. The NCCP/HCP acts as a conservation organization advocating for balanced stewardship and use of public lands in unincorporated areas within the County of Orange.

**f. *Identify and implement initiatives to expand access to DOI lands for hunting and fishing***

This is not applicable.

**g. *Shift the balance towards providing greater public access to public lands over restrictions to access***

The AMR/AMI Project supports preserving the water quality of the Trabuco Canyon and Live Oak Canyon within the O'Neill Regional Park, a major regional park and greenway that encompasses 4,500 acres of canyon and riparian zone habitat connected to the Cleveland National Forest. The Park provides public access to campgrounds and trails for hiking, biking, and horseback riding. Many flora and fauna can be sighted, such as poison oak, bobcats, and mountain lions, which are rare. The proposed AMR/AMI Project will provide water conservation that will help reduce runoff from entering the surrounding open space and waterways, thereby protecting the natural habitats from flooding, pollution, and erosion, as well as access to the O'Neill Regional Park and Cleveland National Forest for recreational uses.

**2. Utilizing Our Natural Resources**

**a. *Ensure American Energy is available to meet our security and economic needs***

As previously described, the AMR/AMI Project will result in 154.75 AFY of water savings, which translates to a savings of energy by reducing the amount of energy required to distribute imported water and groundwater. The total reduced water demand results in energy savings that equates to a total of 594,704 kWh/year (see Sub-criterion F.2), making this same amount of energy available to meet security and economic needs.

**b. *Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications***

This is not applicable.

**c. *Refocus timber programs to embrace the entire 'healthy forests' lifecycle***

This is not applicable.

**d. *Manage competition for grazing resources***

This is not applicable.

**3. Restoring Trust with Local Communities**

**a. *Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands***

The AMR/AMI Project restores trust with local communities through the Customer Portal, which will allow customers in the water service area communities to better understand and monitor their water usage. The Customer Portal will allow the District's water customers to have real-time access to their account information and gives them the ability to set up water usage alerts, including leak reports and water budgeting, on an internet-based platform.

AMR/AMI Project installation procedures will include community outreach and customer communication and notification of homeowner at time of meter installation, through a variety of measures including, where appropriate and approved by the District, a consumer water bill insert one month prior to meter installations, website outreach via the FAQ section on website for AMR/AMI Project, and social media - Utility Facebook/Twitter page alerting residents of the meter project. The public outreach component of the Project will also serve to better educate customers on water resources, management, and conservation.

**b. *Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities***

The District works closely with MWDOC, as a member agency, to ensure imported water supply needs are met. As shown in **Figure 1,** the service area includes communities within the City of Rancho Santa Margarita, City of Lake Forest, City of Mission Viejo, Trabuco Canyon, and other areas of unincorporated Orange County, which are also served by other water suppliers. Each of these water suppliers work together with the local communities to meet their water supply needs. The AMR/AMI Project will result in water savings, which benefits the region and nearby water suppliers by increasing water supply reliability by 154.75 AFY.

**4. Striking a Regulatory Balance**

**a. *Reduce the administrative and regulatory burden imposed on U.S. industry and the public***

This is not applicable.

**b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis***

The proposed AMR/AMI Project will reduce imported water demand on the SWP by up to 154.75 AFY, making this same amount of water available for the Delta Smelt and other listed species located in the Delta habitat. The Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes (November 26, 1996) includes the Delta Smelt and monitoring endangered species and potential recovery rates (the Plan is available at the following link: https://www.fws.gov/sfbaydelta/species/delta_smelt.cfm). On December 15, 2008, the Sacramento Fish & Wildlife Office issued a biological opinion (BO) on the Long-Term Operational Criteria and Plan (OCAP) for coordination of the Central Valley Project and SWP. The Service determined that the continued operation of these two water projects, as described in the plan, was likely to jeopardize the continued existence of the delta smelt and adversely modify its critical habitat.

The AMR/AMI Project will provide benefits to federally-recognized endangered species by making up to 154.75 AFY available to the CRA and SWP habitats. The District's water supply consists of 78% of imported water obtained from MWD through MWDOC. MWD typically blends CRA supplies with water allocated from the SWP before delivery to MWDOC and ultimately to the District. As the AMR/AMI Project seeks to offset imported water deliveries to the District, benefits also include alleviating stress on the Bay-Delta habitat. Rationing water supplies received from the Bay-Delta helps limit the ecological impact of importing water. Science concludes that 29 known species of fish once populated the estuary and currently 12 of those species are considered gone or threatened by extinction. The Bay-Delta is also home to the Delta Smelt, which is a protected species through a 2007 court order. The species' habitat, life cycle, and reproduction rates are adversely affected by water imported via the SWP. An example of this is the negative impact on the Delta Smelt, which, due to its one-year life cycle and relatively low reproductive rate, is highly susceptible to changes in the environmental conditions of its native habitat. The Delta Smelt has been considered a 'canary in the coal mine' since reductions in its population are an indicator of deterioration conditions throughout the entire Delta ecosystem. It has been observed that the Delta Smelt population does better when outflow is allowed to flow downstream and create a nursery habitat for Delta smelt in Suisun Bay.

With a reduction in this imported water demand, the impact on the Delta Smelt, Salmon and other species currently impacted by water pumping activities, will be alleviated to the extent of the Project. The Project improves the status of the listed species by making more water available in the Bay-Delta to support the species and their habitats. Any reduction in water use from the SWP for this region has a positive impact on the species in and around the Bay-Delta area. The AMR/AMI Project will not result in negative impacts to endangered, threatened, or candidate species and/or the critical habitats in the SWP or CRA.

**5. Modernizing Our Infrastructure**

**a. *Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure***

The AMR/AMI Project supports the public/private partnership between the Trabuco Canyon Water District, a public entity (special district), and the private contractor selected to implement the proposed AMR/AMI Project. Installing new meters within the distribution system will result in savings through improved leak detection/correction. Replacing existing meters will also result in water savings when new technologies are employed. For example, AMR and AMI devices provide real time measurement to the operator and to the customer as well. This allows for improved management by the operator, more conscientious use by the customer, and improved leakage detection by both. Therefore, the Project implements a public private partnership to upgrade existing meter systems to AMI and will modernize existing water metering infrastructure.

**b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs***

This is not applicable.

**c. *Prioritize DOI infrastructure needs to highlight:***

1. **Construction of infrastructure**
2. **Cyclical maintenance**
3. **Deferred maintenance**

The AMR/AMI Project will assist in deferred maintenance of meters because it will upgrade (replace or retrofit) existing meters to AMI meters. Many of the District's meters are at replacement age and are likely erroneously registering lower water use than actual water use. Therefore, more accurate meter readings compared to aging meters will defer maintenance.

**Reclamation Priorities**

1. **Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities**

The goal of the proposed AMR/AMI Project is to reduce the demand on imported water supplies and increase water supply reliability. 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. 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 95% 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.

From January 2014 through April 2017, California experienced one of the most severe droughts in its history. California Governor Brown declared a drought State of Emergency in January 2014 and called for 20 percent conservation. California has experienced dry years and droughts from 2007 to 2011 and from 2013 to the present, and this has placed an immense strain on water supplies, resulting some of the lowest water storage levels in history. Implementation of AMI for our water consumers will provide significant increase in water use efficiency, reducing impacts on regional resources during times of normal and drought cycles. The AMI system will allow the District to issue real time alerts to customers concerning conservation, water use, water

leaks, and permit the District to remotely read meters. Remote meter reading reduces greenhouse gases by eliminating the generation of CO2 generated by vehicles driving through the District.

It 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. Recently, it was forecasted by Reclamation that projected demands would exceed available supply in the Colorado River, and in order to reduce the supply gap, increased conservation and water use efficiency measures would need to be taken. The District's AMR/AMI Project will directly contribute to increasing water supplies, storage, and reliability under WIIN and other Authorities by implementing a high caliber water management strategy that emphasizes water reliability, conservation, and increase water use efficiency.

**2. Streamline Regulatory Processes and Remove Unnecessary Burdens to Provide More Water and Power Supply Reliability**

The AMR/AMI Project is an example of the streamlined environmental and regulatory review process in that it has filed a Categorical Exemption per CEQA Title 14 (California Code of Regulations), Chapter 3, Article 19, Section 15302c (see **Exhibit A**), and it is anticipated that a Categorical Exclusion or Finding of No Significant Impacts under NEPA will be granted given the nature of the Project that includes simply replacing or retrofitting existing meters with upgraded AMI meters. A Categorical Exclusion seems appropriate since the AMR/AMI Project will likely not have a significant effect on the human environment and, therefore, neither an environmental assessment nor an environmental impact statement would be required.

**3. Leverage Science and Technology to Improve Water Supply Reliability to Communities**

The proposed Project leverages science with AMI technology to help reduce water loss from leaks, correcting metering inaccuracies, and supporting behavioral changes in water use and conservation through a customer portal. Incorporation of the District's AMR/AMI technology has already started, as the District has previously progressed from manual meter reading technology to AMR with a total of 812 AMR meters currently in use. The District is moving towards greater adaptation and use of AMI within the District service area. The District expects to achieve significant savings as a result of full AMR/AMI Project implementation throughout its service areas, coupled with a customer portal. With Reclamation grant funding assistance, the District will complete AMR/AMI Project implementation with a customer portal, and a total Project conversion of 3,424 meters (for an ultimate total of 4,236 meters) to save a total of 154.75 AFY in potable water supply.

**4. Address Ongoing Drought**

Please see drought discussion included in the response to item 1 above.

**5. Improve the Value of Hydropower to Reclamation Power Customers**

This is not applicable.

**6. Improve Water Supplies for Tribal and Rural Communities**

The District's service area includes rural areas and master planned communities; therefore, rural areas will benefit from the proposed AMR/AMI Project's water savings by increasing water supply reliability to these communities in unincorporated Orange County, near the Cleveland National Forest and O'Neill Regional Park. As previously described in Evaluation Criterion B, the AMR/AMI Project will indirectly help Reclamation meet trust responsibilities to Tribes as there is no direct impact to tribes in the Project area. However, the Project may help Reclamation meet trust responsibilities in the SWP or CRA areas since the Project will be reducing demand on these sources. Any increase in water reliability and greater availability in overall water supply resulting from water use efficiency efforts would 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, of the tribes.

**7. Implementation of new Title Transfer authority pursuant to P.L. 116-9**

This is not applicable.

## *Evaluation Criterion F: Implementation and Results*

### *Subcriterion No. F.1—Project Planning*

*Planning efforts are included that provide support for the proposed project.*

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

The AMR/AMI Project is supported by the District's 2015 UWMP and the Annual Meter Replacement Program, which began in 2015 and creates an annual budget for replacing older meters with AMR meters. The AMR/AMI Project is identified as a priority demand management measure in Chapter 4, Demand Management Measures, Section 4.2 Metering, in the District's 2015 UWMP (June 2016). A copy of the District's 2015 UWMP is available upon request and/or may be downloaded on the District's website located at https://www.tcwd.ca.gov/your-water/urban-water-management-plan. Page 51 of the 2015 UWMP states that all landscape irrigation is metered and that the District has implemented an Advanced Meter Reading (AMR) program for all new developments. Since 2015, the District has converted approximately 25% of its meters to AMR.

Page 4-6 Section 4.5 Programs to Assess and Manage Distribution System Real Loss of the 2015 UWMP (June 2016) states, "the District does not have a leak detection program and is reactive to leaks only". A water loss audit was conducted per AWWA methodology for the District to understand the relation between water loss and revenue losses. The water loss summary was calculated over a one-year period from available data and totaled 235 AFY. The volume of water loss calculated for this period represents 8.9 percent of the District's annual water supplied, this presents an opportunity to identify areas of high water loss and develop strategies to minimize it.

The District's 2015 UWMP's AWWA Water Loss Audit, the 2017 Water Loss Audit, and MWDOC's leak detection study identified areas for improvement and quantified total loss. The proposed AMR/AMI Project implements priority areas by providing leak detection, water loss reduction, and increased customer metering accuracy through real time water use data, including the customer portal.

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

The AMR/AMI Project conforms to and meets the 2015 UWMP Water Conservation goals and planning efforts by contributing to leak detection, water loss reduction, and increased customer metering accuracy. The 2015 UWMP Water Conservation goal includes the statewide goal of 20% reduction in urban water use by 2020 as mandated by SBX7-7. As detailed on page 1-1 of the 2015 UWMP, SBx7-7, or the Water Conservation Act of 2009, is part of the Delta Action Plan that stemmed from the Governor's goal to achieve a 20 percent statewide reduction in urban per capita water use by 2020 (20x2020). Reduction in water use is an important part of this plan that aims to sustainably manage the Bay Delta and reduce conflicts between environmental conservation and water supply; it is detailed in Section 3.2.2 of the 2015 UWMP. Page 4-6 Section 4.5

Programs to Assess and Manage Distribution System Real Loss of the District's 2015 UWMP discusses that a Water Loss Audit was completed for the District, which identified areas for improvement and quantified total loss. Based on the data presented, the priority areas identified were volume from own sources, billed metered, and customer metering inaccuracies. The AMR/AMI Project serves as a water conservation measure that will help the District maintain 20% reduction in urban water use.

### *Subcriterion No. F.2—Performance Measures*

*Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). All Water and Energy Efficiency Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed).*

The AMR/AMI Project will allow for accurate measurement for demands assessment, customer billing, diagnostic testing, locating and quantifying leakage, and other management needs. Installing new meters within the distribution system will also result in savings through improved leak detection/correction. Replacing existing meters can also result in water savings when new technologies are employed. For example, AMI devices provide real time measurement to the operator and, in some cases, to the customer as well. This allows for improved management by the operator, more conscientious use by the customer, and improved leakage detection by both. Quantifying savings associated with meter installation and/or replacement requires analysis of pre- and post-installation measurements from existing meters at strategic locations within the system.

The performance measures that will be used to quantify actual benefits upon completion of the AMR/AMI Project will include measures to quantify water savings, water better managed, and energy savings resulting from the installation of the newer, more technologically advanced meters. Pre- and post-installation consumption measurements will be analyzed for all customers who are notified by the District that they have a leak and for all customers who view their flow data through the Customer Portal on the District's website. Water consumption at each of the improved meter sites where the AMI units will be installed will be monitored over a 12-month period using monthly billing data. Post-installation water consumption for each of the AMI units will be compared against pre-installation consumption to verify water savings.

**Table 3,** *Trabuco Canyon Water District AMR/AMI Project Performance Measures,* summarizes the performance measures of the AMR/AMI Project that will demonstrate and quantify actual benefits and effectiveness of the AMR/AMI Project. Water use monitoring will be provided to Reclamation throughout the reporting period and included in the final report. Water use monitoring will continue beyond the grant term to make a valid assessment of the actual water savings from this AMR/AMI Project for the life of the Project (20 years).

**Table 3. Trabuco Canyon Water District AMR/AMI Project Performance Measures**

| Performance Measure | Target | Measurement Tools and Methods |
|---|---|---|
| Water Savings: Reduction in Consumption | 30.98 AFY | Water consumption reported by the cellular technology for each customer who is provided by the City with access to or who accesses independently real-time flow data produced by the new water metering units will be analyzed over an initial 12-month period both before and after initial exposure to the data. Post-installation water consumption data will be compared against pre-installation consumption to verify water savings. |
| Water Better Managed: Water Loss Reduction (Leakages) | 9.40 AFY | Post-installation water consumption will be measured over a 12-month period following AMI installation to verify water better managed. A water loss audit will be periodically conducted. |
| Water Savings: Water Savings from Reduced Meter Inaccuracies | 114.37 AFY | Post-installation water consumption will be measured over a 12-month period following AMI installation to verify water better managed. A water loss audit will be periodically conducted. |
| Energy Savings | 594,704 kwh/year from water savings | Water savings will be converted to energy savings using the calculation of 2,500 kWh/AF of imported water conserved and 1,363 kWh/AF of pumping throughout the District water system. |
| Carbon Emissions Savings | 362,770 lbs. CO2/year from water savings | Confirm the water savings resulting from the project in the "Water Savings" Project Performance Measure and convert to carbon emissions using the calculation of required energy = 2,500 kWh/AF and $CO_2$ emissions = 0.61 lb of $CO_2$/kWh. |

Installing the meters will result in approximately 154.75 AFY of water saved. All customer connections are metered and billed by volume of use. The District records daily production and demand data, by zones, and reads all meters on a monthly basis. All metered sales and other system verifiable uses, e.g., backwash, flush water, and operations and maintenance, are recorded. All landscape irrigation is metered. In addition, the District's Utility Billing System (UBS) demonstrates when a meter is outside of its normal consumption range and alarms customer service that maintenance is necessary. Senate Bill 1420 signed into law in September 2014 requires urban water suppliers that submit UWMPs to calculate annual system water losses using the water audit methodology developed by the AWWA. The District has implemented an AMR program for all new developments and is proposing to implement AMI throughout its service area in this grant application.

The following studies provide baseline data for the AMR/AMI Project: the District's 2015 UWMP, which includes water conservation by replacing the District's meters with an upgraded AMI meter program and the complete AWWA audit, the District's 2017 Water Loss Audit, and MWDOC's 2019 leak detection study and Implementation of AMI Projects in the nearby Laguna Beach County Water District and South Coast Water District have resulted in significant water savings and the EMWD's research results prove tremendous savings through the Customer Portal, as described in Evaluation Criterion A: Quantifiable Water Savings.

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. Analytical software is included as part of the AMR/AMI Project proposal, and this software will assist the District in analyzing the data collected as part of the AMR/AMI Project. It is the goal of the District to equip employees with the adequate tools and capability to not only monitor water production and consumption, but also to

analyze and evaluate solutions and follow-up actions for all factors that may contribute to water loss and decreased water use efficiency. Similarly, it is the goal of the District to provide tools and resources to the customers so that they can comprehensively understand their water usage patterns and have access to regular feedback on the effectiveness of any activities and efforts to reduce water usage in their homes and businesses.

Implementation of the AMR/AMI Project will result in energy savings; therefore, the Project includes an energy efficiency element. The District primarily relies on energy provided by Southern California Edison and the Southern California Gas Company. The District does not produce any renewable energy. The AMR/AMI Project would modernize the District's water management facilities and equipment to increase energy efficiency by installing AMI technology throughout the District's service area. The proposed AMR/AMI Project would promote energy efficiency by reducing fuel consumption and maintenance frequency for District gas-powered vehicles previously used to collect monthly meter readings and would quantifiably reduce energy consumption through significant improvements in water use efficiency and conservation that would reduce both pumping imported water from MWD, which receives its supply from the SWP and the CRA, and pumping this water throughout the District's nine pressure zones.

Importing water is extremely energy intensive; much of the state's energy consumption is attributed to water conveyance. Any reduction in water loss and overall consumption would impact the increasing energy efficiency of overall system operations. Based on the publication, "California's Water – Energy Relationship," prepared by the California Energy Commission (November 2005, p. 51), the amount of electrical energy required to transfer 1 AF of water from Northern California to an area slightly north of the District requires an estimated 3,000 kWh. The same publication also estimates 2,000 kWh for each AF of water that is imported from the Colorado River to southern California. Combining the two water sources, the amount of power per AF required to transfer the water is approximately 2,500 kWh.

The District's water and sewer distribution systems provide an additional opportunity to save energy and carbon emissions from the proposed Project. The District's water distribution systems operate at the highest elevations of any water utility in Orange County (900 ft. to 2,400 ft. above Mean Sea Level), employing 16 lift stations serving a total of nine primary pressure zones. Operating these systems is very energy intensive. Based on 2019 demand data, the potable water system alone used 2,754,000 kWh of power to distribute 2,050 AF, or 1,343 kWh/AF. The District's system is described above under the Water Delivery System section.

Therefore, it is estimated that an average of 2,500 kWh/AF is used in conveying imported water from SWP and CRA to the District and an additional 1,343 kWh/AF to distribute the water throughout the District's service area. The proposed Project will result in imported water savings of 154.75 AFY, resulting in 594,704 kWh/year energy savings, calculated as follows:

154.75 AFY total water savings from Project:
100% imported water = 154.75 AFY * 2,500 kWh/AF = 386,875 kWh/year Energy Savings
District System Pumping = 154.75 AFY * 1,343 kWh/AF = 207,839 kWh/year Energy Savings
Project Energy Savings = 386,875 kWh/year + 207,839 kWh/year = 594,704 kWh/year Total Energy Savings

Conserving energy results in reducing greenhouse gas (carbon) (GHG) emissions. Carbon emission estimates are 0.61 lb $CO_2$/kWh based on the United States Environmental Protection Agency's 9th edition of eGRID, "Year 2010 eGRID Subregion Emissions - Greenhouse Gases." The AMR/AMI Project will avoid GHG emissions of approximately 362,770 pounds of $CO_2$ per year.

The calculation includes 594,704 kWh/year * 0.61 lb $CO_2$/kWh = approximately 362,770 pounds of $CO_2$ per year.

Over the 20-year lifespan of the AMR/AMI Project, approximately 7,255,392 total pounds of carbon emissions will be avoided. The AMR/AMI Project will reduce imported and groundwater pumping requirements by reducing the demand on these water supplies.

**Past Working Relationships with Reclamation**
Although TCWD has not received Reclamation funding in the past, it has received and successfully implemented federal funding from the FEMA funding.

### *Subcriterion No. F.3 – Readiness to Proceed*

*Identify and provide a summary description of major tasks to be accomplished as part of the Project. Describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates).Milestones may include, but are not limited to: complete environmental and cultural compliance; mobilization; begin construction/installation; construction installation (50% complete); and construction/installation (100% complete). Do not repeat the more detailed technical project description in Section D.2.2.4.*

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

The Project's implementation plan is shown in **Table 4**, *Trabuco Canyon Water District AMR/AMI Implementation Plan*, including stages and duration of the proposed work, including major tasks, milestones, and dates. Following the table are the work Tasks that present the project Work Plan.

**Table 4. Trabuco Canyon Water District AMR/AMI Implementation Plan**

| Task / Milestone | Activity | Start Date | End Date | Duration |
|---|---|---|---|---|
| Anticipated Funding Award | Execute Funding Agreement | Spring 2021 | | TBD |
| Task 1: Project Management and Reporting | Interim Performance Reports | July 2021 | October 2022 | Semi-Annually |
| | Final Performance Report | | December 2022 | 18 months |
| | SF-425 Federal Financial Reports | January 2022 | December 2022 | Semi-Annually |
| Task 2: Environmental Review | CEQA Categorical Exemption | Completed | | |
| | NEPA Environmental Review | July 2021 | TBD | TBD |
| Task 3: Procurement and Installation of AMI System | Contractor Procurement | July 2021 | September 2021 | 3 months |
| | Installation of AMR/AMI Network Infrastructure and Training to Support AMR/AMI System | October 2021 | December 2021 | 3 months |
| | Meter Equipment Procurement | October 2021 | March 2022 | 6 months |
| | Installation of AMR/AMI Meters | January 2022 | June 2022 | 6 months |
| Task 4: Final Implementation | AMI Software Integration | June 2022 | July 2022 | 1 month |
| | AMI Software Integration – Consumer Portal | July 2022 | August 2022 | 1 month |
| | Software Hosting – Ongoing System Costs | August 2022 | | Annual |

**Project Tasks**

***Task 1: Project Management and Reporting***

The District Project Manager will execute the grant agreement with Reclamation, coordinate with Reclamation's environmental reviewer, and complete required reporting. Reporting will be performed on a semiannual basis, including submittal of Financial Reports and Program Performance reports, as well as Financial Reimbursement Requests using the online ASAP system through the System for Award Management (SAM). Program Performance and Final Reports will be in accordance with requirements included in the grant agreement. Performance Reports will include information regarding the status of the Project's Performance Measures. The District Project Manager will monitor performance of the Project and will submit Project Performance Reports to Reclamation semiannually as per the grant agreement. Performance Reports will include information regarding the status of the Project's Performance Measures, including Water Savings, Water Better Managed, Energy Savings, and Carbon Emission Savings. The methods of measuring Project performance, which will be used for producing these reports, are explained at the beginning of this section, Subcriterion No. F.2 – Performance Measures.

The District Project Manager will also oversee the Contractor, including coordination of District staff training, ensure site conditions are prepared and ready for installation of collectors and repeaters in accordance with the final network design, provide access to all work sites, provide storage facilities for project materials, and facilitate parking and office space for the Contractor team.

Deliverables: Grant agreement, Interim Performance Reports, Final Performance Report, and Financial Reports

***Task 2: Environmental Review***

The District has filed a Categorical Exemption pursuant to CEQA Title 14 (California Code of Regulations), Chapter 3, Article 19, Section 15302c for the Project. as shown in **Exhibit A** following the Cultural and Resources Compliance Section, *CEQA Notice of Exemption Filed for Trabuco Canyon Water District AMR/AMI Project*. It is anticipated that a Categorical Exclusion or Finding of No Significant Impact (FONSI) under NEPA will be issued by Reclamation given the nature of the Project that includes simply replacing existing meters with upgraded AMI meters. U.S. Bureau of Reclamation staff will perform the necessary environmental review and compliance for the Project, as required.

Deliverables: Categorical Exemption, Categorical Exclusion

***Task 3: Procurement and Installation of AMR/AMI System***

***Subtask 3.1 Contractor Selection***

Through a process consistent with the District's Procurement Policy, a qualified Contractor will be selected for the AMR/AMI Project implementation, including management, training, procurement, installation, and mobilization.

*Subtask 3.2* ***Installation of AMR/AMI Infrastructure and Training to Support AMR/AMI System***

Subtask 3.2 includes AMR/AMI Network infrastructure, AMR/AMI Network and deployment tools, and professional services/training. Contractor will develop a detailed Project Plan and Schedule to guide procurement and installation of the AMR/AMI System.

**AMR/AMI Network Infrastructure.** The District will collaborate with the Contractor to select the appropriate equipment for the AMR/AMI Project. The District will approve the use of only equipment, technologies, and capabilities that are currently commercially available, have been implemented in other agencies, and have a proven history of success.

The Contractor will conduct final site surveys and develop a Preliminary Network Design and a Final Network Design following contract execution. Both parties will review network design inclusive of locations, assumptions, etc. prior to installation of network equipment. If any District assets are needed for coverage, Contractor will request District approval to adjust the design accordingly, and then request District approval of the Final Network Design.

Contractor will complete the installation of all required Collectors and ancillary equipment no later than 90 days from Effective Date of execution for locations where Data Collectors have been sited. The installed network will be tested for coverage as part of the Project.

**AMI Network and Deployment Tools**. This work will involve using a handheld programmer to download the meter type, size, and start read into the new unit and then the unit will be programmed and synced to the AMI network. All customers can expect no service interruption since the exchange does not require turning off the water service**.**

**Staff Training.** The Contractor will provide a customized training for a total of two training days, plus an additional half day if needed, including classroom and field training, to ensure competency of District-designated staff to provide for system operation, functionality, communication hardware, and the Contractor's software. Software training will be made available through either remote or onsite as dictated by the preference of the District.

The Contractor will provide the training and assess staff competency throughout the training process and provide feedback and direction regarding ongoing training requirements throughout the implementation.

Deliverables: AMI Network infrastructure, AMI Network and deployment tools, and professional services/training.

### *Subtask 3.3 Meter Equipment Procurement*

Subtask 3.3 includes the procurement of water meters and electronic registers, water meter retrofit registers with endpoint, and other water meter related equipment.

The AMR/AMI system hardware will consist of the sizes and quantities shown in **Table 1,** *AMR/AMI Devices Installed in the Trabuco Canyon Water District Service Area*, of this proposal for a total of 3,424 water meter replacements, ranging from 5/8" meters to 2" meters. These are approximate quantities; actual values may differ and be handled via change order. All products, including third-party products such as meter boxes, will be approved by the District prior to purchase by the Contractor.

Hardware delivery will be incorporated into the Project schedule at the time of order entry and as available. The District will issue purchase orders for product delivery to meet the installation schedule. A minimum of eight weeks' worth of product will be onsite during meter installations to avoid stock out. Shipment orders to be placed with full truck capacity to minimize freight costs. The District will consider maintaining stock of a minimum of 1% total project volume for spares.

**Deliverable:** Procurement of water meters and electronic registers, water meter retrofit registers with endpoint, and other water meter related equipment.

### *Subtask 3.4: Installation of AMR/AMI Meters*

Subtask 3.4 includes installation of Water Meters, Registers, and Endpoint; Water Meter Retrofit with Endpoint, and Professional Services.

**Meter Installation.** Contractor will develop an Installation Plan. Installation of all meters, registers, nodes, and boxes, etc. will be managed by the Contractor project team.

The Contractor will establish an Installation Project Team to oversee daily operations, project operations and planning, field activity and issues, meter installation, customer notification and support, and field inspections. The Team may include an Install Project Manager, Assistant Install Project Manager, Field Manager, Meter Installers, and Quality Assurance/Quality Control (QA/QC) Staff.

Meters will be installed by cycle/route order, following the meter reading sequence (Installation Plan) that is agreed upon by the District, working to ensure route efficiency. Most meters are outside in a pit location making appointments unnecessary. Less than 0.5% is estimated to require an appointment, which will be handled on a case-by-case basis. Work will be performed between 8:00 a.m. and 4:00 p.m. daily. After-hours work requests will be agreed upon in advance of work being perform between Contractor and the District. Installation is performed following an established protocol.

**Installation Procedures.** Development of an Installation Plan that includes community outreach and customer communication, establishment of an Installation Project Team.

**Community Outreach and Customer Communication.** Community outreach and customer communication and notification of homeowner at time of meter installation, will be performed through a variety of measures such as, where appropriate and approved by the District, a consumer water bill insert one month prior to meter installations, website outreach via Frequently Asked Questions (FAQ) section on the website for AMR/AMI Project that will be established, and social media, newsletters, and possibly telephone calls to alert residents of the meter project.

*Notification Prior to Meter Installation*

- Door knock canvassing will be performed seven days prior to meter installation. If the homeowner/business owner is not present, a door hanger will be left alerting of upcoming meter installation/change out, along with contact information for Contractor for inquiries.

*Notification at Time of Meter Installation*

- Knock on the homeowner's door. If the homeowner/business owner is present, alert them of the meter installation/change out that will take place.
- Installation tech will perform the change out, which will include but is not limited to; verify provided data info (old meter#, last read, if available), turn on water faucet/hose connection, verify the meter is moving and the information is correct, turn water off (if no back flow preventer and take picture of meter in box showing valve position before start), remove old meter, install the new meter (check to make sure the arrow is pointing in the correct direction), turn on the water and check for leaks, flush the air from hose connection (leave door hanger if hose connection not available), turn off the water, check for leaks and fill out needed paperwork/ update handheld data.
- After completion, installation tech will provide the homeowner/business owner with contact information for Contractor should there be an issue that comes up after installation. Contractor will have a dedicated phone number and email for this project.
- If the homeowner/business owner is not present, a door hanger will be left after the meter installation is complete informing the customer of the work performed and contact information for inquiries.
- All customer inquiries, complaints and field escalations will be handled by the installation team at the time of installation then referred to Contractor or the District, if required.

**Installation Project Team**

*Install Project Manager:* Oversees the daily operations of the meter installation project. Deploys daily routes, instruction, inventory, and supplies for install and QC. Distributes send-back problem accounts from previous day to be completed by installer prior to new installations for that day. Communicates daily with designated contacts from Contractor and the District to address any issues. Tracks route allocation and scheduling with the District, Contractor, and Subcontractor, if applicable. Conducts daily field visits and support to team to audit install quality, progress, training, etc.

*Installation Staffing Plan:* Project staff will include Install Project Manager to oversee all project operations and planning, Assistant Install Project Manager to support the Project Manager during daily operations, Field Manager to oversee and assists with all field activity and issues, meter Installers to perform homeowner/business owner notification and meter installation, and QA/QC staff to field inspect all work the day following installation.

*Assistant Install Project Manager:* Assists the Project Manager with daily procedures and guidelines of the Project. Oversee the distribution and execution of the Send Back Manager (SBM) audits to the installers (issues with meters that prohibit installation of meters is documented in an SBM report and followed up on the next day to correct the issue). Completes the exceptions list to follow up with issues due to location, access, etc., and completes the installation at the point of contact, if possible. Assist with daily installs as daily responsibilities allow. Conducts end-of-day check-ins with installers; collects installer daily field summary sheet, phones, and paperwork; and ensures the Vanguard Work Order Management System data is uploaded successfully. Completes and submits a daily work summary to the Project Manager.

**Deliverables:** Installation of Water Meters, Registers, and Endpoint; Water Meter Retrofit with Endpoint, and Professional Services.

***Task 4: Final Implementation***

As identified, complete software integration and install any additional infrastructure required to gather the hourly consumption data. The District will deploy the Consumer Portal and provide access by customers. Consumer Portal will provide customers with real-time consumption data and will assist them in managing their individual water usage more efficiently.

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

There are no required permits anticipated for the AMR/AMI Project. All of the AMR/AMI Project work will be conducted at current meter locations on District property. Final approval from the Board of Directors would be required prior to proceeding with the AMR/AMI Project.

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

The Contractor will develop preliminary and final network designs based on the inputs provided. The District will review network design inclusive of locations, assumptions, etc. prior to installation of network equipment.

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

The Board of Directors will pass a resolution of support and adoption of the Project after notification of grant award. No new policies are required to implement the Project. As a regular process, the award of the contracts stipulated in the schedule need to be approved by the District Board.

## *Evaluation Criterion G: Nexus to Reclamation Project Activities*

1. **Is the proposed project connected to Reclamation project activities? Does the applicant receive Reclamation project water? Is the project on Reclamation project lands or involving Reclamation facilities? Is the project in the same basin as a Reclamation project or activity? Will the proposed work contribute water to a basin where a Reclamation project is located?**

The proposed AMR/AMI Project is associated with the Colorado River Basin, as the District receives water from MWD via MWDOC, which currently relies on the CRA and the SWP as its primary sources of water. The AMR/AMI Project itself does not directly involve Reclamation project lands, Reclamation facilities or a common basin, but it will increase the availability of the overall water supply through improvements in water use efficiency and conservation and ultimately benefit the Colorado River Basin.

Reclamation manages the Colorado River system from which MWD imports water. The District purchases 53% to 78% of its supply imported from the Colorado River and from northern California via the SWP depending on the total production of groundwater at the Trabuco Creek Groundwater Treatment Facility. Water savings associated with the AMR/AMI Project translate to more water remaining in these two fragile systems. The proposed AMR/AMI Project directly supports Reclamation's current efforts to further advance water use efficiency and conservation. The AMR/AMI Project benefits Reclamation water reliability activities because it reduces imported water supplies from the Colorado River and northern California, the Bay-Delta.

The water savings attained will be the result of reduced imports from the Bay-Delta and the Colorado River, thereby contributing water to the Colorado River Basin. By reducing the amount of water imported, this water in effect remains in the basin from which it originates or is made available to meet demands in other areas of the State.

2. **Will the project benefit any Tribes?**

The AMR/AMI Project will indirectly help Reclamation meet trust responsibilities to Tribes as there is no direct impact to tribes in the Project area. However, the Project may help Reclamation meet trust responsibilities in the SWP or CRA areas since the Project will be reducing demand on these sources. Any increase in water reliability and greater availability in overall water supply resulting from water use efficiency efforts would 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, of the tribes.

### *Evaluation Criterion H: Additional Non-Federal Funding*

Non-Federal Funding: $1,436,407
Total Project Cost: $1,936,407 = 74.2% Non-Federal Funding

## PROJECT BUDGET

The complete AMR/AMI Project Budget includes a Funding Plan and Letters of Commitment, Budget Proposal, Budget Narrative, and the SF 424 Budget Form.

### Funding Plan and Letters of Commitment

**Non-Federal Share of Project Costs**
The non-Federal share of the AMR/AMI Project costs will be funded through the District's General Fund, which is funded by District Potable Water Rates and Charges, including costs and services covered by the District water customers' bills.

**Cost Share Contribution**
The estimated District contribution (non-Federal subtotal) is $1,436,407. The District will provide its cost share in monetary (cash) contributions.

**Funding Partners and Letters of Commitment**
None. Funding (cost share) will not be provided by an entity other than the District.

**Funding Requests from other Federal Partners**
No other funding has been requested or received from other Federal partners.

**Pending Funding Requests**
There are no pending funding requests for the AMR/AMI Project.

**Any Costs Incurred Before the Anticipated Project Start Date**
The District does not anticipate any costs prior to the Project start date, anticipated after September 30, 2020.

### Budget Proposal

The total AMR/AMI Project costs are shown in **Table 5,** *Trabuco Canyon Water District AMR/AMI Project Total Project Cost.* The District will fund approximately 74.2% of the AMR/AMI Project costs, and the District is requesting approximately 25.8% ($500,000) of Federal funding from Reclamation.

**Table 5. Trabuco Canyon Water District AMR/AMI Project Total Project Cost**

| Source | Amount |
|---|---|
| Costs to be reimbursed with the requested Federal funding | $500,000 |
| Costs to be paid by the applicant | $1,436,407 |
| Value of third-party contributions | $0 |
| **TOTAL PROJECT COST** | **$1,936,407** |

**Table 6**, *Trabuco Canyon Water District AMR/AMI Project Budget Proposal,* below shows the budget detail for the Project, followed by the budget narrative. **Table 7,** *AMR/AMI Project Cost Estimate Detail,* presents the cost detail from which **Table 6** was developed.

## Table 6. Trabuco Canyon Water District AMR/AMI Project Budget Proposal

**Trabuco Canyon Water District AMR/AMI Implementation Project**
**Total Project Cost**

| BUDGET ITEM DESCRIPTION | COMPUTATION $/Unit | COMPUTATION Quantity | Quanity Type | TOTAL COST |
|---|---|---|---|---|
| **Salaries and Wages** | | | | |
| Michael Perea, Assistant General Manager | $ 91.75 | 100 | Hour | $ 9,175.00 |
| Lisa Sangi, Administrative Assistant | $ 33.33 | 200 | Hour | $ 6,666.00 |
| Chris Holbrook, Customer Service Field Technician 2 | $ 23.60 | 360 | Hour | $ 8,496.00 |
| | | | | |
| **Fringe Benefits** | | | | |
| Michael Perea, Assistant General Manager | $ 32.38 | 100 | Hour | $ 3,238.00 |
| Lisa Sangi, Administrative Assistant | $ 17.15 | 200 | Hour | $ 3,430.00 |
| Chris Holbrook, Customer Service Field Technician 2 | $ 14.01 | 360 | Hour | $ 5,043.60 |
| | | | | |
| **Travel -** *No travel costs for this project* | | | | |
| | | | | |
| **Equipment** | | | | |
| *AMI Network & Equipment Costs:* | | | | |
| Data Collector | $ 10,559.50 | 9 | Each | $ 95,035.50 |
| *Water Meter Hardware & Remote Network Monitoring* | | | | |
| Meter Boxes | $ 102.36 | 100 | Each | $ 10,236.25 |
| Meter Box Lids | $ 70.04 | 3424 | Each | $ 239,808.40 |
| Equipment - Meters | *Varies by size* | 3068 | Total | $ 1,039,941.58 |
| Equipment - Register Retrofit | $ 220.89 | 356 | Each | $ 78,635.95 |
| | | | | |
| **Supplies and Materials -** *Included with Contractual* | | | | |
| | | | | |
| **Contractual/Construction** | | | | |
| Network Installation Services | $ 9,000.00 | 9 | Each | $ 81,000.00 |
| *Upfront Professional Management* | | | | |
| Project Management | $ 2,500.00 | 1 | Lump Sum | $ 2,500.00 |
| Network Design/System Planning | $ 1,000.00 | 1 | Lump Sum | $ 1,000.00 |
| System Acceptance Testing | $ 1,500.00 | 1 | Lump Sum | $ 1,500.00 |
| Training and Documentation | $ 3,500.00 | 1 | Lump Sum | $ 3,500.00 |
| Remote Monitoring Service | $ 3,500.00 | 1 | Lump Sum | $ 3,500.00 |
| *AMI Headend Hosted Costs* | | | | |
| One-Time Database Set-Up Fee | $ 4,500.00 | 1 | Lump Sum | $ 4,500.00 |
| First Year AMI Headend Services | $ 17,500.00 | 1 | Lump Sum | $ 17,500.00 |
| *Meter Installation* | | | | |
| Installation | *Varies by meter* | 3068 | Total | $ 253,985.00 |
| Water Meter Retrofits | *Varies by meter* | 356 | Total | $ 12,460.00 |
| Pre-Drilled Meter Box Lid Installation | $ 6.50 | 3424 | Each | $ 22,256.00 |
| *Profesional Services* | | | | |
| Project Management | $ 25,000.00 | 1 | Lump Sum | $ 25,000.00 |
| Mobilization | $ 8,000.00 | 1 | Lump Sum | $ 8,000.00 |
| | | | | |
| **Third-Party Contributions** | | | | |
| *There are no third-party contributions.* | | | | $ - |
| | | | | |
| **Other** | | | | |
| *Environmental Compliance Costs incurred by Reclamation may be added during the final project budget* | | | | $ - |
| | | | **TOTAL DIRECT COSTS** | **$ 1,936,407.28** |
| **Indirect Costs -** *No indirect costs are included* | % | $base | | |
| | | | **TOTAL ESTIMATED PROJECT COSTS** | **$ 1,936,407.28** |

## Budget Narrative

### Salaries and Wages

The Project Manager is Michael Perea, Assistant General Manager for the District. His budgeted time includes a direct administration labor rate of $91.75/hour, not including fringe benefits. Ms. Lisa Sangi, Administrative Assistant for the District, will assist in project management. Her budgeted time includes a direct labor rate of $33.33/hour, not including fringe benefits. Mr. Chris Holbrook, Customer Service Field Technician 2 for the District, will supervise the day-to-day field operations of the contractor overseeing installation. His budgeted time includes a direct labor rate of $23.60/hour, not including fringe benefits.

A total of 660 hours at a total cost of $24,337.00 is estimated to manage the Project over the estimated 18-month project.

### Fringe Benefits

Fringe benefits are charged at a rate of $32.38 per hour for Mr. Perea, $17.15 per hour for Ms. Sangi, and $14.01 for Mr. Holbrook, per the District approved fringe benefit rates. A total fringe benefit of $11,711.60 has been included in the budget.

### Travel

No travel costs are included for the AMR/AMI Project.

### Equipment

The District will work collaboratively with the Contractor to select the appropriate equipment for the AMR/AMI Project. The District will only approve the use of equipment, technologies, and capabilities that are currently commercially available, are compatible with the existing meters, have been implemented in other agencies, and have a proven history of success.

Total Equipment costs are estimated at $1,463,657.68 including tax. Equipment will be installed under a construction contract. Costs are based on vendor estimates and research on other local water district AMI Project costs. Installation is included in the Contractual/Construction cost estimate.

Equipment installed as part of the AMR/AMI Project includes nine (9) data collectors, 3,068 AMI meters, 356 meter register retrofits, 100 meter boxes, and 3,424 meter box lids.

Equipment will be procured as part of Task 3 Procurement and Installation of AMR/AMI Equipment, and includes the following:

***Data Collectors.*** Equipment includes nine (9) Data Collectors to support the AMI Network at a cost of $9,800 each plus tax at 7.75% for a total of $95,035.50. The Data Collectors are geographically placed to allow a multipoint architecture making all receive and transmit channels available simultaneously.

***Meter Boxes.*** Meter Boxes are required at service addresses to replace boxes that are damaged or cracked. Out of the 3,424 existing meter boxes, only 100 meter boxes estimated needing to be replaced due to damage. This estimate is based on recent replacement of all meter boxes. Meter boxes are generally very durable and only need to be replaced if cracked or damaged. A cost of $95 per meter box is estimated based on vendor estimates and research on other local water districts' AMI Project costs. A total of $10,236.25 (including tax) is budgeted for this item.

***Meter Box Lids.*** Each AMI Water Meter will require a Meter Box Lid. A cost of $65.00 per meter is estimated based on vendor estimates and research on other local water districts' AMI Project costs. For a total 3,424 meters, a total of $239,808.40 including tax is budgeted for this item.

***AMI Water Meter Hardware.*** A total of 3,068 existing AMR radio water meters will be replaced with AMI cellular water meters and 356 existing meters will required a register retrofit. The cost of the 3,068 AMI meters

vary based on size, and therefore, are estimated at a total of $1,039,941.58 including tax based on vendor estimates and research of other local water district's AMI project costs. The 356 Register Retrofits are estimated at $220.89 each including tax for a total of $78,635.95. A total of $1,118,577.53 is budgeted for this item.

**Materials and Supplies**
Materials and supplies are included under Contractual/Construction cost estimate.

**Contractual/Construction**
Through a process consistent with the District's Procurement Policy, a qualified Contractor will be selected for the AMR/AMI Project implementation. Total Contractual/Construction costs for the Project are estimated at $436,701.00. The budgeted costs for Contractual were determined to be fair and reasonable based on contractor estimates and experience with projects and estimates obtained from water districts in the region for similar AMI upgrade projects.

Contractual includes equipment and meter installation, upfront and implementation project management, remote monitoring service, and software setup and ongoing service. The Contractor Budget estimate detail is discussed and summarized below.

***Network Installation Service.*** The Contractor will install the nine (9) Data Collectors at $9,000 each. A total of $81,000 is budgeted for this item.

***Upfront Professional Management.*** The Contractor will provide Project Management ($2,500) for the development of Project Design and System Planning ($1,000), System Acceptance Testing ($1,500), and Training and Documentation ($3,500). A total of $8,500.00 is budgeted for these items.

***Remote Monitoring Service.*** A total of $3,500.00 is budgeted for this item.

***AMI Headend Hosted Costs.*** The Contractor will set up the software and system database for a cost of $4,500.00. The Contractor will also provide software hosting through an annual fee at $17,500 for the first year. A total of $22,000 is budgeted for this item.

***Meter Installation.*** The Contractor will install 3,068 AMI meters ($253,985) and retrofit 356 meters ($12,460), for a total of 3,424 meters. Installation will also include up to 100 meter boxes and 3,424 pre-drilled meter box lids ($22,256). A total of $288,701.00 is budgeted for this item.

***Professional Services.*** During implementation and installation of the project, the Contractor will perform Project Management at a cost of $25,000. Mobilization activities will be performed at a cost of $8,000 to ensure system operation. A total of $33,000 is budgeted for this item.

## Table 7. AMR/AMI Project Cost Estimate Detail

| TRABUCO CANYON WATER DISTRICT | | | | |
|---|---|---|---|---|
| **AMR/AMI IMPLEMENTATION PROJECT** | | | | |
| **SALARIES AND WAGES** | | | | |
| Michael Perea, Assistant General Manager | $ | 124.13 | 100 | $ 12,413.00 |
| Lisa Sangi, Administrative Assistant | $ | 50.48 | 200 | $ 10,096.00 |
| Chris Holbrook, CSFT2 | $ | 37.61 | 360 | $ 13,539.60 |
| **SALARIES AND WAGES TOTAL** | | | | **$ 36,048.60** |
| | | | | |
| **MATERIALS** | | | | |
| *AMI Network & Equipment Costs* | | | | |
| Data Collector | $ | 9,800.00 | 9 | $ 88,200.00 |
| Network Installation Services | $ | 9,000.00 | 9 | $ 81,000.00 |
| *Applicable Sales Tax 7.75%* | | | | *$ 6,835.50* |
| Subtotal | | | | **$ 176,035.50** |
| | | | | |
| *Upfront Professional Management* | | | | |
| Project Management | $ | 2,500.00 | 1 | $ 2,500.00 |
| Network Design/System Planning | $ | 1,000.00 | 1 | $ 1,000.00 |
| System Acceptance Testing | $ | 1,500.00 | 1 | $ 1,500.00 |
| Training and Documentation | $ | 3,500.00 | 1 | $ 3,500.00 |
| Subtotal | | | | **$ 8,500.00** |
| | | | | |
| *Water Meter Hardware & Remote Network Monitoring Costs* | | | | |
| Meter Boxes | $ | 95.00 | 100 | $ 9,500.00 |
| Meter Box Lids | $ | 65.00 | 3424 | $ 222,560.00 |
| Equipment - Meters | *Varies; see cost detail* | | 3068 | $ 965,143.00 |
| Equipment - Register Retrofit | $ | 205.00 | 356 | $ 72,980.00 |
| Applicable Sales Tax 7.75% | | | | $ 98,439.18 |
| Subtotal | | | | **$ 1,368,622.18** |
| | | | | |
| Remote Network Monitoring Service | $ | 3,500.00 | 1 | $ 3,500.00 |
| **MATERIALS TOTAL** | | | | **$ 1,556,657.68** |
| | | | | |
| **LABOR COSTS** | | | | |
| *AMI Headend Hosted Costs* | | | | |
| One-time Database Set-Up Fee | $ | 4,500.00 | 1 | $ 4,500.00 |
| Ongoing AMI Headend Services | $ | 17,500.00 | 1 | $ 17,500.00 |
| | | | | **$ 22,000.00** |
| *Meter Installation Costs* | | | | |
| Installation | $ | 3,068.00 | *Varies; see cost detail* | $ 253,985.00 |
| Water Meter Retrofits | $ | 356.00 | *Varies; see cost detail* | $ 12,460.00 |
| Pre-drilled Meter Box Lid Installation | $ | 6.50 | 3424 | $ 22,256.00 |
| | | | | **$ 288,701.00** |
| *Profesional Services* | | | | |
| Project Management | $ | 25,000.00 | 1 | $ 25,000.00 |
| Mobilization | $ | 8,000.00 | 1 | $ 8,000.00 |
| | | | | **$ 33,000.00** |
| **LABOR COSTS TOTAL** | | | | **$ 343,701.00** |
| **PROJECT TOTAL** | | | | **$ 1,936,407.28** |

**Third-Party In-Kind Contributions**
Not applicable. This are no third-party in-kind contributions.

**Environmental and Regulatory Compliance Costs**
Environmental compliance costs have not been included in the budget based on the Reclamation's statement in the FOA that Reclamation may be able to complete its compliance activities without additional costs. It is understood that if costs are incurred by Reclamation, those costs will be added as a line item to the final project budget during development of the financial assistance agreement and cost shared with the District.

The AMR/AMI Project involves an upgrade to existing meters and should pose no impact to the surrounding environment. Work will be performed on property that is considered already disturbed, and no further environmental requirements are needed. There are no required permits anticipated for the AMR/AMI Project. All of the AMR/AMI Project work will be conducted at current meter locations and District property. 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 AMR/AMI Project. The District has filed a Categorical Exemption pursuant to CEQA Title 14 (California Code of Regulations), Chapter 3, Article 19, Section 15302c for the Project, as shown in the Environmental and Cultural Compliance section **Exhibit A**, CEQA Notice of Exemption Filed for Trabuco Canyon Water District AMR/AMI Project. It is anticipated that a Categorical Exclusion or Finding of No Significant Impact (FONSI) under NEPA will be issued by Reclamation given the nature of the Project that includes simply replacing existing meters with upgraded AMI meters. A Categorical Exclusion or FONSI is anticipated since the AMR/AMI Project will likely not have a significant effect on the human environment and, therefore, neither an Environmental Assessment nor an Environmental Impact Statement would be required.

**Other Expenses**
Environmental Compliance Costs are included under "Other" Expenses, as described above.

**Indirect Costs**
No indirect costs are included in this proposal.

**Total Costs**
The AMR/AMI Project total cost is proposed at $1,936,407.28

**Budget Form – SF-424C, Budget Information – Construction**
The District has completed the SF-424C, Budget Information—Construction Programs form, submitted separately from this narrative.

## ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

Answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why.

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

The AMR/AMI Project involves an upgrade to existing meters and should pose no impact to the surrounding environment. The work will be performed on property that is considered already disturbed. A Categorical Exemption was filed (**Exhibit A**) pursuant to CEQA and a Categorical Exclusion or Finding of No Significant Impact under NEPA will be required given the nature of the Project that entail replacement of existing meters with upgraded AMI meters. A Categorical Exclusion seems appropriate since the AMR/AMI Project will likely

not have a significant effect on the human environment and, therefore, neither an Environmental Assessment nor an Environmental Impact Statement would be required. Correspondence with Doug McPherson (Environmental Protection Specialist, Bureau of Reclamation, Southern California Area Office) confirmed that AMI Projects typically receive a Categorical Exclusion under NEPA (per phone conversation on February 28, 2019.

- **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 known species listed or proposed to be listed as a federal endangered or threatened species, or designated critical habitats are within the AMR/AMI Project area.

- **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 not wetlands or other surface waters inside the AMR/AMI Project boundaries that potentially fall under CWA jurisdiction as "waters of the United States." No associated impacts would occur, and no mitigation is required.

- **When was the water delivery system constructed?**
- The District's water delivery system was constructed in 1962.
- **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.**

No, the AMR/AMI Project will not result in any modification of or effect to individual features of an irrigation system.

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

No buildings, structures or features are listed or eligible for listing on the National Park Service's National Register of Historic Places (NRHP) are present within the District's service area. A search of the NRHP database shows the closest NRHP listing found is the Modjeska House located in Modjeska Canyon but outside of the District's service area and the project boundaries. Additionally, a discussion with Doug McPherson (Environmental Protection Specialist, Bureau of Reclamation, Southern California Area Office) confirmed the finding of no listed properties and that AMI Projects typically are included as item #25 in Reclamation's list of undertakings that have no potential to cause effects on historic properties.

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

No, there are no known archeological sites in the AMR/AMI Project area.

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

The AMR/AMI Project will not have a disproportionately high and adverse effect on low income or minority populations. The AMR/AMI Project has the potential to provide positive monetary benefits to low income and

minority populations by identifying water inefficiencies within their community, which, after installation of AMI, will potentially decrease the costs of water to that population as a result of water savings.

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

The AMR/AMI Project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

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

No, the AMR/AMI Project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native species known to occur in the area.

## REQUIRED PERMITS OR APPROVALS

State whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

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

## LETTERS OF PROJECT SUPPORT

*Include letters from interested stakeholders supporting the proposed project as an appendix.*

There is widespread support for the AMR/AMI Project from the Metropolitan Water District of Southern California (MWD), Municipal Water District of Orange County (MWDOC), and Homeowner Associations (HOAs) within the District's service area as it aims to enhance water reliability for the region. Letters of support from MWD, MWDOC, and the HOAs are included in **Exhibit B.**

## OFFICIAL RESOLUTION

An official resolution of the Trabuco Canyon Water District's Board of Directors was adopted at their meeting on September 16, 2020. A copy of the draft resolution is included in **Exhibit C**. A copy of the executed resolution will be submitted to Reclamation within 30 days of September 17, 2020, the due date of this application. The resolution verifies the District's legal authority to enter into an agreement; that the Board has reviewed and supports submittal of this application; the capability of the District to provide the amount of funding and in-kind contributions specified in the Funding Plan; and that the Board will work cooperatively with Reclamation to meet established deadlines for entering into a cooperative agreement.

## EXHIBITS

Exhibits are attached on the following pages.

## Exhibit A – Environmental/CEQA Document Filed

Recorded in Official Records, Orange County
Hugh Nguyen, Clerk-Recorder
NO FEE
202085000543 3:19 pm 07/23/20
383 13A Z01
0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00

**Exempt per Gov't Code 6103**

**RETURN TO:** Lorrie Lausten

**Lead Agency/ Applicant**
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679

**NOTICE OF EXEMPTION**
(State Guidelines §15062)

County Clerk's Filing Stamp

**TO:**
County Clerk
County of Orange
Laguna Hills Civic Center, Suite 150
Laguna Hills, CA 92653

FILED
JUL 23 2020
HUGH NGUYEN, CLERK-RECORDER
BY: CF DEPUTY

**FROM:**
Trabuco Canyon Water District
(Applicant/Lead Agency)
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679

20-2020-0531

**Project Name:** Automatic Meter Reading/Advanced Metering Infrastructure Project

**Project Location** (Specific): The project will be located within the Trabuco Canyon Water District service area. See Attached Map.

**Project Location:** (City) Portions of the Cities of Rancho Santa Margarita, Mission Viejo and Lake Forest and unincorporated areas of the Orange County.

(County) Orange

**Description of Nature, Purpose and Beneficiaries of Project:**

For the benefit of the ratepayers that are served by Trabuco Canyon Water District, the project will upgrade 3,420 existing touch water meters with an Advanced Metering Infrastructure (AMI) fixed-base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency, improved water management, energy savings, and reduced carbon emissions.

POSTED
JUL 23 2020
ORANGE COUNTY CLERK-RECORDER DEPARTMENT
BY: CF DEPUTY

**Exempt Status:** (check one)

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: CEQA Guidelines Sections 15301 & 15302
- ☐ Statutory Exemptions. State code number:_____
- ☐ Activity Is Not A Project (Sec. 15061(b)(3))

The project is exempt from CEQA through the following Categorical Exemption:

15301. Existing Facilities: Class 1 consists of the operation, repair, maintenance, permitting, leasing, or minor alteration of existing public structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination.

15302. Replacement or Reconstruction: Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be relocated on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.

**Reason Why Project is Exempt:**

This project involves replacement of existing infrastructure at the same locations with substantially the same purpose and capacity as the infrastructure being replaced.

Submission of this form is optional. Local agency may file the form with the county clerk pursuant to Public Resources Code Section 21152(b). Local agencies may file this form with the county clerk pursuant to Public Resources Code Section 21152(b). The filing of the notice starts a thirty-five (35) day statute of limitations on court challenges to the approval of the project under Public Resources Code Section 21167(d). Failure to file the notice results in the statute of limitations being extended to one hundred eighty (180) days.

**Name of Public Agency Approving and Carrying Out the Project:** Trabuco Canyon Water District

**Contact Person:** Ms. Lorrie Lausten, District Engineer
Phone: (949) 858-0277 x130

**If filed by applicant (and applicant is other than Trabuco Canyon Water District)**:

1. Attach certified document of exemption finding.
2. Has Notice of Exemption been filed by the public agency approving the project?

□ Yes □ No [Agency filing is the same Agency as the Applicant].

Date: July 20, 2020

Lorrie Lausten, District Engineer
Trabuco Canyon Water District

POSTED
JUL 23 2020
ORANGE COUNTY CLERK-RECORDER DEPARTMENT
BY: CF DEPUTY

FILED
JUL 23 2020
HUGH NGUYEN, CLERK-RECORDER
BY: CF DEPUTY

2

## Exhibit B – Letters of Support

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

*Office of the General Manager*

June 25, 2020

Michael Perea
Project Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679

Dear Mr. Perea

Letter of Support for
the Trabuco Canyon Water District for their Advanced Metering Infrastructure Project
(AMI Project) grant application to the Bureau of Reclamation WaterSMART program.

The purpose of this letter is to express The Metropolitan Water District of Southern California's (Metropolitan) support for the Trabuco Canyon Water District's grant application for the Bureau of Reclamation's FY 2021 WaterSMART Program to fund the Advanced Metering Infrastructure Project (AMI Project).

In partnership with local water agencies, Metropolitan is a statewide leader in implementing water conservation programs and progressive water resources such as wastewater recycling and groundwater recovery. Metropolitan has invested more than $1.4 billion in these local resources, and our member agencies have invested many billions more.

The severity of California's recent drought, coupled with the extended dry period on the Colorado River and the projected long-term impacts of climate change underscores the need for continued diversification of Southern California's water resource portfolio and conservation efforts. Metropolitan's long-term Integrated Water Resources Plan (IRP) achieves diversification with an "all of the above" approach. This includes maintaining Colorado River Aqueduct supplies and restoring the reliability of State Water Project supplies, while fostering local conservation initiatives, such as improved metering technology, to accommodate projected future growth.

Metropolitan and its member agencies work to ensure water supply reliability now and into the future. All new supplies and technologies are needed to help sustain our region's 19 million people and trillion-dollar economy.

Please contact Warren Teitz at (213) 217-7418 or via e-mail at wteitz@mwdh2o.com if you have any questions.

Sincerely,

Brad Coffey
Group Manager, Water Resource Management

HA:rh

cc: Fernando Paludi
General Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679

*Street Address:*
18700 Ward Street
Fountain Valley, California 92708

*Mailing Address:*
P.O. Box 20895
Fountain Valley, CA 92728-0895

(714) 963-3058
Fax: (714) 964-9389
www.mwdoc.com



June 10, 2020

Michael Perea
Project Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
mperea@tcwd.com

Subject: Letter of Support for Funding the Trabuco Canyon Water District Advanced Metering Infrastructure Project (AMI Project) grant application for the United States Department of the Interior, Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021 – Funding Opportunity Announcement No. BOR-DO-20-F001

Dear Mr. Perea:

We understand that the Trabuco Canyon Water District (District) is submitting a WaterSMART: Water and Energy Efficiency Grant application for consideration by the United States Bureau of Reclamation for Fiscal Year 2021. This grant would help fund the District's ***Automatic Meter Reading / Advanced Metering Infrastructure Project*** (AMR/AMI) as part of its long-term goal of water supply reliability and efficient water management. The AMR/AMI Project includes the upgrade of existing manually-read meters (via vehicle drive-by) with an AMR/AMI fixed base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency through leak detection and improved water management. The Municipal Water District of Orange County fully supports the AMR/AMI Project and the District's efforts to enhance water use efficiency and local water supply reliability.

If you have any questions or need additional information regarding our support of your project, please do not hesitate to contact me by email at jberg@mwdoc.com or via telephone at (714) 593-5008.

Sincerely,

Joseph M. Berg
Director of Water Use Efficiency

DOVE CANYON

August 19, 2020

Michael Perea
Project Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
mperea@tcwd.com

Subject: Letter of Support for Funding the Trabuco Canyon Water District Advanced Metering Infrastructure Project (AMI Project) grant application for the United States Department of the Interior, Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021 – Funding Opportunity Announcement No. BOR-DO-20-F001

Dear Mr. Perea:

We understand that the Trabuco Canyon Water District (District) is submitting a WaterSMART: Water and Energy Efficiency Grant application for consideration by the United States Bureau of Reclamation for Fiscal Year 2021. This grant would help fund the District's ***Automatic Meter Reading / Advanced Metering Infrastructure Project*** (AMR/AMI) as part of its long-term goal of water supply reliability and efficient water management. The AMR/AMI Project includes the upgrade of existing manually-read meters (via vehicle drive-by) with an AMR/AMI fixed base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency and improved water management. Dove Canyon Master Association fully supports the AMR/AMI Project and the District's efforts to enhance water use efficiency and local water supply reliability.

If you have any questions or need additional information regarding our support of your project, please do not hesitate to contact me by email at debi.cole@seabreezemgmt.com or via telephone at 949-672-9067.

Sincerely,

Debi Cole
General Manager
On behalf of the Board of Directors
Dove Canyon Master Association

SEABREEZE
MANAGEMENT COMPANY INC

August 14, 2020

Michael Perea
Project Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
mperea@tcwd.com

Subject: Letter of Support for Funding the Trabuco Canyon Water District Advanced Metering Infrastructure Project (AMI Project) grant application for the United States Department of the Interior, Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021 – Funding Opportunity Announcement No. BOR-DO-20-F001

Dear Mr. Perea:

We understand that the Trabuco Canyon Water District (District) is submitting a WaterSMART: Water and Energy Efficiency Grant application for consideration by the United States Bureau of Reclamation for Fiscal Year 2021. This grant would help fund the District's ***Automatic Meter Reading / Advanced Metering Infrastructure Project*** (AMR/AMI) as part of its long-term goal of water supply reliability and efficient water management. The AMR/AMI Project includes the upgrade of existing manually-read meters (via vehicle drive-by) with an AMR/AMI fixed base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency and improved water management. Rancho Cielo Homeowners Association fully supports the AMR/AMI Project and the District's efforts to enhance water use efficiency and local water supply reliability.

If you have any questions or need additional information regarding our support of your project, please do not hesitate to contact me by email at janet.mccormick@seabreezemgmt.com.

Sincerely,

Janet McCormick
Community Manager
Rancho Cielo Homeowners Association

August 25, 2020

Michael Perea
Project Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
mperea@tcwd.com

Subject: Letter of Support for Funding the Trabuco Canyon Water District Advanced Metering Infrastructure Project (AMI Project) grant application for the United States Department of the Interior, Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021 – Funding Opportunity Announcement No. BOR-DO-20-F001

Dear Mr. Perea:

We understand that the Trabuco Canyon Water District (District) is submitting a WaterSMART: Water and Energy Efficiency Grant application for consideration by the United States Bureau of Reclamation for Fiscal Year 2021. This grant would help fund the District's ***Automatic Meter Reading / Advanced Metering Infrastructure Project*** (AMR/AMI) as part of its long-term goal of water supply reliability and efficient water management. The AMR/AMI Project includes the upgrade of existing manually-read meters (via vehicle drive-by) with an AMR/AMI fixed base network system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency and improved water management. Robinson Ranch Community Association fully supports the AMR/AMI Project and the District's efforts to enhance water use efficiency and local water supply reliability.

If you have any questions or need additional information regarding our support of your project, please do not hesitate to contact me by email at kkay@powerstonepm.com or via telephone at 949-535-4508.

Sincerely,

Kendrah Kay

Kendrah Kay, CAMEx, CCAM
Vice President of Powerstone Property Management
On Behalf of The Robinson Ranch Community Association

## Exhibit C – Resolution

**TRABUCO CANYON WATER DISTRICT**

**RESOLUTION NO. 2020-XX**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT AUTHORIZING THE SUBMITTAL OF AN APPLICATION FOR THE WATERSMART: WATER AND ENERGY EFFICIENCY GRANT 2021**

**WHEREAS,** the United States Bureau of Reclamation is currently offering grant opportunities through the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year ("FY") 2021;

**WHEREAS,** said WaterSMART: Water and Energy Efficiency Grants for FY 2021 is a cost-shared program emphasizing water and energy efficiency;

**WHEREAS,** the Board of Directors ("Board") of the Trabuco Canyon Water District ("District" or "TCWD") supports the submission by the TCWD of a grant application for the Automatic Meter Reading / Advanced Metering Infrastructure Implementation Project ("AMR/AMI Project") prepared and approved by the TCWD, to the WaterSMART: Water and Energy Efficiency Grant Program for FY 2021; and

**WHEREAS,** under the WaterSMART: Water and Energy Efficiency Grants for FY 2021 program, the United States Bureau of Reclamation may award up Five Hundred Thousand Dollars and 00/100 ($500,000.00) towards the maximum 50/50 cost sharing to pay for the Project costs and the TCWD is capable of providing an additional One Million Four Hundred Thirty-Six Thousand Four Hundred Seven and 28/100 ($1,436,407.28) in cash and/or in-kind contributions specified in the grant application's funding plan to pay for all remaining Project costs.

**WHEREAS,** if selected for a WaterSMART: Water and Energy Efficiency Grant for FY 2021, TCWD will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement regarding funding for the Project.

**NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:**

**Section 1:** The Board does hereby approve the submission of the application for the WaterSMART: Water and Energy Efficiency Grant for FY 2021 for the AMR/AMI Project by TCWD for FY 2021-22.

**Section 2:** In the event grant funding is provided by the United States Bureau of Reclamation, the General Manager and legal counsel to the District and the District's staff

and consultants are authorized to take any and all actions necessary to accept the grant and sign any contract for administration of the grant funds.

**Section 3**: The recitals provided in this resolution are true and correct and are incorporated into the operative part of this resolution.

**Section 4:** If any section, subsection, sentence, clause or phrase of this resolution is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity or constitutionality of the remaining portions of this resolution. The Board hereby declares that it would have passed this resolution, and each section, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid or unconstitutional. The District Secretary shall certify to the adoption of this resolution and henceforth and thereafter the same shall be in full force and effect.

**Section 5:** The Board finds the adoption of this resolution is not subject to the California Environmental Quality Act ("CEQA") pursuant to Sections 15060(c)( 2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment) and 15060(c)( 3) (the activity is not a project as defined in Section 15378) of the CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, because it has no potential for resulting in physical change to the environment, directly or indirectly.

**Section 6:** This resolution shall be effective as of September 16, 2020 (“Effective Date”).

**ADOPTED, SIGNED, and APPROVED** this 16th day of September 2020.

**TRABUCO CANYON WATER DISTRICT**

_____
President/Vice President

_____
District Secretary

Trabuco Canyon Water District's AMR/AMI Project Application

## 14. Areas Affected by Project

Trabuco Canyon Water District provides water to a population of 12,712 throughout its 8,200 acre service area. It covers portions of the City of Rancho Santa Margarita, City of Lake Forest, City of Mission Viejo, Trabuco Canyon and other areas of unincorporated Orange County. The District receives its water from several sources, local groundwater from Trabuco Creek and imported water from the Municipal Water District of Orange County (MWDOC). The majority of the District's imported water is untreated surface water from the Colorado River. The untreated surface water is treated at the Dimension Water Treatment Plan, the local groundwater is treated at the Trabuco Creek Wells Facility, and the treated water is imported from the Diemer Filtration Plant operated by the Metropolitan Water District of Southern California (Metropolitan).

Cities: City of Rancho Santa Margarita, City of Lake Forest, City of Mission Viejo, Trabuco Canyon and other areas of unincorporated Orange County

The Project will reduce the demand on imported water received from the MWDOC via Metropolitan. MWDOC serves imported water in Orange County to 28 retail water agencies, to approximately 2.3 million people, including:

| | |
|---|---|
| City of Brea | East Orange County Water District (EOCWD) |
| City of Buena Park | El Toro Water District (ETWD) |
| City of Fountain Valley | Emerald Bay Services District (EBSD) |
| City of Garden Grove | Irvine Ranch Water District (IRWD) |
| City of Huntington Beach | Laguna Beach County Water District (LBCWD) |
| City of La Habra | Mesa Water District (Mesa) |
| City of La Palma | Moulton Niguel Water District (MNWD) |
| City of Newport Beach | Orange County Water District (OCWD) |
| City of Orange | Santa Margarita Water District (SMWD) |
| City of San Clemente | Serrano Water District (Serrano) |
| City of San Juan Capistrano | South Coast Water District (SCWD) |
| City of Seal Beach | Golden State Water Company (GSWC) |
| City of Tustin | Trabuco Canyon Water District (TCWD) |
| City of Westminster | Yorba Linda Water District (YLWD) |

County: Orange

State: California

**TRABUCO CANYON WATER DISTRICT**

**RESOLUTION NO. 2020-1286**
**RESOLUTION OF THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT AUTHORIZING THE SUBMITTAL OF AN APPLICATION FOR THE WATERSMART: WATER AND ENERGY EFFICIENCY GRANT 2021 (FUNDING GROUP ONE)**

---

**WHEREAS,** the United States Bureau of Reclamation is currently offering grant opportunities through the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year ("FY") 2021;

**WHEREAS,** said WaterSMART: Water and Energy Efficiency Grants for FY 2021 is a cost-shared program emphasizing water and energy efficiency;

**WHEREAS,** the Board of Directors ("Board") of the Trabuco Canyon Water District ("District" or "TCWD") supports the submission by the TCWD of a grant application for the Automatic Meter Reading / Advanced Metering Infrastructure Implementation Project ("AMR/AMI Project") prepared and approved by the TCWD, to the WaterSMART: Water and Energy Efficiency Grant Program for FY 2021; and

**WHEREAS,** under the WaterSMART: Water and Energy Efficiency Grants for FY 2021 program, the United States Bureau of Reclamation may award up Five Hundred Thousand Dollars and 00/100 ($500,000.00) towards the maximum 50/50 cost sharing to pay for the Project costs and the TCWD is capable of providing an additional One Million Four Hundred Thirty-Six Thousand Four Hundred Seven and 28/100 ($1,436,407.28) in cash and/or in-kind contributions specified in the grant application's funding plan to pay for all remaining Project costs.

**WHEREAS,** if selected for a WaterSMART: Water and Energy Efficiency Grant for FY 2021, TCWD will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement regarding funding for the Project.

**NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:**

**Section 1:** The Board does hereby approve the submission of the application for the WaterSMART: Water and Energy Efficiency Grant for FY 2021 for the AMR/AMI Project by TCWD for FY 2021-22.

**Section 2:** In the event grant funding is provided by the United States Bureau of Reclamation, the General Manager and legal counsel to the District and the District's staff and consultants are authorized to take any and all actions necessary to accept the grant and sign any contract for administration of the grant funds.

**Section 3:** The recitals provided in this resolution are true and correct and are incorporated into the operative part of this resolution.

**Section 4:** If any section, subsection, sentence, clause, or phrase of this resolution is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity or

constitutionality of the remaining portions of this resolution. The Board hereby declares that it would have passed this resolution, and each section, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid or unconstitutional. The District Secretary shall certify to the adoption of this resolution and henceforth and thereafter the same shall be in full force and effect.

**Section 5:** The Board finds the adoption of this resolution is not subject to the California Environmental Quality Act ("CEQA") pursuant to Sections 15060(c)( 2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment) and 15060(c)( 3) (the activity is not a project as defined in Section 15378) of the CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, because it has no potential for resulting in physical change to the environment, directly or indirectly.

**Section 6:** This resolution shall be effective as of October 6, 2020 ("Effective Date").

**ADOPTED, SIGNED, and APPROVED** this 6th day of October 2020.

**TRABUCO CANYON WATER DISTRICT**

Michael F. Safranski

President/Vice President

District Secretary

STATE OF CALIFORNIA )
) ss.
COUNTY OF ORANGE )

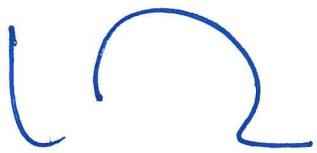
I, Michael Perea, Secretary of the Board of the Trabuco Canyon Water District, do hereby certify that the foregoing resolution was duly adopted by the Board of said District at a meeting of said Board held on the 6th day of October 2020, of which meeting all of the members of the Board had due notice and at which a quorum thereof were present and acting throughout and for which notice and an agenda was prepared and posted as required by law and that at such meeting such resolution was adopted by the following vote:

AYES: Safranski, Chadd, Acosta, Dopudja, Mandich

NOES: None

ABSTAIN: None

ABSENT: None



Secretary of the Board,
Trabuco Canyon Water District

STATE OF CALIFORNIA )
) ss.
COUNTY OF ORANGE )

I, Michael Perea, Secretary of the Board of the Trabuco Canyon Water District, do hereby certify that the foregoing is a full, true and correct copy of Resolution No. 2020-1286 of such Board and that the same has not been amended or repealed.

Dated this 6th day of October 2020.

Secretary of the Board,
Trabuco Canyon Water District