

Advanced Metering Infrastructure Implementation Program Phase 1 Project

Grant Applicant:



South Coast Water District
31592 West Street, Laguna Beach, California 92651

Project Manager: Ms. Cassandra Garcia
31592 West Street, Laguna Beach, California 92651
Email: cgarcia@scwd.org

Phone: (949) 342-1152
Fax: (949) 499-4256

Submittal Date January 18, 2017

Submitted to:
U.S. Department of the Interior, Bureau of Reclamation's
WaterSMART: Water and Energy Efficiency Grants for
Fiscal Year 2017

Table of Contents

Mandatory Federal Forms	1
Technical Proposal and Evaluation Criteria	1
Executive Summary	1
Background Data	2
Technical Project Description	9
Evaluation Criteria	11
Evaluation Criterion A: Quantifiable Water Savings (25 points)	12
Evaluation Criterion B: Water Sustainability Benefits Expected to Result from the Project (25 points)	15
Evaluation Criterion C: Energy-Water Nexus (18 points)	22
Subcriterion No. C.1— Implementing Renewable Energy Projects Related to Water Management and Delivery	23
Subcriterion No. C.2—Increasing Energy Efficiency in Water Management	23
Evaluation Criterion D: Addressing Adaptation Strategies in a WaterSMART Basin Study (8 points)	25
Evaluation Criterion E: Expediting Future On-Farm Irrigation Improvements (8 points)	26
Evaluation Criterion F: Implementation and Results (8 points)	27
Subcriterion No. F.1—Project Planning	27
Subcriterion No. F.2—Support and Collaboration	28
Subcriterion No. F.3—Performance Measures	30
Evaluation Criterion G: Additional Non-Federal Funding (4 points)	39
Evaluation Criterion H: Connection to Reclamation Project Activities (4 points)	39
Performance Measures (included under Subcriterion No. F.3—Performance Measures)	40
Environmental and Cultural Resources Compliance	40
Required Permits or Approvals	43
Official Resolution	43
Project Budget	43
Funding Plan and Letters of Commitment	43
Budget Proposal	44
Budget Narrative	45
Budget Form – SF-424C, Budget Information – Construction	51
Exhibits	51
Exhibit A – Letter of Support	52
Exhibit B – Resolution	53

Mandatory Federal Forms

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

Technical Proposal and Evaluation Criteria

The technical proposal and evaluation criteria (50 pages maximum) includes: (1) the Executive Summary, (2) Background Data, (3) Technical Project Description, (4) Evaluation Criteria and (5) Performance Measures. To ensure accurate and complete scoring of your application, your proposal should address each subcriterion in the order presented here.

Executive Summary

January 18, 2017

Ms. Cassandra Garcia, Project Manager

South Coast Water District, Laguna Beach, Orange County, California

- **A one paragraph project summary that specifies the work proposed, including how project funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA (see Section C.3.1, “Eligible Projects”).**

South Coast Water District (SCWD/District) is proposing the Advanced Metering Infrastructure (AMI) Implementation Program Phase 1 (Project) as part of its long-term goal of water supply reliability and efficient water management. The AMI Project includes the upgrade of 3,008 existing Automatic Meter Reading (AMR) water meters (currently read via vehicle drive-by) with an AMI cellular base technology 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. Phase 1 AMI Project Activities include: 1) procurement of a qualified contractor; 2) upgrade to an AMI cellular-based technology including water meters, AMI cellular registers, and software that will automatically collect and store hourly consumption data. The software will also provide a web-based customer portal for use by the District personnel and the District customers; and 3) integration with the District’s work order CIS software (enQuesta5). The AMI Project will allow the District to test 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. With the availability of actual water data, the District would monitor the effectiveness of AMI Implementation through a before and after analysis of the data. This Project will serve as the pilot for Phase 2 of the AMI Implementation Program, which would expand the program to include all 12,523 potable and recycled water accounts. It is the goal of the District to fully test and fine-tune the AMI system to maximize benefits to both the District and its customers prior to implementing the technology District-wide. Phase 1 will result in a savings of 90 acre-feet per year (AFY), 252,000 kilowatt hour per year (kWh/year), and 157,797 pounds of CO₂ per year. Furthermore, deployment of the software, a Customer Portal will allow water users with online access to their own real-time hourly water usage data. This will prompt District customers to make positive changes to their water use behaviors. The proposed AMI Project will reduce real system losses and increase water use efficiency and conservation through the availability of near real-time data on water usage and daily water needs. The District is nearly completely dependent on imported water for meeting potable water demands, and conservation and water use efficiency are key factors for 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's

South Coast Water District – Funding Group 1 Request |
Advanced Metering Infrastructure Implementation Program Phase 1 |

imported water sources are the Colorado River and the State Water Project, which draws water from the San Francisco-San Joaquin Bay Delta. The District’s customers are committed to and have been successful in: (1) maximizing water conservation by achieving over 20% sustained conservation compared to pre-drought 2014 levels; and (2) maximizing water recycling at a total of approximately 800 AFY or over 10% of the District’s overall water demand. The AMI Project will expand upon the District's efforts to promote water use efficiency by accomplishing the following: 1) More rapid 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 (half 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 based on customer education through the AMI Project’s data on water usage. The District strives to be an example of water use efficiency and water conservation for other water agencies that are near 100% dependent on imported water supplies. With the current drought conditions and decreased reliability of imported water supply, conservation and water use efficiency are critical for improving water sustainability within the service area.

○ **State the length of time and estimated completion date for the project.**

Following the September 30, 2017 Funding Award, the AMI Project will be completed within the 2-year timeframe following the funding award, as shown in the schedule below:

Project Schedule with Dates

Project Schedule by Task	Start Date	End Date
Funding Award	9/30/17	9/30/17
Task 1: Project Management	9/30/17	5/15/18
Task 2: Equipment Procurement	10/1/17	6/1/18
Task 3: Installation of Communication System to Support the AMI System	11/1/17	11/15/17
Task 4: Remove and Replace Existing Meter System with AMI Technology	2/1/18	6/1/18
Task 5: Final Testing and Implementation	6/2/18	7/2/18
Task 6: Grant Management and Reporting	9/30/17	10/31/18

○ **Whether or not the project is located on a Federal facility.**

The AMI Project is not located on a Federal facility.

Background Data

The District is situated in Orange County, approximately 60 miles south of Los Angeles and encompassing an area of approximately 5,300 acres, along the southern coastline of Orange County. The topography consists of a fertile valley and rolling hills in the southern half, with steeply sloping hills and finger like canyons in the northeast portion of the service area. Three creeks, Aliso, Salt and San Juan, bisect the District providing drainage of inland watersheds. Surface elevations range from sea level to approximately 690-feet above sea level. The District provides domestic and non-domestic water service to residential, commercial and institutional customers within the City of Dana Point and City of Laguna Beach. A small portion of San Clemente covers some 200-acres within the District. The District encompasses an area of approximately 8.3 square miles (5,300 acres) for water service along the southern California coastline of Orange County. The general vicinity of the District and its

South Coast Water District – Funding Group 1 Request
Advanced Metering Infrastructure Implementation Program Phase 1

service area boundaries are shown on Figure 1. The AMI Project will include replacing meters with AMI meters throughout the District’s service area. Figure 2 shows the location of the District within the state. Figure 3 shows the Orange County regional water importer, MWDOC, and its service area including the District.

Figure 1. SCWD Project Location (includes entire Service Area)



Figure 2. District Location within the State of California



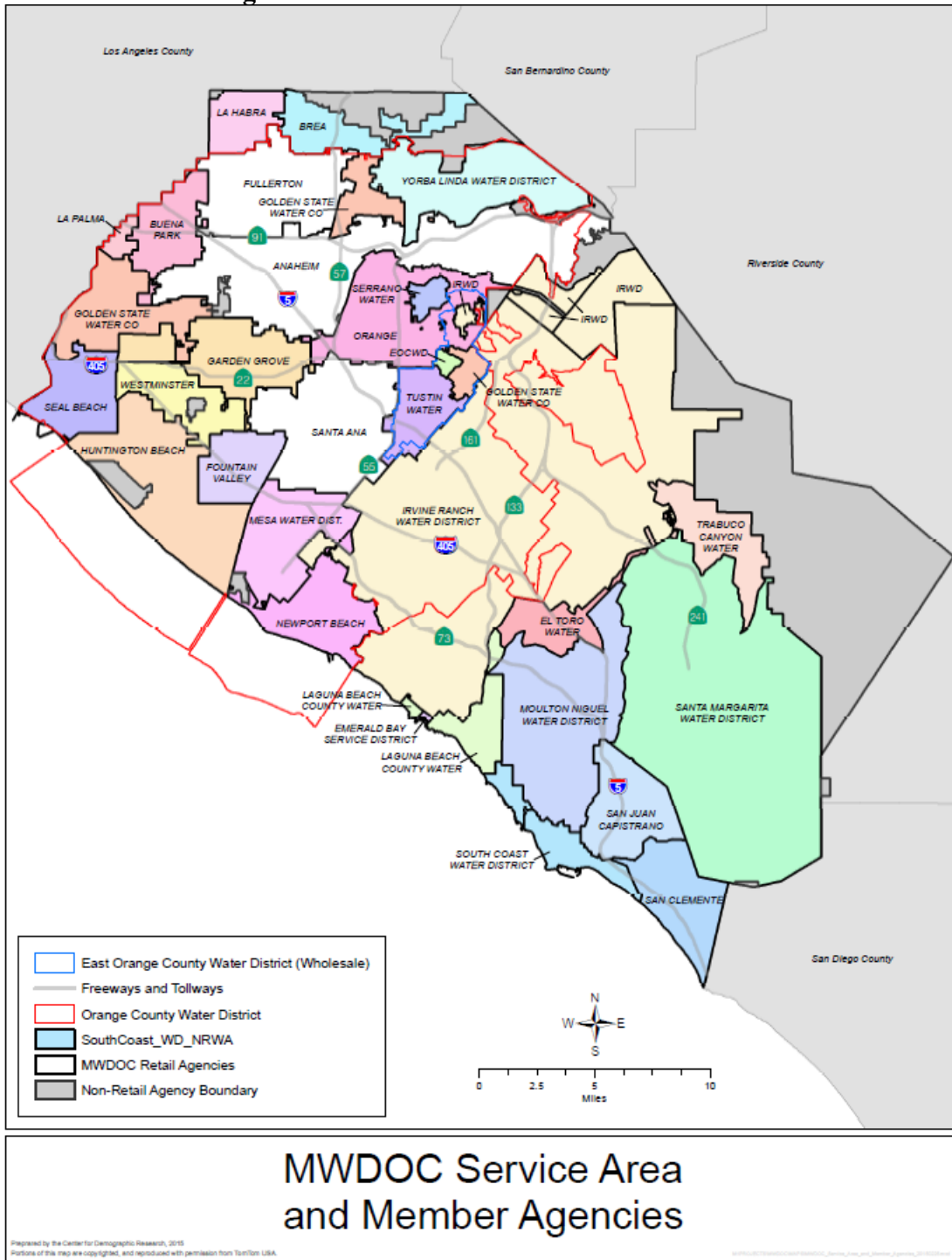
Water Supply and Demand

Sources of Supply and Water Rights- The District’s source of supply includes a combination of imported water, local groundwater, and recycled water to meet its current water needs. However, due to dry hydrologic conditions, SCWD has not extracted any groundwater since October of 2014. In 2015, the District had a total of 12,738 municipal connections and a total of 6,774 AFY volume of water supplied. The District works together with two primary agencies, MWD and MWDOC, to ensure a safe and reliable water supply that will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include water from the CRA and the SWP provided by MWD and delivered through MWDOC. MWDOC’s service area is shown in Figure 3. The Table below summarizes the District’s 2015 Actual water supplies.

Table 1. District’s 2015 Actual Water Supplies

Retail: Water Supplies — Actual			
Water Supply	Additional Detail on Water Supply	2015	
		Actual Volume	Water Quality
Imported Water	MWDOC	5,737	Drinking Water
Recycled Water		859	Recycled Water
Groundwater	Desalter	178	Drinking Water
Total		6,774	

Figure 3. MWDOC Service Area and SCWD



In 2015, the District supplemented its local groundwater through 5,737 AFY of imported water purchased wholesale by MWD through MWDOC. Imported water represents approximately 90 percent of the District’s total current water supply. MWD’s principal sources of water are the Colorado River via the CRA and the Lake Oroville watershed in Northern California through the SWP. The raw water obtained from these sources is, for Orange County, treated at the Robert B. Diemer Filtration Plant located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the MWD Lower Feeder and SWP water through the Yorba Linda Feeder. Imported water is conveyed to the District through the East

South Coast Water District – Funding Group 1 Request |
Advanced Metering Infrastructure Implementation Program Phase 1 |

Orange County Feeder (EOCF) #2 system, which conveys Diemer water to the Aufdenkamp Transmission Main (ATM) and the Joint Transmission Main (JTM), which serves the District and other coastal agencies. The District has capacity rights of 5 cubic feet per second (cfs) in the ATM reach from the Coastal Junction to the northerly border of El Toro Water District (ETWD). The District’s capacity in the downstream reach to Coast Highway in Laguna Beach increases to 8 cfs due to flows from the Coast Supply Line. The District’s capacity is 6.34 cfs in the JTM. The other major conveyance system is the Allen-McColloch Pipeline (AMP) which supplies Diemer water through the South County Pump Station in Lake Forest, to the South County Pipeline (SCP) through Santa Margarita Water District (SMWD) to San Clemente, where it is delivered to the District through the Water Importation Pipeline (WIP) along Coast Highway. The District’s capacity right in the AMP is 10.7 cfs and is shared with the City of San Clemente. Downstream, the District owns 25 cfs in the SCP (MWDOC, Interconnection of the IRWD Water System, July 2006). Since 2000, the District has operated, maintained, and administered the JRWSS. The JRWSS distributes imported potable water from MWD through South Orange County through a distribution system that includes 30 miles of transmission mains and two reservoirs with a total capacity of 60 MG. JRWSS is jointly owned by and provides water to the District, Irvine Ranch Water District (IRWD), ETWD, Moulton Niguel Water District (MNWD), City of San Juan Capistrano, City of San Clemente, and three San Diego County Water Authority (SDCWA) agencies.

Currently, five agencies, including the District, have groundwater rights to the San Juan Groundwater Basin (Basin) and uses this water for either municipal purposes or for irrigation. The agencies with groundwater rights to the Basin and their current rights are listed below:

- South Coast Water District: 1,300 AFY
- San Juan Hills Golf Course: 450 AFY
- San Juan Basin Authority: 8,026 AFY
- City of San Juan Capistrano: 3,325 AFY
- Santa Margarita Water District: 643 AFY

The Basin differs from many other adjudicated groundwater basins as it does not strictly follow the term “safe yield” in preventing undesirable results occurring as a result of over-production of groundwater. The Basin is governed by the SJBA and is a Joint Power Agency comprised of representatives from four local jurisdictions, the District, MNWD, the City of San Juan Capistrano, and SMWD. The SJBA has recently adopted the concept of “adaptive management” of the Basin to vary pumping from year to year based on actual basin conditions derived from monitoring efforts. This is due in part to the SWRCB characterization of the Basin as a “flowing underground stream” and because the storage in the groundwater basin is small relative to recharge and production. The range of natural yield of the Basin is 7,000 AFY to 11,000 AFY. As such, the Basin has been sensitive to drought periods. For example, due to dry hydrologic conditions, SCWD has not extracted any groundwater since October of 2014.

The District’s existing recycled water system provides the service area with a supplemental irrigation supply. The District’s Board of Directors plans to expand the recycled water system, further reducing dependence on imported water. The District and some of its neighboring agencies do not own or operate individual wastewater treatment facilities. South Orange County Wastewater Authority (SOCWA) was formed in 2001 as a Joint Powers Authority with ten member agencies, consisting of local retail water agencies and cities that provide water to their residents, including the District. The District delivers approximately 6 MGD of potable water to customers' homes and businesses that generate approximately 4 MGD of wastewater. The District’s wastewater collection system includes approximately 140 miles of sewer pipelines ranging from 6 inches to 24 inches in diameter, 13 sewer

lift stations, and 3 miles of force mains. The District provides sewer service to some customers outside of their service area, but along its boundaries due to the local topography.

Current Water Uses

In the fiscal year (FY) of 2014-15 there were 12,553 current customer active and inactive service connections in the District’s potable water distribution system with all existing connections metered. Approximately 63 percent of the District’s potable water demand is residential; commercial/industrial/institutional (CII) accounts for 19 percent, 16 percent is for dedicated landscape, and approximately 2 percent for water losses. Non-residential use includes commercial and institutional water demands and accounts for 37 percent of potable water demand. The District has a mix of commercial uses (markets, restaurants, etc.), public entities (schools, fire stations and government offices), office complexes, a hospital, and light industrial. This area is a tourist destination, which creates demand fluctuations, primarily during the summer months, for commercial sector accounts.

Number of Water Users Served

The District’s service area includes residential, commercial and institutional customers within the Cities of Dana Point, Laguna Beach, and a small portion of San Clemente. Growth has increased slightly since the 2010 UWMP as housing is becoming denser and new residential units are multi-storied. The District had a 2015 population of 35,004 according to the California State University at Fullerton’s Center for Demographic Research (CDR). The District is almost completely built-out, and its population is projected to increase 9.3 percent by 2040, representing an average growth rate of 0.37 percent per year (according to CDR and the Department of Finance (DOF)). Table 2 shows the population projections in five-year increments out to 2040 within the District’s service area.

Table 2: Population – Current and Projected

Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040
	35,004	37,062	37,226	38,060	38,298	38,268
NOTES: Center for Demographic Research, California State University, Fullerton 2015						

Current and Projected Water Demand

The District’s current potable water demand is 5,915 AFY, met through locally extracted groundwater and purchased imported water from MWDOC. Table 3 includes actual and projected demands for the District’s service area for the next 25 years.

Table 3: Demands for Potable and Raw Water – Actual and Projected (AF)

Retail: Demands for Potable and Raw Water – Actual and Projected						
Use Type	Actual Water Use		Projected Water Use			
	2015	2020	2025	2030	2035	2040
Single Family	2,590	2,391	2,410	2,570	2,723	2,756
Multi-Family	1,137	1,050	1,058	1,128	1,195	1,210
Commercial	1,107	1,022	1,030	1,099	1,164	1,178
Landscape	954	881	888	947	1,003	1,015
Losses	127	117	118	126	134	135
TOTAL	5,915	5,460	5,503	5,870	6,219	6,295
NOTES: Data provided by South Coast Water District						

Potential Shortfalls In Supply

Although all of California has been experiencing extreme drought and water use efficiency and conservation continues, the District does not anticipate a shortfall in supply to meet demands. A comparison between the projected demands in Table 3 above and the projected supplies in Table 4 below show there will be adequate supply. However, the current drought and anticipated future drought conditions make imported water supplies unreliable with looming shortfalls in imported water supply.

Table 4. Projected Water Supplies

Retail: Water Supplies — Projected AF						
		Projected Water Supply <i>Report To the Extent</i>				
		2020	2025	2030	2035	2040
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available	Reasonably Available Volume	Reasonably Available Volume
Groundwater	Desalter	1,040	1,040	1,040	1,040	1,040
Recycled Water		1,252	1,472	1,472	1,472	1,472
Purchased or Imported	MWDO	6,223	6,223	6,223	6,223	6,223
Total		8,515	8,735	8,735	8,735	8,735
NOTES:						

In addition, describe the applicant’s water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements (i.e., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.

Water Delivery System

The District is 90 percent dependent on imported water, and the remaining 10 percent of its demand comes from its one million gallons per day (MGD) Groundwater Recovery Facility (GRF) and recycled water. Since 2000, the District has operated and maintained, planned, and implemented the capital improvement program for the JRWSS, which distributes imported drinking water from MWD throughout South Orange County. The system includes 30 miles of transmission mains and two reservoirs in San Clemente, which hold a total of 60 million gallons of water. The JRWSS is jointly owned by and provides water to the District, IRWD, ETWD, MNWD, the City of San Juan Capistrano, the City of San Clemente and three agencies of the SDCWA: San Onofre Nuclear Generating Station, Camp Pendleton, and San Onofre State Park.

As discussed above under “Current Uses”, in the FY of 2014-15 there were 12,553 current customer active and inactive service connections in the District’s potable water distribution system with all existing connections metered. The total population served in 2015 was 35,004.

If the application includes renewable energy or energy efficiency elements, describe existing energy sources and current energy uses.

The District primarily relies on electricity from San Diego Gas & Electric and the District does not produce any renewable energy itself. The AMI Project would serve to modernize the District's water management facilities and equipment to increase energy efficiency by installing AMI technology.

The proposed Phase 1 AMI Project would promote energy efficiency by reducing fuel consumption and frequency in maintenance of District vehicles previously used to collect monthly meter readings and quantifiably reduce energy consumption through water significant improvements in water use efficiency and conservation that would reduce pumping and importation of water from MWD, which receives its supply from the SWP and the CRA. The importation of water is extremely energy intensive, and much of the state's energy consumption is attributed to the conveyance of water. Any reduction in water loss and overall consumption would have an impact on increasing energy efficiency of the overall system operations. Based on the publication “California’s Water – Energy Relationship” prepared by the California Energy Commission (November 2005, page 51), the amount of electrical energy required to transfer 1 acre-foot of water from northern California to an area just north of the District requires an estimated 3,000 kWh. The same publication also estimates 2,000 kWh for each acre-foot 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. In addition, the distribution of potable water throughout the District's system requires approximately 300 kWh/AF. The District’s system is described above under “Water Delivery System”. The District serves water at elevations from sea level to 690 feet above sea level. Due to the variation in topography pumping is required to move this water throughout the system. This requires approximately 300 kWh/AF of energy for potable water. Therefore, it is estimated that it takes an average of 2,800 kWh/AF to convey imported water from SWP and CRA to the District and to distribute the water throughout the District’s service area. The proposed Phase 1 AMI Project will result in a savings of 90 AFY, 252,000 kWh/year, and 157,797 pounds of CO2 per year.

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

MWDOC completed the Phase 3 Doheny Ocean Desalination Project – Extended Pumping and Pilot Plant Test, Regional Watershed and Groundwater Modeling, and Full Scale Project Conceptual Assessment in 2013. The Project Participants included Laguna Beach County Water District, SCWD, City of San Clemente, City of San Juan Capistrano, MNWD. The total project cost was \$6,147,000. MWDOC was a recipient of the U.S. Bureau of Reclamation, WaterSMART Grant R10AP35290 for \$499,000. Although the District was not a recipient of the Grant, they were a project participant that contributed to the completion of the Project.

Technical Project Description

The technical project description should describe the work in detail, including project milestones and specific activities that will be accomplished as a result of this project. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

The District is proposing to implement the Phase 1 AMI Project as part of its long-term goal of water supply reliability and efficiency water management. The Phase 1 AMI Project includes the upgrade of 3,008 existing Badger water meters, currently AMR-read via vehicle drive-by, with an AMI cellular base technology 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. This Project will serve as the pilot for Phase 2 of the AMI Implementation Program, which would expand the program to include all 12,523 potable and recycled water accounts. It is the goal of the District to fully test and fine-tune the AMI system to maximize benefits to both the District and its customers prior to implementing the technology District-wide.

The AMI Project assumes procurement of the qualified contractor will occur prior to 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 Design-Build Proposals for the 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 enQuesta5 by Systems and Software 4) procurement and integration with the District’s work management software (enQuesta5).

Each qualified bid will include all of the following: 1) overall capabilities and flexibility of the proposed AMI system, and it’s compatibility and adaptability with existing system.2) compatibility with the District’s existing customer information system, communications details.3) customer references where the contractor has integrated an AMI cellular system into the same system as the District’s; 4) data retention capabilities assuming eight years of records per customer; 5) two-way communications system type, capabilities, licensing requirements, issues, and security details; 6) required permitting; 7) web browser capable AMI data retrieval; 8) ease of use of reports and report generators; 10) photo documentation;

The work to be performed as part of the Technical Project Description shall consist of a qualified contractor to install a “turn-key” AMI cellular base technology, retrofitting recently installed meters with appropriate equipment, and installing new water meters. An AMI cellular base technology will be proposed by the selected contractor and accepted by the District. The District will only approve the use of equipment, technologies, and capabilities that are currently commercially available, have been implemented in other agencies, and are compatible with the existing meters and have a proven history of success.

The work will include, but is not limited to, procurement of water meters, procurement of AMI cellular transmitters, software, a web-based utility management portal and a web-based customer portal for utility users to access consumption. Additional work as part of this project shall include the integration of the AMI cellular system into the District’s customer information system (enQuesta5 by Systems and Software), and procurement and integration with the District’s work order system (enQuesta5). All work will be in compliance with all applicable local, state, and federal regulations for the prevention of water and air pollution.

Project Tasks

Task 1: Project Management

SCWD staff and the selected contractor will meet to establish the Project Management Team and begin AMI Project discussions. District staff and the Contract Project Manager will establish the final Scope of Work to facilitate the AMI Project, review invoicing, reporting and documentation requirements during construction, as well as performance monitoring and reporting. The Project Manager will manage implementation of the AMI Project for the duration of the work.

Task 2: Equipment Procurement

The District will work collaboratively with the Contractor to select the appropriate equipment for the AMI cellular 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. Once selected, the District

will follow its Procurement Policy to purchase the AMI water meters, meter box lids, meter boxes, and the complete communication system and software.

Task 3: Installation of Communication System to Support the AMI System

Install appropriate number of AMI cellular transmitters, and software. The software will include a web-based utility management portal and a web-based customer portal that will collect the hourly consumption data and relay this information so it will be available in the web-based application that can be accessed in real-time for District billing, and live leak reports.

Task 4: Remove and Replace Existing Meter System with AMI Technology

Disconnect 3,008 meters and replace with the selected AMI meters and cellular retrofit register devices. Installation includes removing the existing meter assembly and then physically attaching the cellular retrofit meter register device to the meter. Installation also includes establishing and connecting the cellular communication system. A meter replacement file is also needed for capturing the meter removal information and the new meter information. This information will include the meter number, register number, cellular device number, meter size, meter model and meter type. The meter information will then be uploaded to the CIS billing system.

Task 5: Final Testing and Implementation

Begin running a test route of the 3,008 meters, including testing the AMI Cellular technology, the accuracy of the meter information, and the use of the software.

Task 6: Grant Management and Reporting

Selected consultant will work closely with the District to negotiate, execute and manage the cooperative agreement with Reclamation. Reporting will also 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 cooperative agreement. Performance Reports will include information regarding the status of the Project's Performance Measures. The methods of measuring Project Performance, which will be used for producing these reports, are explained in more detail in the Performance Measures Section.

Evaluation Criteria

The evaluation criteria portion of your application should thoroughly address each of the following criterion and subcriterion in the order presented to assist in the complete and accurate evaluation of your proposal. If a particular criterion does not apply to your project, please indicate which criteria are inapplicable as part of your application. (Note: it is suggested that applicants copy and paste the below criteria and subcriteria into their applications to ensure that all necessary information is adequately addressed). **Applications will be evaluated against the evaluation criteria (listed below), which comprise 100 points of the total evaluation weight.** Please note that projects may be prioritized to ensure balance among the program Task Areas and to ensure that the projects address the goals of the WaterSMART program.

*Please note, if the work described in your application is a phase of a larger project, please **only** discuss the benefits that will result directly from the work discussed in your application and that is reflected in the budget and exclude discussion of benefits expected from the overall project.*

Evaluation Criterion A: Quantifiable Water Savings (25 points)

Projects that result in quantifiable and sustained water savings or improved water management (please note that an agreement will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to the terms of Section 9504(a)(3)(B) of Public Law 111-11. See *Section F.2.3. Requirements for Agricultural Operations under Public Law 111-11, Section 9504(a)(3)(D)* of this FOA for further information). Projects include, but are not limited to:

Municipal Metering: Projects that install meters, resulting in measurable water savings. Projects include, but are not limited to:

- o Installing water service meters

- o Installing distribution systems meters associated with production and/or leakage quantification

Up to 25 points may be awarded for a proposal that will conserve water and improve efficiency. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in significant water savings.

Please address the following questions according to the type of project you propose for funding.

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

Water Saved

(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.

Amount of average water saved/conserved (AFY) for Proposed Phase 1 AMI Project:

(Water Loss Reduction + Reduction in Consumption)

8.6 + 81 AFY = 89.6 AFY or approximately 90 AFY of water saved by proposed Phase 1 AMI Project.

Detail and supporting calculations for estimate:

Current water losses are 2.1 percent of the total potable water demand (Source: 2015 SCWD UWMP). The total potable water demand for the District’s 12,523 service connections is approximately 5,915 AFY. Approximately 127 AFY of that total demand is unaccounted for. To determine total water loss, an American Water Works Association (AWWA) Water Audit was completed for the District in the 2015 UWMP. 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. 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 one-year period from available data.

It was noted in the UWMP there is an opportunity to identify areas of high water loss and develop strategies to minimize it. Based on current District data, implementation of the proposed Phase 1 AMI Project will result in a reduction of water loss from 2.1 percent down to 1 percent (a savings of 1.1 percent). In addition, as part of the monthly meter reading process, District staff checks for any signs of water leaks at the meter along with a visual system check. As part of the billing process water consumption is compared to prior months and years usage. The District conducts monthly water loss audits and conducts leak detection using in house District staff in addition to using outside consultants for leak detection surveys. The District continues to review system integrity to detect and repair distribution system leaks.

The following describes the water savings calculations:

Water loss reduction for Proposed Phase 1 AMI Project:

Water Use for 3,008 meters identified is 777 AFY for FY 2016.

Current 2.1% Water Loss will be reduced by 1%= 1.1% Water Loss Savings

Estimated Water Savings from Phase 1 AMI Project implementation = $777 \text{ AFY} * 1.1\% =$

approximately 8.6 AFY water saved.

The AMI Project will achieve water savings by implementing the following: 1) More rapid 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 (half 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 based on customer education through the AMI Project's data on water usage.

Empirical data demonstrates that customer portals help improve water use efficiency and reduce consumption by up to five percent. Other water agencies that have installed AMI have been able to reduce water losses down to nearly one percent. The District has estimated that the AMI Project will reduce water losses from 2.1% down to 1%, saving approximately 8.6 AFY.

Savings will also result from the deployment of a Customer Portal, through which customers for all AMI units will be able to independently access their own real-time flow data on the District's website. These additional water savings will come from self-leak detection and water use behavioral change on the part of customers who access the data for the purpose of monitoring their consumption. Eastern Municipal Water District (EMWD), which is a wholesaler of water in Southern California, recently implemented a demonstration project, which included implementation of a Customer Portal similar to the proposed AMI Project. For EMWD's demonstration project, they installed AMI units for a subset of their customer base, included daily water use information on their water bills, and made flow data available to customers on their website. EMWD determined that an average annual savings of 0.027 AF per meter was realized through implementation of their project. Since the District's proposed AMI Project includes these same activities, it is anticipated that this same level of savings can be achieved at a minimum for all of the District's AMI units. Therefore, applying the same savings of 0.027 AFY/meter to the proposed Project results in the following calculation:

Customer Portal Reduction in Consumption for Proposed Phase 1 AMI Project:

$0.027 \text{ AFY/meter} * 3,008 \text{ meters} =$ approximately **81 AFY** water saved through the Customer Portal.

Therefore, total water savings for the Phase 1 AMI Project is $8.6 \text{ AFY} + 81 \text{ AFY} = 89.6 \text{ AFY}$.

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

As part of the monthly meter reading process, District staff checks for any signs of water leaks at the meter along with a visual system check. As part of the billing process water consumption is compared to prior months and years usage. If a leak is evident on the customer's side of the meter, the customer is notified of the leak either in person on their bill or both depending on the severity of the leak. The District conducts monthly water loss audits and conducts leak detection using in house District staff in addition to using outside consultants for leak detection surveys. In conjunction with the leak detection and curtailment programs, the District is offering customers complimentary packets of dye tablets, used to safely detect leaking toilets. The District continues to review system integrity at all times and conducts in house leak detection and also contracts for outside leak detection services on an as needed basis to detect and repair distribution system leaks. 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. 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 AWWA water loss methodology determined 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 that was signed into law in September 2014. 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. For FY 2014-15, the District's Non-revenue water was 126.9 AF and its water losses equaled 52.96 AF. These findings were a result of the AWWA Water Audit completed for the District and the 2015 UWMP. The water loss summary was calculated over a one-year period from available data and the methodology explained above. The volume of water loss calculated for this period represents less than 1 percent of the District's annual water supplied, which presents an opportunity to identify areas of high water loss and develop strategies to minimize it.

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 resulted 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, please provide support for this determination (including, but not limited to leakage studies, previous leakage reduction projects, etc.). Please provide details underlying any assumptions being made in support of

water savings estimates (e.g., how leakage will be reduced once identified with improved meter data).

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 AMI Project includes the upgrade of 3,008 existing water meters, currently AMR-read via vehicle drive by, with an AMI cellular base technology system. The District has been evaluating AMI technologies, customer portal providers, and utility data management systems for several years. To that end, the District solicited proposals from several vendors to identify potential solutions for implementing AMI. The District currently has 12,523 Badger meters that are compatible with the Badger AMI meter registers. In the proposed Phase 1 AMI Project the District will convert approximately 3,008 existing Badger water meters total with the selected AMI device.

(f) How will actual water savings be verified upon completion of the project?

Actual water savings will be verified upon completion of the 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.

- **Where is the water that will be conserved currently going (i.e., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)? Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.**

The District's current potable water demand is 5,915 AFY, met through locally extracted groundwater and purchased imported water from MWDOC. A total of 5,737 AFY of purchased imported water from MWDOC is currently being delivered to the District's service area for the following uses: residential, commercial and institutional customers. Based on District analysis, approximately 2.1% of water delivered is lost from system leakage. Water lost is likely seeping back into the ground and/or making its way into a stormdrain or ocean. A total of 90 AFY will be conserved by the proposed Phase 1 AMI Project. Water conserved as a result of the proposed Project's implementation represents a decrease in local demand, which would decrease 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 environmental and other uses.

Evaluation Criterion B: Water Sustainability Benefits Expected to Result from the Project (25 points)

Up to 25 points may be awarded under this criterion based on the water sustainability benefits that are expected to occur as a result of the project. Maximum consideration under this criterion will be given to projects that will commit conserved water to instream flows for the benefit of federally listed threatened or endangered species, designated critical habitat, or other fish and wildlife benefits. Consideration will also be given to projects expected to result in water sustainability benefits in other ways, such as making water available to alleviate water supply shortages or to address other specific water management concerns in the region.

Please describe in detail where the conserved water will go and how the conserved water is expected to increase water sustainability. Consider the following:

- **Will the project commit conserved water to instream flows? If so, please address the following:**
 - **Provide a detailed description of the mechanism that will be used (e.g., collaboration with a state agency or nonprofit organization, or other mechanisms allowable under state law) and the roles of any partners in the process. Please attach any relevant supporting documents.**

The Project will directly reduce the District’s demand on imported water by approximately 90 AFY through the Project’s water savings. 90 percent of the District’s water supply consists solely of imported water obtained from MWDOC via MWD. The remaining 20 percent of its demand comes from its one MGD GRF and recycled water. The District 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 production by the District and allow 90 AFY to be conserved to instream flows in the SWP (Bay-Delta) and CRA. As described above, the District’s current potable water demand is 5,915 AFY, met through locally extracted groundwater and purchased imported water from MWDOC. A total of 5,737 AFY of purchased imported water from MWDOC is currently being delivered to the District’s service area for the following uses: residential, commercial and institutional customers. Based on District analysis, approximately 2.1% of water delivered is lost from system leakage. Water lost is likely seeping back into the ground and/or making its way into a stormdrain or ocean. A total of 90 AFY will be conserved by the proposed Phase 1 AMI Project. Water conserved as a result of the proposed Project’s implementation represents a decrease in local demand, which would decrease 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 environmental and other uses.

MWD typically blends supplies from its Colorado River Aqueduct with water allocated from the State Water Project before delivery to the MWDOC and the District. MWD has a basic entitlement of 550,000 AFY of Colorado River water, plus surplus water up to an additional 662,000 AFY when the following conditions exist (MWD, 2015 UWMP, June 2016). Unfortunately, MWD has not received surplus water for a number of years. The Colorado River supply faces current and future imbalances between water supply and demand in the Colorado River Basin due to long term drought conditions. Over the past 16 years (2000-2015), there have only been three years when the Colorado River flow has been above average (MWD, 2015 UWMP, June 2016). The 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. Climate change will affect future supply and demand as increasing temperatures may increase evapotranspiration from vegetation along with an increase in water loss due to evaporation in reservoirs, therefore reducing the available amount of supply from the Colorado River and exacerbating imbalances between increasing demands from rapid growth and decreasing supplies.

“Table A” water is the maximum entitlement of SWP water for each water contracting agency. Currently, the combined maximum Table A amount is 4.17 million AFY. Of this amount, 4.13 million AFY is the maximum Table A water available for delivery from the Delta pumps as stated in the State Water Contract. However, deliveries commonly are less than 50 percent of the Table A. DWR has

altered the SWP operations to accommodate species of fish listed under the Biops, and these changes have limited SWP deliveries. DWR's Water Allocation Analysis indicated that export restrictions are currently reducing annual deliveries to MWD as much as 150 TAF to 200 TAF under median hydrologic conditions. The AMI Project will offset imported water deliveries to the District by 90 AFY, thereby alleviating stress on the Bay-Delta habitat.

- **Indicate the quantity of conserved water that will be committed to instream flows. Describe where conserved water will be committed to increase instream flows (indicate specific stream reaches if applicable).**

Up to 90 AFY will remain in the Bay-Delta or CRA.

- **Describe the benefits that are expected to result from increased instream flows. Will the increased instream flows result in benefits to fish and wildlife? If so, please describe the species and expected benefit of the project.**

The District's water supply consists of imported water obtained from MWDOC via MWD. MWD typically blends supplies from its Colorado River Aqueduct with water allocated from the State Water Project before delivery to the District. As the AMI Project seeks to offset imported water deliveries to the District by 90 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 twelve 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 AMI Project.

The AMI Project improves the status of the listed species by making more water available in the Bay-Delta to support the species and their habitats. Approximately 5,915 AFY of water is currently moved from the northern California Bay-Delta area through the State Water Project to meet the District's demand for water. 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 AMI Project. Any reduction in water use from the State Water Project for this region has a positive impact on the species in and around the Bay-Delta area.

- **Please describe the status of the species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular ecological, recreational, or economic importance), the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.**

The AMI Project improves the status of the state listed species by making more water available in the Bay-Delta to support the species and their habitats. Approximately 5,915 AFY of water is moved from the northern California Bay-Delta area through the State Water Project to meet this area's demand for water. With a reduction in this imported water demand by 90 AFY, the impact on the Delta Smelt, Salmon, and other state listed species currently impacted by water pumping activities will be alleviated to the extent of the AMI Project.

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. Critical habitat was listed for Delta Smelt on December 19, 1994.

Delta smelt are threatened with extinction due to anthropogenic alterations to their ecosystem, including urbanization, non-native species, water diversions, contaminants, and the conversion of complex tidal habitats to leveed channels. The Delta Smelt species is subject to a recovery plan under the ESA. The Delta Smelt was included in the Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes initially approved in November 1996. The Delta Smelt was also designated as a protected species through a 2007 court order.

- **Will the increased instream flows result in benefits to habitat or other ecological benefits? If so, describe these benefits. Will the flows specifically benefit federally designated critical habitat?**

Any reduction in water use from the State Water Project for this region has a positive impact on the species in and around the Bay-Delta area. Listed threatened or endangered species or designated critical habitat located in the Bay-Delta are adversely affected by the State Water Project and imported water. When water is delivered from the Bay-Delta there is less available to support its habitats. There is a negative ecological impact on the Bay-Delta region as a result of importing water from the region. An example of this is the negative impact on the Delta Smelt (Critical Habitat Designated Federal Register 59:65256) 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 Bay-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. The species’ habitat, life cycle, and reproduction rates are adversely affected by water imported via the State Water Project.

- **Will the increased instream flows result in other benefits not discussed above, including recreational, social, or economic benefits? If so, please explain.**

Yes, the Project’s increased instream flows in the Bay-Delta and CRA will assist with the response to climate change, which has recreational, social and economic impacts. Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning more challenging. The areas of concern for California include a reduction in Sierra Nevada Mountain snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of Delta levee failure, seawater intrusion of coastal groundwater basins, and potential cutbacks on the SWP and CVP. In addition, the Colorado River Basin supplies have been inconsistent since about the year 2000, resulting in 13 of the last 16 years of the upper basin runoff being below normal. Climate models are predicting a continuation of this pattern whereby hotter and drier weather conditions will result in continuing lower runoff. Legal, environmental, and water quality issues may have impacts on MWD supplies. The AMI Project will help alleviate the impacts of climate change by reducing the demand on imported water supplies.

- **Some projects may address water supply sustainability in ways other than committing water for instream flows. If the questions listed above are not applicable to your project, please address the following to explain how the water savings from the project are expected to result in a public benefit:**
 - **Is there a specific water supply sustainability concern in the region? What factors are contributing to the concern? Please include a description of the impacted geographic area and stakeholders, the partners that are collaborating to resolve the concern, and any other applicable information.**

California is currently experiencing a historic drought that is affecting the entire state, and these conditions are likely to continue into the foreseeable future. California's drought conditions have been severe in the Project area. Governor Brown's declaration of a drought emergency on January 17, 2014, resulted in the District immediately issuing news releases and notices to their service area customers to reduce water use up to 20%. 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. Improvements in water use efficiency will free up additional supply to help address shortages elsewhere.

In response to the lowest Sierra snowpack in recorded history and the ongoing severe drought conditions, Governor Brown signed Executive Order B-29-15 on April 1, 2015 calling for statewide mandatory water reductions to assist California in becoming more drought resilient. The Governor directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent. On May 5 2015 the CA State Water Resources Control Board (SWRCB) adopted an emergency regulation requiring an immediate 25% reduction in overall potable urban water use statewide in accordance with Gov. Jerry Brown's Executive Order issued on April 1, 2015. To reduce water use by 25% statewide, the regulation adopted by the State Board places each urban water supplier into one of eight tiers which are assigned a conservation standard, ranging between 4% and 36%. On November 13, 2015, Governor Brown issued Executive Order B-36-15 (EO B-36-15) that calls for an extension of restrictions to urban potable water usage until October 31, 2016, should drought conditions persist through January 2016. EO B-36-15 is the fifth in a series of Executive Orders by Governor Brown on actions necessary to address California's severe drought conditions, which directed the State Water Board to implement mandatory water reductions in urban areas to reduce potable urban water usage by 25 percent statewide. Most recently, the State Water Resources Control Board adjusted the water reduction percentage to 22 percent based on a variety of hydrologic conditions. The impacted area includes the District's service area, as well as Orange County and the greater Southern California region.

- **How will the proposed project help to address that concern? Will water conserved through the project result in reduced diversions or be made available to help alleviate water supply shortages due to drought, climate variation, or over-allocation?**

This AMI Project will help address the issue of threatened water reliability for the South Orange County region by conserving 90 AFY of imported potable water. The District is 100% reliant on imported water for 90% of its supply, while the region is 80% dependent on imported water. Imported pipelines cross five faults over 200 times, poses a high vulnerability to the region during times of drought, earthquake, or other catastrophic event. The 2004/2013 South Orange County Reliability Studies identified following Risks: Emergency shutdowns of outside facilities, Prolonged drought, and Lack of local project implementation. By implementing the Phase 1 and Phase 2 AMI Project,

approximately 8,140 AFY of imported will be saved over the lifetime of the AMI Project, thereby decreasing the region's imported water dependency, and increasing local reliability.

The source of water for this AMI Project is imported water that would be conserved through the AMI Project implementation. California faces unmatched drought conditions in 2015 after recording the hottest year on record in 2014 and the driest year ever recorded in 2013. 2015 had some of the warmest and driest months on record, including a record low snowpack in the Sierra Nevada. Today, 27 million Californians are living in areas experiencing exceptional drought, according to the U.S. Drought Monitor. For the Southland, MWD's deliveries from Northern California through the State Water Project are currently at just 20 percent of its contracted amount. The SWP typically provides about a third of Southern California's water. Storage in the district's other supply source—the Colorado River—stands at less than 50 percent of capacity after 15 drought years in the Southwest. 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.

As the drought continues and with State Water Project allocations held at only 5%, local and imported supply stores are being depleted. This may result in the need for local supply agencies to implement mandatory rationing to limit potable demands. Reducing the demand on potable supplies reduces the dependency on imported supplies.

Water shortages have massive impacts with few solutions that can be immediately implemented to mitigate them. This has increased the immediacy of local resource development and increasingly aggressive water conservation projects and programs in the District's service area. The proposed AMI Project will improve the reliability of water supplies during times of drought. In addition, the associated costs and energy required to deliver 90 AFY of imported water to the District is saved, which results in less financial impact to the District and less environmental impact from greenhouse gases. The AMI Project will reduce imported water demands in the long term.

- **Will the project make additional water available to Indian tribes, and/or rural or economically disadvantaged communities)? If so, please explain.**

Integrating system wide water conservation measures is critical for meeting water supply demands. The AMI Project is also needed to ensure Disadvantaged Communities (DACs) have a reliable potable water supply. The South Orange County region includes DACs, including areas in the Cities of Dana Point, Laguna Beach and San Clemente, as shown in the Figure below. The South Orange County region is highly reliant on imported water supply, with approximately 80% of its water supply coming from imported sources. The proposed AMI Project assists in reducing the region's reliance on imported water supply through saving 90 AFY.

The District's 2015 UWMP includes water use projections for single-family and multi-family residential housing for lower income and affordable households. This assists the District in complying with the requirement under Government Code Section 65589.7 granting priority for providing water service to lower income households. A lower income household is defined as a household earning below 80 percent of the median household income (MHI). California Department of Water Resources (DWR) recommends retail suppliers rely on the housing elements of City or County general plans to quantify planned lower income housing with the District's service area (DWR, 2015 UWMP Guidebook, February 2016). The Regional Housing Needs Assessment

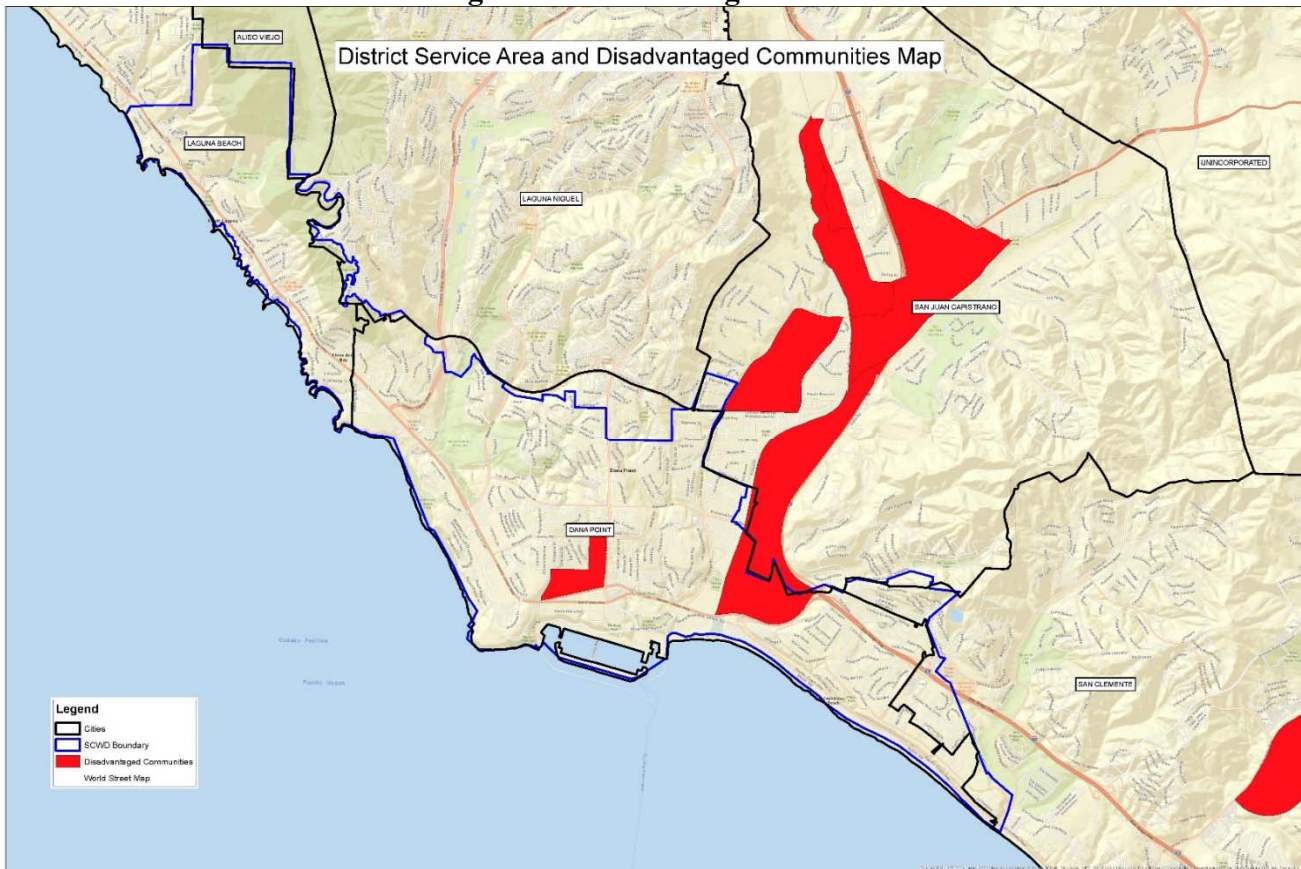
(RHNA) assists jurisdictions in updating general plan's housing elements section. The RHNA identifies housing needs and assesses households by income level for the District through 2010 decennial Census and 2005-2009 American Community Survey data. The fifth cycle of the RHNA covers the planning period of October 2013 to October 2021. The Southern California Association of Governments (SCAG) adopted the RHNA Allocation Plan for this cycle on October 4, 2012 requiring housing elements updates by October 15, 2013. The California Department of Housing and Community Development reviewed the housing elements data submitted by jurisdictions in the SCAG region and concluded the data meets statutory requirements for the assessment of current housing needs. The projected water demand for low-income households in the District's service area was estimated by calculating the percentage of projected low income units in the service area as a percentage of the total projected units in the RHNA. The Table below shows the project water demand for low income housing.

Table 5: Projected Water Demands for Housing Needed for Low Income Households (AF)

	Fiscal Year Ending				
	2020	2025	2030	2035	2040
Total Residential Demand	3,440	3,467	3,699	3,919	3,966
SF Residential Demand-Low Income Households	889	896	956	1,013	1,025
MF Residential Demand-Low Income	390	394	420	445	450
Total Low Income Households Demand	1,280	1,290	1,376	1,458	1,476

The Project's water savings of 90 AFY will ensure a reliable supply for the District's low income and DACs. Figure 4 shows the DACs within the District's service area in red, located in the Cities of San Juan Capistrano and Dana Point.

Figure 4. Disadvantaged Communities



- **Will water conserved through the project help to address water supply sustainability in a way not listed above?**

The proposed AMI Project will prevent the loss of permanent crops and minimize economic losses from drought conditions. The AMI Project will improve the reliability of water supplies from both the State Water Project and the Colorado River Aqueduct, which would ultimately benefit people, agriculture, and the environment associated with both of these water supply sources. The District is committed to the collaboration and maintenance of regional and local partnerships to enhance water supply reliability by promoting a regional common goal and adding flexibility to water portfolios and distribution systems. The AMI Project would provide a major step forward in contributing towards this goal. The AMI Project, if funded, could result in an additional availability of approximately 90 AFY of water that would otherwise be lost and unavailable to the District and the South Orange County region.

The Project will directly contribute to building drought resiliency by implementing a high caliber 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. The proposed AMI Project would approximately cost \$980 per acre foot for a 20-year lifetime. This is a reasonable price to pay, given the increasing costs of imported water and the severe water supply challenges that Southern California constantly faces.

Note: Maximum consideration under this criterion is also available to projects that result in habitat improvements that benefit federally listed threatened or endangered species, designated critical habitat, or other fish and wildlife (i.e., Task C activities).

For Task C activities with benefits unrelated to water savings (e.g., habitat improvements, or installation of fish bypasses or fish screens), describe the activities and associated benefits in detail. Please address the following: Will the project benefit federally-recognized candidate species? Will the project directly accelerate the recovery of, threatened or endangered species or address designated critical habitat? Is the project expected to have other fish and wildlife benefits?

Evaluation Criterion C: Energy-Water Nexus (18 points)

Up to 18 points may be awarded based on the extent to which the project increases the use of renewable energy or otherwise results in increased energy efficiency. Note: an applicant may receive points under both subcriterion No.C.1 and C.2 if the project consists of an energy efficiency component separate from the renewable energy component of the project. However, an applicant may receive no more than 18 points total under both subcriteria No. C.1 and C.2

For projects that include construction or installation of renewable energy components, please respond to Subcriterion No. C.1— Implementing Renewable Energy Projects Related to Water Management and Delivery. If the project does not implement a renewable energy project but will increase energy efficiency, please respond to Subcriterion No. C.2— Increasing Energy Efficiency in Water Management. If the project has separate components that will result in both implementing a renewable energy project and increasing energy efficiency, an applicant may respond to both. However, an applicant may receive no more than 16 points total under both Subcriteria No. C.1 and C.2.

Subcriterion No. C.1— Implementing Renewable Energy Projects Related to Water Management and Delivery

Up to 18 points may be awarded for projects that include construction or installation of renewable energy components (e.g., hydroelectric units, solar-electric facilities, wind energy systems, or facilities that otherwise enable the use of renewable energy). Projects such as small-scale solar resulting in minimal energy savings or production will be considered under Subcriterion No. C.2 below.

This AMI Project does not include renewable energy components.

AND/OR

Subcriterion No. C.2—Increasing Energy Efficiency in Water Management

Up to 4 points may be awarded for projects that address energy demands by retrofitting equipment to increase energy efficiency and/or through water conservation improvements that result in reduced pumping or diversions.

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

- **Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements. If quantifiable energy savings are expected to result from water conservation improvements, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.**

The AMI Project will result in a reduction in consumption by 90 AFY due to increased water use efficiency and decreased water losses. This water savings will result in energy savings in the amount of approximately 252,000 kWh/year on the potable water system. Based on the publication “California’s Water – Energy Relationship” prepared by the California Energy Commission (November 2005, page 51), the amount of electrical energy required to transfer 1 acre-foot of water from northern California (State Water Project) to an area just north of the District requires 3,000 kWh. The same publication also identifies 2,000 kWh for each acre-foot of water that is imported from the Colorado River to southern California. Using an assumed 50-50 split of water sources the amount of power per AF required to transfer the water is 2,500 kWh/AF for a total of 7,500,000 kWh/year. "Energy Down the Drain: The Hidden Costs of California's Water Supply," by the National Resources Defense Council indicates that the amount of energy used to deliver water from the State Water Project to Southern California over the Tehachapi Mountains is equivalent to one-third of the total average household electric use in the region. This does not include the energy required to import water to Southern California from the Colorado River Aqueduct, and any reduction in water loss and overall consumption would reduce the overall energy consumption from system operations.

In addition to the 2,500 kWh/AF required for conveyance and pumping of SWP and CRA imported water the District, the District uses additional energy to distribute that water. The District’s system is described above under “Water Delivery System”. The District serves water at elevations from sea level to 690 feet above sea level. Due to the variation in topography pumping is required to move this water throughout the system. To pump the imported water for distribution is an additional 300 kWh/AF based on actual energy usage provided by District staff. Therefore, a total of 2,800 kWh/AF

of energy is used to distribute the water within the service area. A reduction in consumption by 90 AFY due to increased water use efficiency and decreased water losses could result in a savings of approximately 252,000 kWh/year on the potable water system. The calculation includes: $2,800 \text{ kWh/AF} * 90 \text{ AFY} = 252,000 \text{ kWh/year}$.

- **Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?**

The District's potable water distribution system is comprised of 12,523 service connections, 158 miles of pipe, 13 reservoirs with 21.6 mg capacity, nine pump stations, and a GRF with production capacity of 0.85 MGD. Additional storage is available from the: (1) Joint Regional Water Supply System, with 12.8 million gallons in the Bradt Reservoir and (2) SMWD, with 16.6 million gallons in the Upper Chiquita Reservoir. The recycled water system (RW) is comprised of 20 miles of RW pipes; three pump stations; two RW reservoirs, RW-1 with 2 million gallons of storage and RW-2 with 1.7 million gallons of storage; as well as the Advanced Wastewater Treatment facility and Aliso Creek Water Reclamation Facility with a combined maximum production capacity of 2,250 gallons per minute. Additionally, the recycled water system has the right to store up to 1 MGD of RW in the MNWD Reclaimed Water Reservoir RW-3.

The proposed Project would positively impact the current pumping requirements by reducing the need to pump imported water. This results in an avoided purchase cost and energy for conveyance for imported water. The proposed Phase 1 AMI Project will achieve conserving 90 AFY of imported water, which allows 252,000 kWh/year of energy to remain unused, as described above.

Conserving energy results in reducing greenhouse gas (carbon) emissions. Carbon emission estimates are 0.61 lbs. of CO₂/kWh based on the United States Environmental Protection Agency's 9th edition of eGRID, "Year 2010 eGRID Subregion Emissions - Greenhouse Gases". By offsetting 90 AFY of imported water and saving 252,000 kWh/year of energy, the Project will avoid GHG emissions of approximately 153,720 pounds of CO₂ per year. The calculation includes: $252,000 \text{ kWh/year} * .61 \text{ lbs. of CO}_2/\text{kWh} = \text{approximately } 153,720 \text{ pounds of CO}_2 \text{ per year}$.

Over the 20-year lifespan of the AMI Project, this totals approximately 3,074,400 total pounds of avoided carbon emissions. The AMI Project will reduce imported pumping requirements by offsetting importation of water.

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

Not applicable. The District doesn't divert water.

- **Does the calculation include the energy required to treat the water?**

Yes, however the District performs very minimal treatment to the water and 95% of the total energy usage is for pumping,

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

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 throughout the service area collecting meter readings each month, resulting in an estimated fuel savings of approximately 208 gallons each year, in addition to savings on truck maintenance.

The District typically uses vehicles (fleet) at a rate of approximately 6,120 miles per year for meter readings and verifications for the 3,008 meters in the Phase 1 AMI Project. Estimating 22 miles per gallon (mpg), this amounts to approximately 278 gallons of fuel per year. The District expects to still have some usage of these vehicles but the usage is anticipated to be reduced to 25%. Therefore, it is expected that the District will save 75% of 278 gallons or approximately 208 gallons per year.

The U.S. Environmental Protection Agency (EPA) indicates that 19.6 pounds of carbon emissions are produced for every gallon of gasoline burned. By reducing the amount of gasoline used annually by 208 gallons, the District would eliminate 4,077 pounds of carbon emissions each year. The calculation is: 208 gallons/year * 19.6 lbs. of CO₂/gallon = 4,077 lbs. of CO₂ emissions/year eliminated.

Therefore, the total emissions savings for the Phase 1 AMI Project would be calculated as follows: 153,720 lbs. of CO₂/year eliminated from energy savings + 4,077 lbs. of CO₂/year eliminated from reduced vehicle miles = 157,797 pounds of CO₂ per year reduced.

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

Not applicable. The Project does not include renewable energy components.

Evaluation Criterion D: Addressing Adaptation Strategies in a WaterSMART Basin Study (8 points)

Up to 8 points may be awarded for projects that address an adaptation strategy identified in a completed WaterSMART Basin Study.

Proposals that provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed Basin Study (i.e., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes) may receive maximum points under this criterion. Applicants should provide as much detail as possible about the relationship of the proposed project to the adaptation strategy identified in the Basin Study, including, but not limited to, the following:

- **Identify the specific WaterSMART Basin Study where this adaptation strategy was developed. Describe in detail the adaptation strategy that will be implemented through this WaterSMART Grant project, and how the proposed WaterSMART Grant project would help implement the adaptation strategy.**

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 the Basin Study includes water use efficiency and reuse. The AMI Project would help

increase water use efficiency of potable water by saving 90 AFY of potable water. Greater water use efficiency would reduce the stress on the system and its limited water supply.

- **Describe how the adaptation strategy and proposed WaterSMART Grant project will address the imbalance between water supply and demand identified by the Basin Study.**

The Basin Study’s portfolio includes in Chapter 3 an adaptation strategy for municipal water conservation and reuse, and the proposed WaterSMART Grant Project will address the imbalance between water supply and demand identified in the Basin Study by reducing the District’s demand on imported water from the Colorado River and State Water Project. Imported water supplies for Orange County are uncertain due to periodic droughts in northern California and the Colorado River Basin, court decisions related to Bay Delta endangered species, implementation of the terms of the Quantification Settlement Agreement for Colorado River water, and environmental concerns affecting delivery of Owens Valley water. Changing demographics and climate variability present additional long-term challenges to an adequate water supply. Various Orange County area water management agencies, such as the District, are actively pursuing strategies for developing local water resources. The AMI Project will implement significant water conservation measures to assist with water savings for the region. The AMI Project contributes to a sustainable water supply within the District’s service area and provides an overarching benefit to the region.

- **Identify the applicant’s level of involvement in the Basin Study (e.g., cost-share partner, participating stakeholder, etc.).**

The District is not directly involved in the Basin Study, however MWD is involved and represents its imported water customers, including the District. MWD’s involvement reflects the Coastal Southern California region. Being heavily dependent on the Colorado River via MWD supply, the District’s water demand reduction actions will directly impact the water supply and demand data in the Basin Study. The District is very interested in working together with Reclamation to identify positive solutions such as the AMI Project and to implement them to meet the water supply challenges that lie ahead.

- **Describe whether the project will result in further collaboration among Basin Study partners.**

The AMI Project may result in further collaboration between MWD and the District. Because the Basin Study Partners include the State of California, there is likely to be ongoing collaboration with the state, regional, and local agencies to implement and support the Basin Study. If awarded funding, the District would work closely with Reclamation and would collaborate more directly with state representatives located in the Lower Colorado Region to manage water supply. The region has collaborated with Reclamation on an Ocean Desalination Project in the past, as listed in the Background Data section of this proposal. If the District’s AMI Project is awarded funding, further collaboration with Reclamation will occur.

Evaluation Criterion E: Expediting Future On-Farm Irrigation Improvements (8 points)

Up to 8 points may be awarded projects that describe in detail how they will directly expedite future on-farm irrigation improvements including future on-farm improvements that may be eligible for NRCS funding.

Not Applicable. This Project will not expedite on-farm irrigation improvements.

Evaluation Criterion F: Implementation and Results (8 points)

Up to 8 points may be awarded for the following:

Subcriterion No. F.1—Project Planning

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

Does the project have a Water Conservation Plan and/or System Optimization Review (SOR) in place. Please self-certify, or provide copies of these plans where appropriate, to verify that such a plan is in place.

Provide the following information regarding project planning:

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

The District's 2015 Urban Water Management Plan (June 2016) supports the AMI Project by identifying water use, water loss, and water conservation measures required to reduce water loss. The District's 2015 Urban Water Management Plan includes measures for system leaks and detection, as well as water conservation measures that support the proposed AMI Project. Quantified water loss for the FY 2014-15 was approximately 127 AFY, which presents opportunities for improvement in the system. In addition, the UWMP states that in its 5-year capital improvement program, the District plans to advance to AMI cellular technology, which demonstrates the District is committed to implementing the Project. The District's 2015 UWMP includes Chapter 5 Water Shortage Contingency Plan, which identifies the water supply shortage policies MWD and the District have in place to respond to events including catastrophic interruption and reduction in water supply. The Water Shortage Contingency Plan provides support for the proposed Project by identifying ways to conserve water and reduce water usage.

(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 AMI Project conforms to and meets the goals of the District's 2015 Urban Water Management Plan, including water conservation and capital improvement by replacing the District's meters with an upgraded AMI meter program. The UWMP states that in its 5-year capital improvement program, the District plans to advance to AMI cellular technology. The AMI Project helps meet the State's AB 32 goals by reducing greenhouse gas emissions as a result of the reduction in water treatment and delivery from imported water supplies. The AMI Project will avoid GHG emissions by conserving approximately 157,797 lbs. of CO₂/year. The AMI Project also helps to meet the goals of the California Water Plan Update 2013, the South Orange County Integrated Regional Water Management Plan (IRWMP) and MWDOC's Orange County Water Reliability Study. Water use efficiency and energy efficiency are two of the main goals in all of these plans that will enable the region to manage water supplies and resources for future generations. Lastly, as a member agency, the District is incorporated into MWDOC's Urban Water Management Plan. MWDOC is a member

of the California Urban Water Conservation Council (CUWCC). The AMI Project supports the District’s efforts to achieve MWDOC’s Conservation Demand Management Measure and Best Management Practice goals as well as the statewide goals of 20% reduction in urban water use by 2020 as mandated by SBX7-7. The Project builds upon the District’s current successes in achieving the following: (1) maximizing water conservation by achieving over 20% sustained conservation compared to pre-drought 2014 levels; and (2) maximizing water recycling at a total of approximately 800 AFY or over 10% of the District’s overall water demand. The District strives to be an example of water use efficiency and water conservation for other water agencies that are near 100% dependent on imported water supplies.

Subcriterion No. F.2—Support and Collaboration

Points may be awarded based upon the extent to which the project garners widespread support and promotes collaboration.

Describe the extent to which the project garners support and promotes collaboration.

Does the project promote and encourage collaboration among parties? Consider the following:

•Is there widespread support for the project?

Yes, there is widespread support for the AMI Project from MWDOC and other members of the South Orange County region, as it aims to enhance water reliability for the region. The Ranch at Laguna Beach (a hotel property including a golf course), located within the District’s service area, fully support efforts to enhance water use efficiency. A letter of support was provided by the Ranch at Laguna Beach and is included in Exhibit A.

The 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 both of these water supply sources. The District is committed to the collaboration and maintenance of regional and local partnerships to enhance water supply reliability by promoting a regional common goal and adding flexibility to water portfolios and distribution systems. The AMI Project would provide a giant step forward in contributing towards this goal. This AMI Project, if funded, could result in an additional availability of ultimately approximately 90 AF of water that would otherwise be lost and unavailable to the District and the region.

•What is the significance of the collaboration/support?

The District is committed to the collaboration and maintenance of regional and local partnerships to enhance water supply reliability by promoting a regional common goal and adding flexibility to water portfolios and distribution systems. The AMI Project enhances its partnership with MWDOC to work towards greater regional water conservation efforts throughout Southern California. The District spoke with other local agencies who have implemented an AMI Project, including MNWD, who was a recipient of the WaterSMART: Water and Energy Efficiency Grant from Reclamation in FY 2015. MNWD is a MWDOC member agency and their Project is similar in nature to the proposed AMI Project, therefore it aided the District in gaining insight about the AMI system.

The significance of the collaboration is that the AMI Project would provide a major step forward in contributing towards this goal. This AMI Project, if funded, could result in an additional availability of approximately 90 AFY of water that would otherwise be lost and unavailable to the District and the South 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.

•Will the project help to prevent a water-related crisis or conflict?

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 AMI Project will help to reduce the amount of water needed for import to southern California through the MWD system. In addition, this AMI Project may serve as a model to other agencies that are looking for ways to meet current emergency drought reductions. The District is 100% reliant on imported water supplies from the Bay-Delta and Colorado River Aqueduct for 90% of its supply. The South Orange County region is 80% reliant on the same imported water supplies. Therefore, the water-related conflict within the Bay-Delta and Colorado River is significant and implementing the AMI Project will assist in increasing local water reliability and decreasing imported water demand.

•Is there frequently tension or litigation over water in the basin?

The AMI Project is not located in a WaterSMART Basin, but receives water from the Colorado River Basin. There is frequently tension over the water in the Colorado River Basin due to limited supplies and high demand. In addition, there are five agencies, including the District, that have groundwater rights to the San Juan Groundwater Basin (Basin) and use this water for either municipal purposes or for irrigation. The Basin is governed by the San Juan Basin Authority (SJBA) and is a Joint Power Agency comprised of representatives from four local jurisdictions, the District, MNWD, the City of San Juan Capistrano, and SMWD. The agencies with groundwater rights to the Basin and their current rights are listed below:

- South Coast Water District: 1,300 AFY
- San Juan Basin Authority: 8,026 AFY
- Santa Margarita Water District: 643 AFY
- San Juan Hills Golf Course: 450 AFY
- City of San Juan Capistrano: 3,325 AFY

The Basin differs from many other adjudicated groundwater basins as it does not strictly follow the term “safe yield” in preventing undesirable results occurring as a result of over-production of groundwater. The SJBA has recently adopted the concept of “adaptive management” of the Basin to vary pumping from year to year based on actual basin conditions derived from monitoring efforts. This is due in part to the SWRCB characterization of the Basin as a “flowing underground stream” and because the storage in the groundwater basin is small relative to recharge and production. The range of natural yield of the Basin is 7,000 AFY to 11,000 AFY. As such, the Basin has been sensitive to drought periods. For example, due to dry hydrologic conditions, the District has not extracted any groundwater since October of 2014.

•Is the possibility of future water conservation improvements by otherwater users enhanced by completion of this project?

Yes, there is the potential for future water conservation improvements by other water users throughout the region. Water conservation and water management will be enhanced by the completion of this AMI Project. The AMI Project is market transformative and could become mainstream. The District’s customers are already committed to and have been successful in: (1) maximizing water conservation by achieving over 20% sustained conservation compared to pre-drought 2014 levels; and (2) maximizing water recycling at a total of approximately 800 AFY or over 10% of the District’s overall water demand. The AMI Project would assist the District in serving as an example of water use

efficiency and water conservation for other water agencies that are near 100% dependent on imported water supplies.

Subcriterion No. F.3—Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

All WaterSMART Grant applicants are required to propose a method (or “performance measure”) of quantifying the actual benefits of their project once it is completed. Actual benefits are defined as water actually conserved or better managed, as a direct result of the project. A provision will be included in all assistance agreements with WaterSMART Grant recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project.

Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of WaterSMART Grants.

The following information is intended to provide applicants with examples of some acceptable performance measures that may be used to estimate pre-project benefits and to verify post-project benefits upon completion. **However, the following is not intended to be an exclusive list of acceptable performance measures. Applicants are encouraged to propose alternatives to the measures listed below if another measure is more effective for the particular project.**

Reclamation understands that, in some cases, baseline information may not be available, and that methods other than those suggested below may need to be employed. If an alternative performance measure is suggested, the applicant must provide information supporting the effectiveness of the proposed measure as applied to the proposed project.

Performance Measure No. A: Projects with Quantifiable Water Savings

The performance measures included below are examples that may be helpful in estimating pre-project benefits and to verify post-project water savings for projects that are expected to result in quantifiable and sustained water savings or improved water management.

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, marketed, or better managed, or energy saved). For more information calculating performance measure, see Section D.2.2.5 “FY2017 WaterSMART Water and Energy Efficiency Grants: Performance Measures.”

Measuring Devices: a. Municipal Metering

Performance Measure No. A.2: Measuring Devices

Good water management requires accurate and timely water measurement at appropriate locations throughout a conveyance system. This includes irrigation delivery systems and municipal distribution systems.

For projects that install or replace existing municipal meters, the applicant should consider the following:

- **Whether the project includes new meters where none existed previously or replaces existing meters.**

The AMI Project replaces existing meters with AMI meters.

- **Whether the project includes individual water user meters, main line meters, or both**
The AMI Project includes individual water user meters only.

- **If the project replaces existing meters with new meters, whether new technologies (automatic meter reading (AMR) or advanced metering infrastructure (AMI) meters) will be employed.**
AMI meters will be employed.

- **If main line meters are included, whether system leak detection may be improved.**
Not applicable.

- **Include a description of both pre and post-project rate structuring.**
In an effort to go beyond water supply projects to increase water reliability, the District employs conservation pricing through a three-tier increasing block water rate structure to effectively manage demand. The District implemented a Tiered Rate Structure to provide customers with an economic incentive to use water efficiently and pass on the higher costs associated with conservation programs and development of supplemental water sources to those who use water inefficiently.

There are three components that make up the water portion of SCWD charges, which are defined below:

VARIABLE CHARGE - This is the price, per unit of water (one CCF), that SCWD charges.

FIXED CHARGE -Fixed costs are expenses that exist even if the District did not sell any water. Fixed costs generally include repair, maintenance, and rehabilitation of the water (and sewer) distribution systems and components such as a water reservoir or a pump station. A Fixed Service Charge collects a portion of the District’s overall fixed annual costs. Fixed Service Charges vary by meter size.

PEAK DEMAND CHARGE -Peak Demand Charge is a new component of the rate structure. Demand is the amount of water used during a billing cycle. Peak is the maximum amount of water the customer uses in one bill cycle over the course of a year. The Peak Demand Charge is based on a customer’s second highest usage month in the previous year. It reflects fixed costs that SCWD incurs to provide, transport, treat, and store water to provide for peak demand times (when water demand is at the highest point during the year). Even though these peaks occur once a year, the District is required to service those needs and must have the water and delivery system available year-round.

The Peak Demand Charge would be calculated based on a customer’s second highest water use month during the preceding fiscal year (July through June). For the following year, it could go up or down based on how much water was used or conserved the preceding year. This amount will be a fixed charge billed on a customer’s property tax bill. It does not include the “cost of the actual water”; rather it reflects the cost of providing and maintaining the capacity throughout the year. Imagine you are filling a pool. The pool could be filled quickly with a fire hose. Or, the pool could be filled with a trickle from a garden hose. In both cases, the same amount of water would be used. However, how much water flowing how fast is quite different, and that difference incurs costs to the system. That is why a larger water meter costs more than a smaller water meter and why the demand charge reflects peak demand.

South Coast Water District – Funding Group 1 Request
Advanced Metering Infrastructure Implementation Program Phase 1

The District's Rate Structure is shown in Table 6 below.

Table 6. SCWD Rate Structure

WATER SERVICE CHARGE - ANNUAL (ALL CUSTOMERS)	Annual Charge				
Meter Size/Fiscal Year Beginning July 1	2016	2017	2018	2019	2020
3/4"	\$257.70	\$278.05	\$297.25	\$314.85	\$324.10
1"	\$429.50	\$463.40	\$495.40	\$524.75	\$540.20
1 1/2"	\$859.00	\$926.80	\$990.80	\$1,049.45	\$1,080.35
2"	\$1,374.35	\$1,482.85	\$1,585.25	\$1,679.10	\$1,728.55
3"	\$3,006.40	\$3,243.70	\$3,467.70	\$3,673.00	\$3,781.15
4"	\$5,411.50	\$5,838.65	\$6,241.85	\$6,611.35	\$6,806.05
6"	\$11,166.55	\$12,048.00	\$12,880.00	\$13,642.50	\$14,044.15
Water Usage Charge - Single Family Residential	per CCF				
Consumption Range/Fiscal Year Beginning July 1	2016	2017	2018	2019	2020
1 to 5 units	\$2.54	\$2.74	\$2.93	\$3.10	\$3.19
6 to 18 units	\$2.68	\$2.89	\$3.09	\$3.28	\$3.37
19+ units	\$2.83	\$3.05	\$3.27	\$3.46	\$3.56
WATER USAGE CHARGE - Commercial & Multi-Residential	per CCF				
Fiscal Year Beginning July 1	2016	2017	2018	2019	2020
Multi-Family Residential	\$2.56	\$2.76	\$2.95	\$3.13	\$3.22
Commercial	\$2.75	\$2.96	\$3.17	\$3.36	\$3.46
POTABLE IRRIGATION WATER USAGE CHARGE - Dedicated Irrigation Meters	per CCF				
Fiscal Year Beginning July 1	2016	2017	2018	2019	2020
	\$2.85	\$3.08	\$3.29	\$3.49	\$3.59
RECYCLED WATER SERVICE CHARGE – ANNUAL (ALL CUSTOMERS)	Annual Charge				
Meter Size/Fiscal Year Beginning July 1	2016	2017	2018	2019	2020
3/4"	\$257.70	\$278.05	\$297.25	\$314.85	\$324.10

South Coast Water District – Funding Group 1 Request
Advanced Metering Infrastructure Implementation Program Phase 1

1"	\$429.50	\$463.40	\$495.40	\$524.75	\$540.20
1 1/2"	\$859.00	\$926.80	\$990.80	\$1,049.45	\$1,080.35
2"	\$1,374.35	\$1,482.85	\$1,585.25	\$1,679.10	\$1,728.55
3"	\$3,006.40	\$3,243.70	\$3,467.70	\$3,673.00	\$3,781.15
4"	\$5,411.50	\$5,838.65	\$6,241.85	\$6,611.35	\$6,806.05
6"	\$11,166.55	\$12,048.00	\$12,880.00	\$13,642.50	\$14,044.15
RECYCLED WATER USAGE CHARGE – Dedicated Irrigation	Monthly per CCF				
Fiscal Year Beginning July 1	2016	2017	2018	2019	2020
	\$3.94	\$4.16	\$4.35	\$4.51	\$4.55
PEAK DEMAND CHARGE (ALL CUSTOMERS)	Per CCF - Annual Charge				
Based on Second Highest Demand Month of Preceding Fiscal Year/Fiscal year Beginning July 1	2016	2017	2018	2019	2020
Single-Family, Multi-Family, Commercial and Potable Irrigation	\$18.35	\$19.80	\$21.15	\$22.45	\$23.10

South Coast Water District Ordinance No. 223 reestablished the District’s rates, fees, and charges for water and sanitary sewer services for the period commencing July 1, 2016. These are the rates shown above. More information including current rates is available on the District’s website, at the following link: <https://www.scwd.org/myaccount/rates/default.asp>

The following information about municipal meter installation and replacement may be helpful in estimating the pre-project benefits and to verify post-project benefits:

- **Municipal water delivery meters are typically installed for each water user as well as at locations to measure production and/or supply and storage. Accurate measurement allows for demands assessment, customer billing, diagnostic testing, locating and quantifying leakage, and other management needs.**
- **Significant water savings can be achieved when meters are installed where none existed previously. In the case of individual water user metering, most customers use significantly less water when billed at a usage rate; and especially so when a tiered rate is applied (i.e., higher rates for higher use). Installing new meters within the distribution system can 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, AMR and 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.**
- **If installing meters will result in conserved water, please provide support for this determination (including, but not limited to, studies and previous projects).**

Installing the meters will result in approximately 90 AFY of water saved. As part of the monthly meter reading process, District staff checks for any signs of water leaks at the meter along with a visual system check. As part of the billing process water consumption is compared to prior months and years usage. If a leak is evident on the customer's side of the meter, the customer is notified of the leak either in person on their bill or both depending on the severity of the leak. The District conducts monthly water loss audits and conducts leak detection using in house District staff in addition to using outside consultants for leak detection surveys. The District continues to review system integrity at all times and conducts in house leak detection and also contracts for outside leak detection services on an as needed basis to detect and repair distribution system leaks. 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 following studies provide baseline data for the AMI Project: The District's 2015 Urban Water Management Plan, including water conservation and capital improvement by replacing the District's meters with an upgraded AMI meter program and the complete AWWA audit. The District's 5-year capital improvement program includes the Project and plans to advance to AMI cellular technology. Implementation of the AMI Project in the neighboring MNWD has 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 AMI Project proposal, and this software will assist the District in analyzing the data collected as part of the AMI Project. For example, some of the software programs currently under evaluation have the capability to integrate water consumption data with GIS data to quickly assess any areas with potential leaks and determine the magnitude of the issue at hand. It is the goal of the District to equip District 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.

- **A logical scheme should be developed that compares before and after installation flow quantities and that accounts for leakage and other considerations. The site-specific water savings verification plan should be as detailed as possible and clearly state all assumptions and the relative level of accuracy expected. In addition, please provide details underlying any**

assumptions being made in support of water savings estimates (e.g., residential users will reduce use once a more advanced billing structure is imposed).

The performance measures that will be used to quantify actual benefits upon completion of the 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 3,008 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. The following table summarizes the performance measures of the AMI Project that will demonstrate and quantify actual benefits and effectiveness of the AMI Project. Water use monitoring will be provided to the Bureau of Reclamation throughout the reporting period and also included in the final report. Water use monitoring will continue beyond that timeframe to be able to make a fair assessment of the actual water savings from this AMI Project. The table below summarizes the Project Performance Measures.

Table 7 Project Performance Measures

AMI Project Performance Measures		
Performance Measure	Target	Measurement Tools and Methods
Water Savings – Reduction in Consumption	81 AFY	<ul style="list-style-type: none"> • Water consumption reported by the cellular technology for each customer who is provided by the District with access to or who accesses independently real-time flow data produced by the new water metering units will be analyzed over a 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	8.6 AFY	<ul style="list-style-type: none"> • 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	From Water Savings: 252,000 kWh/year	<ul style="list-style-type: none"> • Water savings will be converted to energy savings using the calculation of 2,800 kWh/AF of water conserved.
Carbon Emissions Savings	153,720 lbs. of CO2/year from water savings and 4,077 lbs. CO2/year from reduced vehicle miles for a total of 157,797 lbs. of CO2/year.	<ul style="list-style-type: none"> • 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 = 2,800 kWh/AF and CO2 emissions= 0.61 lbs. of CO2/kWh. • Verify reduced vehicle miles and estimate carbon emissions savings using 19.6 lbs. of CO2/gallon.

Performance Measure No. B: Projects with Quantifiable Energy Savings

The performance measures included below are examples that may be helpful in estimating pre-project benefits and post-project energy savings for projects that are expected to increase the use of renewable energy sources in the management and delivery of water and/or are upgrading existing water management facilities resulting in quantifiable and sustained energy savings.

Energy efficiency projects are intended to increase the use of renewable energy and increase overall energy efficiency in managing and delivering water.

Applicants should address the following subsections as part of the performance measures they submit with their applications.

Performance Measure No. B.1: Implementing Renewable Energy Improvements Related to Water Management and Delivery

Not Applicable. The AMI Project does not include renewable energy improvements.

Performance Measure No. B.2: Increasing Energy Efficiency in Water Management

- **Explain the methodology for calculating the quantity of energy savings resulting from the water management improvements or water conservation improvements**

The Project will save up to 90 AFY of potable water supply due to increased water use efficiency and decreased water losses. This water savings will result in an energy savings of approximately 252,000 kWh/year on the potable water system. As described in Subcriterion No. C2, based on the publication “California’s Water – Energy Relationship” prepared by the California Energy Commission (November 2005, page 51), the amount of electrical energy required to transfer 1 acre-foot of water from northern California (State Water Project) to an area just north of the District requires 3,000 kWh. The same publication also identifies 2,000 kWh for each acre-foot of water that is imported from the Colorado River to southern California. Using an assumed 50-50 split of water sources the amount of power per AF required to transfer the water is 2,500 kWh/AF for a total of 7,500,000 kWh/year. "Energy Down the Drain: The Hidden Costs of California's Water Supply," by the National Resources Defense Council indicates that the amount of energy used to deliver water from the State Water Project to Southern California over the Tehachapi Mountains is equivalent to one-third of the total average household electric use in the region. This does not include the energy required to import water to Southern California from the Colorado River Aqueduct, and any reduction in water loss and overall consumption would reduce the overall energy consumption from system operations.

In addition to the 2,500 kWh/AF required for conveyance and pumping of State Water Project and Colorado River Aqueduct imported water the District, the District uses additional energy to distribute that water. The District’s system is described above under “Water Delivery System”. The District serves water at elevations from sea level to 690 feet above sea level. Due to the variation in topography pumping is required to move this water throughout the system. To pump the imported water for distribution is an additional 300 kWh/AF based on actual energy usage provided by District staff. Therefore, a total of 2,800 kWh/AF of energy is used to distribute the water within the service area. A reduction in consumption by 90 AFY due to increased water use efficiency and decreased

South Coast Water District – Funding Group 1 Request |
Advanced Metering Infrastructure Implementation Program Phase 1 |

water losses will result in a savings of approximately 252,000 kWh/year on the potable water system. The calculation is: $2,800 \text{ kWh/AF} * 90 \text{ AFY} = 252,000 \text{ kWh/year}$ energy savings.

Conserving energy results in reducing greenhouse gas (carbon) emissions. Carbon emission estimates are 0.61 lbs. of CO₂/kWh based on the United States Environmental Protection Agency's 9th edition of eGRID, "Year 2010 eGRID Subregion Emissions - Greenhouse Gases". By offsetting 90 AFY of imported water and saving 252,000 kWh/year of energy, the Project will avoid GHG emissions of approximately 153,720 pounds of CO₂ per year. The calculation includes: $252,000 \text{ kWh/year} * .61 \text{ lbs. of CO}_2/\text{kWh} = \text{approximately } 153,720 \text{ pounds of CO}_2 \text{ per year}$.

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 vehicle fuel costs. AMI would eliminate the need for field customer service representatives to drive throughout the service area collecting meter readings each month, resulting in an estimated fuel savings of approximately 208 gallons each year, in addition to savings on truck maintenance.

The District typically uses vehicles (fleet) at a rate of approximately 6,120 miles per year for meter readings and verifications for the 3,008 meters in the Phase 1 AMI Project. Estimating 22 miles per gallon (mpg), this amounts to approximately 278 gallons of fuel per year. The District expects to still have some usage of these vehicles but the usage is anticipated to be reduced to 25%. Therefore, it is expected that the District will save 75% of 278 gallons or about 208 gallons per year. The U.S. Environmental Protection Agency (EPA) indicates that 19.6 pounds of carbon emissions are produced for every gallon of gasoline burned. By reducing the amount of gasoline used annually by 208 gallons, the District would eliminate 4,077 pounds of carbon emissions each year. The calculation is: $208 \text{ gallons/year} * 19.6 \text{ lbs. of CO}_2/\text{gallon} = 4,077 \text{ lbs. of CO}_2 \text{ emissions/year}$ eliminated.

Therefore, the total emissions savings for the Phase 1 AMI Project would be calculated as follows: $153,720 \text{ lbs. of CO}_2/\text{year}$ eliminated from water savings + $4,077 \text{ lbs. of CO}_2/\text{year}$ eliminated from reduced vehicle miles = $157,797 \text{ pounds of CO}_2$ per year reduced.

- **Explain anticipated cost savings**

The industry accepted life-expectancy of the AMI Project components is 20 years. This life-expectancy is determined by both AMI industry standards and is also supported by "Go with the Flow of Advanced Meter Technology" in the October 2010 issue of the Water Technology Journal. As explained in Subcriterion No. A.1, the total AMI Project cost and water savings were calculated based on empirical data of similar projects and cost estimates from bid documents provided by contractors. The estimated total Phase 1 AMI Project cost is \$1,764,705.91 for a total savings of 90 AFY.

The following provides a step by step explanation of these calculations:

Total Phase 1 AMI Project Cost (Approximate)= \$7,764,705.91

Total Phase 1 AMI Project Annual Acre-Feet Conserved = 90 AFY

Improvement Life (years)* = 20 (*Expected useful life of the meters)

Energy Capacity (Savings)= 90AFY * 2,800 kWh/AF = 252,000 kWh/year.

The AMI Project will increase energy efficiency by conserving water, which reduces the demand of imported water and thereby decreases the energy (and associated costs) required to transport imported water from the Colorado River and State Water Project to the District's service areas. Approximately

2,500 kWh/AF is required for conveyance and pumping of State Water Project and Colorado River Aqueduct imported water the District receives from MWDOC. In addition, to pump the imported water from the basin for distribution is an additional 300 kWh/AF based on actual energy usage provided by District staff. Therefore, a total of 2,800 kWh/AF of energy is used to deliver imported water to the District. The Project will reduce the need to import water by 90 AFY.

Calculation:

$\$1,764,705.91 / (90 \times 20) = \$980/\text{AF}$

Result:

The estimated cost over the 20-year life of the AMI Project is \$980 per AF. It is anticipated that the AMI Project will provide 90 AFY, or 1,800 AF over the life of the AMI Project of imported water savings.

Performance Measure No. C: Projects that Benefit Endangered Species Critical Habitat

For projects that benefit federally listed species (threatened or endangered), federally recognized candidate species, or designated critical habitat that are affected by a Reclamation facility, the applicant should consider the following:

- **The methodology used for determining the recovery rate of the threatened and/or candidate species**

The proposed Project will reduce imported water demand on the SWP by up to 90 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 FWO issued a biological opinion (BO) on the Long-Term Operational Criteria and Plan (OCAP) for coordination of the Central Valley Project and State Water Project. 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.

- **How their projects will address designated critical habitats, including acres covered, species present, and how the water savings or transfers are expected to benefit the habitat(s)**

The Project will provide benefits to federally-recognized endangered species by making up to 90 AFY available to the CRA and SWP habitats. The District's water supply consists 90% of imported water obtained from MWD through MWDOC. MWD typically blends supplies from its CRA with water allocated from SWP before delivery to Upper District. As the Project seeks to offset imported water deliveries to Upper 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. Twenty-nine known species of fish once populated the estuary and currently twelve 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. Approximately 5,915 AFY of water is moved from the northern California Bay-Delta area through the SWP to meet this area's demand for water. 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.

- **Unavoidable negative impacts to endangered, threatened, or candidate species and/or the critical habitat(s)**

The Project will not result in negative impacts to endangered, threatened, or candidate species and/or the critical habitats in the SWP or CRA.

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

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided.

The Non-federal cost-share is 83% to be provided through cash contributions.

\$ 1,464,705.91 Non-federal funding

\$ 1,764,705.91 Total Project Cost

= 83%

Evaluation Criterion H: Connection to Reclamation Project Activities (4 points)

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

(1) How is the proposed project connected to Reclamation project activities?

The proposed AMI Project is associated with the Colorado River Basin, and the District receives water from MWD via MWDOC, which currently relies on the Colorado River Aqueduct and the State Water Project as its primary sources of water. The AMI Project itself does not directly involve Reclamation project lands or Reclamation facilities, 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 90% of its supply from MWD through MWDOC. Water is imported from the Colorado River and from northern California via the State Water Project. Water savings associated with the AMI Project translate to more water remaining in these two fragile systems. The proposed AMI Project directly supports Reclamation’s current efforts to further advance water use efficiency and

conservation. The AMI Project benefits Reclamation because it reduces imported water supplies from the Colorado River and northern California.

(2) Does the applicant receive Reclamation project water?

Yes, the District receives a mixture of Colorado River water and State Water Project water through MWD and MWDOC.

(3) Is the project on Reclamation project lands or involving Reclamation facilities?

No, the AMI Project is neither on Reclamation lands nor involves Reclamation facilities.

(4) Is the project in the same basin as a Reclamation project or activity?

No, the AMI Project is not in the same basin as a Reclamation project or activity.

(5) Will the proposed work contribute water to a basin where a Reclamation project is located?

The water savings attained 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 resulting from water use efficiency and conservation efforts would also help Reclamation in meeting the federal Indian trust responsibility, a legally enforceable fiduciary obligation on the part of the United States to protect tribal treaty rights, lands, assets, and resources, to the tribes.

(6) Will the project help Reclamation meet trust responsibilities to Tribes?

The AMI Project will not directly 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.

Performance Measures (included under Subcriterion No. F.3—Performance Measures)

Environmental and Cultural Resources Compliance

All projects being considered for award funding will require compliance with the National Environmental Policy Act (NEPA) before any ground-disturbing activity may begin. Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, the Clean Water Act (CWA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), consultation with potentially affected tribes, and consultation with the State Historic Preservation Office.

Under no circumstances may an applicant begin any ground-disturbing activities (e.g., grading, clearing, and other preliminary activities) on a project before environmental and cultural resources compliance is complete and Reclamation explicitly authorizes work to proceed. This pertains to all components of the proposed project, including those that are part of the applicant’s non-Federal cost-share. Reclamation will provide a successful applicant with information once such compliance is complete. An applicant that proceeds before environmental and cultural resources compliance is complete may risk forfeiting Reclamation funding under this FOA.

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants must respond to the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. Additional information about environmental compliance is provided in Section D.2.2.10 “Project Budget,” under the discussion of “Environmental and Regulatory Compliance Costs,” and in Section F.2.1., “Environmental and Cultural Resources Compliance.”

Note, if mitigation is required to lessen environmental impacts, the applicant may, at Reclamation’s discretion, be required to report on progress and completion of these commitments. Reclamation will coordinate with the applicant to establish reporting requirements and intervals accordingly.

Under no circumstances may an applicant begin any ground-disturbing activities (including grading, clearing, and other preliminary activities) on a project before environmental compliance is complete and Reclamation explicitly authorizes work to proceed. This pertains to all components of the proposed project, including those that are part of the applicant’s non-Federal cost-share. Reclamation will provide a successful applicant with information once environmental compliance is complete. An applicant that proceeds before environmental compliance is complete may risk forfeiting Reclamation funding under this FOA. If you have any questions regarding NEPA, ESA, CWA and/or NHPA requirements, please contact your local Reclamation office, www.usbr.gov/main/offices.html.

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

No, the 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, and no further requirements are needed. It is anticipated that a Categorical Exclusion or Finding of No Significant Impacts under NEPA will be required given the nature of the Project that includes simply replacing existing Badger meters with upgraded AMI meters. A Categorical exclusion seems appropriate since the 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.

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

No known species listed or proposed to be listed as a Federal endangered or threatened species, or designated critical habitats are within the AMI Project area.

(3) Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “waters of the United States?” If so, please describe and estimate any impacts the project may have.

No, there are not wetlands or other surface waters inside the 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.

(4) When was the water delivery system constructed?

The original water delivery system was built in 1932.

(5) Will the 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 AMI Project will not result in any modification of or effect to individual features of an irrigation system.

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

There are no buildings, structures, or features listed or eligible for listing on the National Register of Historic Places within the AMI Project sites.

(7) Are there any known archeological sites in the proposed project area?

No.

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

The AMI Project will not have a disproportionately high and adverse effect on low income or minority populations. The 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 to that population.

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

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

(10) Will the 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 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

Applicants must state in the application 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 AMI Project. All of the 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 AMI Project.

Official Resolution

An official resolution of the District Board of Directors will be adopted at the meeting of the Board of Directors scheduled for January 26, 2016. A copy of the draft resolution is included in Exhibit B. The official adopted resolution will be submitted within 30 days of the grant application deadline of September 18, 2017.

The resolution verifies the District’s legal authority to enter into an agreement; the Board of Directors 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 District will work cooperatively with Reclamation to meet established deadlines for entering into a cooperative agreement.

Project Budget

The complete AMI Project Budget includes a Funding Plan, Budget Proposal, Budget Narrative, and the SF 242 Budget Form.

Funding Plan and Letters of Commitment

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

The District will fund all non-Reclamation project costs. The District has allocated budget for the AMI Project, as shown in the 5-year Capital Improvement Plan (CIP) for the District, which was adopted in FY 2016, available online at the following link: http://scwd.granicus.com/GeneratedAgendaViewer.php?view_id=3&clip_id=1660 (See Item 14, which includes FY 2017, 1028, 2019, 2020, and 2020 CIP). The Plan illustrates that the AMI Implementation Program was approved for FY 2018.

1. **Cost Share Contribution:** The District will provide its cost share in monetary (cash) contributions. The AMI Project is included in the Capital Budget and is funded by a portion of the water service charge, and the water peak demand charge, and interest income.

South Coast Water District – Funding Group 1 Request
Advanced Metering Infrastructure Implementation Program Phase 1

2. **Any Costs Incurred Before the Anticipated Project Start Date:** The District does not anticipate any in-kind costs prior to the project start date. Project start date is not anticipated to be before September 30, 2017.
3. **Funding Partners: None.**
4. **Funding Requests from other Federal Partners:** No other funding has been requested or received from other Federal partners.
5. **Pending Funding Requests:** There are no pending funding requests for the AMI Project.

Table 8 summarizes the funding sources for the AMI Project:

TABLE 8. Summary of Non-Federal and Federal Funding Sources	
Funding Sources*	Funding Amount
Non-Federal Entities	
1. South Coast Water District	\$1,464,705.91
<i>Non-Federal Subtotal</i>	\$1,464,705.91
Other Federal Entities	\$0
1. None	\$0
<i>Other Federal Subtotal</i>	\$0
<i>Requested Reclamation Funding:</i>	\$300,000
<i>Total Project Funding:</i>	\$1,764,705.91

*No In-Kind funding is proposed or included.

Budget Proposal

The District will fund 83 percent of the AMI Project costs, and the District is requesting 17 percent (\$300,000) of total AMI Project costs as shown in Table 9. Table 9 provides the Budget Detail by cost categories (Budget Item Description). The Budget Narrative is provided below.

South Coast Water District – Funding Group 1 Request
Advanced Metering Infrastructure Implementation Program Phase 1

Table 9. SCWD AMI Project Budget
WaterSMART - Water and Energy Efficiency Grants
BUDGET ESTIMATE

BUDGET ITEM DESCRIPTION	COMPUTATION			17% Reclamation	83% Recipient	TOTAL COST
	Price/Rate	Unit	Quantity			
SALARIES AND WAGES						
Cassandra Garcia-Project Manager	\$58.71	Hour	150	\$ 1,497.11	\$ 7,309.40	\$ 8,806.50
Dennis Elbe-Customer Service Field Supervisor	\$43.66	Hour	247	\$ 1,833.28	\$ 8,950.74	\$ 10,784.02
Subtotal				\$ 3,330.39	\$ 16,260.13	\$ 19,590.52
FRINGE BENEFITS - See proposal in official file for detailed calculations						
Not Applicable				\$ -	\$ -	\$ -
Subtotal				\$ -	\$ -	\$ -
TRAVEL						
Not Applicable				\$ -	\$ -	\$ -
EQUIPMENT - Leased Equipment use rate + hourly wage/salary x est. hours for assisted activity—Describe equipment to be purchased, unit price, # of units for all equipment to be purchased or leased for assisted activity: Do not list contractor supplied equipment here.						
AMI Water Meters	\$426.48	Each	3,008	\$ 218,084.81	\$ 1,064,767.03	\$ 1,282,851.84
Meter Box Lids	\$63.00	Each	3,008	\$ 32,215.68	\$ 157,288.32	\$ 189,504.00
Meter Boxes	\$34.00	Each	100	\$ 578.00	\$ 2,822.00	\$ 3,400.00
Software	\$1.00	Lump Sum	10,773	\$ 1,831.41	\$ 8,941.60	\$ 10,773.01
Subtotal				\$ 252,709.90	\$ 1,233,818.95	\$ 1,486,528.85
SUPPLIES/MATERIALS - Describe all major types of supplies/materials, unit price, # of units, etc., to be used on this assisted						
Not Applicable				\$ -	\$ -	\$ -
Subtotal				\$ -	\$ -	\$ -
CONTRACTUAL/ CONSTRUCTION - Explain any contracts or sub-Agreements that will be awarded, why needed. Explain contractor qualifications and how the contractor will be selected.						
Contractor 1 - AMI Communication System	\$21.36	Each	3,008	\$ 10,922.65	\$ 53,328.23	\$ 64,250.88
Contractor 2 - Meter Installation	\$59.16	Each	3,008	\$ 30,252.06	\$ 147,701.22	\$ 177,953.28
Consultant - Reporting	\$150.00	Hour	70	\$ 1,785.00	\$ 8,715.00	\$ 10,500.00
Subtotal				\$ 42,959.71	\$ 209,744.45	\$ 252,704.16
OTHER - List any other cost elements necessary for your project; such as extra reporting, or contingencies in a construction contract.						
Environmental Compliance Costs				\$ 1,000.00	\$ 4,882.38	\$ 5,882.38
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
Subtotal				\$ 1,000	\$ 4,882	\$ 5,882.38
TOTAL DIRECT COSTS:				\$ 300,000.00	\$ 1,464,705.91	\$ 1,764,705.91
INDIRECT COSTS - Basis						
				\$ -	\$ -	\$ -
TOTAL ESTIMATED PROJECT/ACTIVITY COSTS:				\$ 300,000.00	\$ 1,464,705.91	\$ 1,764,705.91

*No In-kind contributions or Indirect Costs are included for the AMI Project.

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for,

items included in the budget proposal. Include the value of in-kind contributions or donations of goods and services and sources of funds provided to complete the project. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of in-kind contributions and donations, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Salaries and Wages

Indicate program manager and other key personnel by name and title. Other personnel may be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates should identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates, including any proposed subcontractors, shall be allocated to specific tasks as outlined in the recipient’s technical project description. Labor rates and proposed hours shall be displayed for each task.

A total of \$19,590.52 is allocated for this budget category. The program manager and other key personnel are identified by name and title below. Their salaries and wages (labor rates) and estimated hours are included below (labor rates are separate from the fringe rate). Table 10 shows the labor estimates allocated to specific tasks as outlined in the technical project description.

The Project (Program) Manager is Cassandra Garcia. Ms. Garcia is the Customer Service Manager for the District. Her budgeted time includes a direct labor rate of \$58.71/hour, which does not include fringe benefits. A total of 150 hours at a total cost of \$8,806.50 is estimated to manage the Project over the allotted 2-year timeframe. The labor rate was implemented by the District on July 1, 2016. A third party reviews all labor rates to ensure they fall in line with other Districts and that the labor rate that falls in line with the methodologies of SCWD. As shown in Table 10, Cassandra will be involved in the following Tasks:

- Task 1: Project Management – A total of 100 hours at a rate of \$58.71/hour are allotted to implement the Project.
- Task 2: Equipment Procurement – A total of 50 hours at a rate of \$58.71/hour are allotted to coordinate with the Contractor and select the appropriate equipment for the AMI Project.

The Field Supervisor is Dennis Elbe. Mr. Elbe is the Customer Service Field Supervisor for the District. The budgeted time includes a direct labor rate of \$43.66/hour, which does not include fringe benefits, for a total of 247 hours estimated to supervise the Project over the allocated 2-year timeframe. The total amount budgeted is \$10,784.02. The labor rate was implemented by the District on July 1, 2016. A third party reviews all labor rates to ensure they fall in line with other Districts and that the labor rate that falls in line with the methodologies of SCWD. As shown in Table 10, Dennis will be involved in the following Tasks:

- Task 5: Final Testing and Implementation – A total of 247 hours at a rate of \$43.66/hour are allotted for inspecting the meter installation and final testing and implementation for the AMI Project.

Labor Rates

Labor rates are included under “Salaries and Wages” in Table 9 and described above.

Fringe Benefits

Fringe benefits are not included for the AMI Project.

Travel

Travel costs are not included for the AMI Project.

Equipment

Itemize costs of all equipment having a value of over \$5,000 and include information as to the need for this equipment, as well as how the equipment was priced if being purchased for the agreement.

Equipment installed as part of the AMI Project includes 3,008 AMI water meters, 3,008 meter box lids, 100 meter boxes, and software. A total of \$1,486,528.85 is budgeted for Equipment. Costs are based on vendor estimates and research on other local water district AMI Project cost. Equipment will be procured as part of Task 2. Equipment Procurement and includes the following:

AMI Water Meters

A total of 3,008 existing AMR radio Water meters will be replaced with AMI Cellular Water Meters. A total cost of \$426.48 per meter is estimated based on vendor estimates and research on other local water districts' AMI Project costs. A total of \$1,282,851.84 is budgeted for this item.

Meter Box Lids

Each AMI Water Meter will require a Meter Box Lid. A cost of \$63.00 per meter is estimated based on vendor estimates and research on other local water districts' AMI Project costs. For a total 3,008 meters, the total cost budget is \$189,504.00.

Meter Boxes

Meter Boxes are required at service addresses to replace boxes that are damaged or cracked. Out of the 3,008 existing meter boxes, only 100 meter boxes need to be replaced due to damage. It is estimated that only 100 meter boxes will need to be replaced since all 3,008 meter boxes were replaced in 2009. The meter boxes are generally very durable and only need to be replaced if cracked or damaged. A cost of \$34 per meter box is estimated based on vendor estimates and research on other local water districts' AMI Project costs.

Software

The Software will allow the District's customers to have real-time access to their account information and will provide the ability to set up water usage alerts, including leaks, on an internet-based platform. The customer will be able to access their water usage information on a daily and hourly basis. In addition, the District will be able to access the customer's hourly usage utilizing this software and can notify customers of high water usage and potential leaks. The software cost also includes the training of four (4) Field Customer Service representatives and five (5) Customer Service office personnel.

A total of \$10,773.01 is budgeted for the above activities based on vendor estimates and research on other local water districts' AMI Project costs.

Materials and Supplies

Budget is not included under this category for the AMI Project.

Contractual/Construction

Identify all work that will be accomplished by subrecipients, consultants, or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. If a subrecipient, consultant, or contractor is proposed and approved at the time of award, no other approvals will be required. Any changes or additions will require a request for approval. Identify how the budgeted costs for subrecipients, consultants, or contractors were determined to be fair and reasonable.

Total Contractual/Construction costs for the Project are estimated at \$252,704.16. The budgeted costs for contractors/consultants were determined to be fair and reasonable because they were developed by vendor estimates based on experience with similar projects and estimates obtained from neighboring water districts for similar AMI Upgrade projects. Task budget estimate detail is discussed below and is shown in Table 10.

Contractor 1 – AMI Communication System

Through a competitive bid process, a qualified Contractor will be selected for the AMI Communication System implementation. The AMI Communication System collects the meter consumption reads on an hourly basis, along with the meter reads from repeaters, and then wirelessly transmit the information to a web-based center where the data is tabulated, stored, and made available to the end user. This is related to the following task:

- Task 3: Installation of Communication System to Support the AMI System –Installation includes installing the appropriate number of AMI cellular transmitters, software, a web-based utility management portal and a web-based customer portal that will collect the hourly consumption data and relay this information so it will be available in the web-based application that can be accessed in real-time for District billing, consumption trends, and live leak reports. The AMI Communication System is estimated at \$21.36 per meter, for a total of 3,008 meters. A total of \$64,250.88 is budgeted for this item based on vendor estimates and research on other local water districts’ AMI Project costs.

Contractor 2 - Meter Installation

Through a competitive bid process, a qualified Contractor will be selected for the AMI meter installation. The Contractor will be responsible for installing the AMI Meters and Registers and providing the meter replacement file. Contractual activities to be performed by the selected Contractor will include the following:

- Task 4: Remove and Replace Existing Meter System with AMI Cellular technology - AMI meter installation will be performed by the Contractor Meter Installation Technicians at a cost estimate of \$177,953.28, based on a labor rate of \$59.16/hour for 3,008 meters at a rate of 1 hour per meter (or 3,008 hours). Included in the hourly cost is the meter replacement file at a total estimated cost of \$3,500. Installation includes removing the existing meter assembly and then physically attaching the cellular retrofit meter register device to the meter. Installation also includes establishing and connecting the cellular communication system. A meter replacement file is also needed for capturing the meter removal information and the new meter information. This information will include the meter number, register number, cellular device

South Coast Water District – Funding Group 1 Request
Advanced Metering Infrastructure Implementation Program Phase 1

number, meter size, meter model and meter type. The meter information will then be uploaded to the CIS billing system.

Consultant - Reporting

Contractual costs are also included to perform required Grant Reporting on behalf of the District. Grant Reporting will be performed by a consultant on a semi-annual basis Reporting includes Performance and Financial reports, as well as Final Report. These costs are included in Table 9 and include the following task:

- Task 6: Grant Management and Reporting – A total of 70 hours at a rate of \$150/hour is allocated for this task. A total of \$10,500 is budgeted for the 2-year time frame allotted for the Project. The budgeted cost for the consultant was determined to be fair and reasonable because it is consistent with District estimates based on experience with similar projects and estimates obtained from neighboring water districts for similar AMI Upgrade projects.

Task budget estimate detail is shown in Table 10 below.

Table 10 Budget Detail

Contractor or Employee	Task	Activity	Hours	Rate	Total Costs
Project Manager (Cassandra Garcia)	Task 1	Project Management	100	58.71	\$ 5,871.00
	Task 2	Equipment Procurement	50	58.71	\$ 2,935.50
Field Supervisor (Dennis Elbe)	Task 5	Final Testing and Implementation	247	43.66	\$ 10,784.02
Contractor 1	Task 3	Installation of Communication System to Support the AMI System	3,008	21.36	\$ 64,250.88
Contractor 2	Task 4	Remove and Replace Existing Meter System with AMI Cellular technology	3,008	59.16	\$ 177,953.28
Consultant Reporting	Task 6	Grant Management and Reporting	150	70.00	\$ 10,500.00
Subtotal					\$ 272,294.68
Budget Category					
Equipment	Task 2	Equipment Procurement			\$ 1,486,528.85
Other	Environmental Compliance				\$ 5,882.38
TOTAL					\$ 1,764,705.91

Environmental and Regulatory Compliance Costs

Applicants must include a line item in their budget to cover environmental compliance costs. “Environmental compliance costs” refer to costs incurred by Reclamation and the recipient in complying with environmental regulations applicable to an award under this FOA, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include NEPA, ESA, NHPA, CWA, and other regulations depending on the project.

The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation’s cost to review environmental compliance documentation. However, the minimum amount budgeted for environmental compliance should be equal to at least one to two percent of the total project costs. If the amount budgeted is less than one to two percent of the total project costs, you must include a compelling explanation of why less than one to two percent was budgeted.

Environmental compliance costs in the amount of \$5,882.38 are included under “Other” in the budget to cover the following:

- Cost incurred by Reclamation to determine the level of environmental compliance required for the project.
- Cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports.
- Cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant.
- Cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures.

The 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 AMI Project. All of the 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 AMI Project.

Less than 1% of the total Project cost is budgeted for Environmental Compliance because the it is anticipated that a Categorical Exclusion (CE) 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 Badger meters with upgraded AMI meters. A CE or FONSI is anticipated since the 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. In addition, a neighboring water district, the Laguna Beach County Water District, was awarded a \$300,000 grant via cooperative agreement with Reclamation for their Advanced Metering Infrastructure to Enhance Water and Energy Efficiency Project under the WaterSMART WEEG FOA for FY 2016. Their total project cost was \$3 million and per the cooperative agreement, the total budget for Reclamation’s Environmental Compliance Review was only \$1,000. Based on our experience and these facts from a nearby district with a higher project cost than the proposed AMI Project herein, we have budgeted at total of \$5,882.38 for Environmental Compliance Costs, including \$1,000 from federal share and \$4,882.38 from non-federal share. The amount of the line item is based on the actual expected

South Coast Water District – Funding Group 1 Request |
Advanced Metering Infrastructure Implementation Program Phase 1 |

environmental compliance costs for the project, including Reclamation’s cost to review environmental compliance documentation. A task was not assigned to Environmental Compliance because it is considered part of the initial environmental review prior to start of Project implementation.

Other Expenses

Environmental Compliance Costs are included under “Other” Expenses, and these costs are described above.

Indirect Costs

No indirect costs are included in this proposal.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost share amounts. The AMI Project total cost is \$1,764,705.91. The Federal cost share amount requested is \$300,000 (17%) and the non-federal cost share amount is \$1,464,705.91 (83%), as shown in Table 9.

Budget Form – SF-424C, Budget Information – Construction

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

Exhibits

Exhibits are attached in the following pages.

Exhibit A – Letter of Support



ADDR 31106 S. Coast Hwy., Laguna Beach, CA 92651

TEL (949) 499-2271

WEB www.ranchlb.com

January 9, 2017

Rick A. Shintaku
Chief Engineer
South Coast Water District
31592 West Street,
Laguna Beach, California 92651
rshintaku@scwd.org
(949) 342-1152 Office

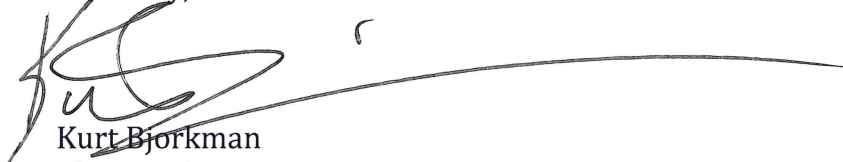
Re: Letter of Support for Funding South Coast Water District's Advanced Meter Infrastructure (AMI) Implementation Program Phase 1 Project (Project) grant application for the United States Department of the Interior, Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2017 - FOA No. BOR-DO-17-F012.

Dear Mr. Shintaku:

We understand that the South Coast 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 2017. This grant would help fund the **Advanced Meter Infrastructure (AMI) Implementation Program Phase 1 Project**, as part of its long-term goal of water supply reliability and efficient water management. The District has been providing reliable, safe drinking water to its customers since 1932 and its service area includes The Ranch at Laguna Beach. The Ranch at Laguna Beach fully supports the 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 this project, please do not hesitate to contact me by email at kurt@ranchlb.com or via telephone at 949-715-1407.

Sincerely,



Kurt Bjorkman
The Ranch at Laguna Beach



Exhibit B – Resolution

SOUTH COAST WATER DISTRICT

RESOLUTION NO. 11-16/17

A RESOLUTION OF THE BOARD OF DIRECTORS OF SOUTH COAST WATER DISTRICT ENDORSING WATERSMART: WATER AND ENERGY EFFICIENCY GRANT FOR 2017

WHEREAS, the United States Bureau of Reclamation is currently offering grant opportunities through the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year (“FY”) 2017 and

WHEREAS, said WaterSMART: Water and Energy Efficiency Grants for FY 2017 is a cost-shared program emphasizing water and energy efficiency; and

WHEREAS, the Board of Directors of South Coast Water District (“Board”) supports the submission by the South Coast Water District (“District”) of a grant application, prepared and approved by the District, to the WaterSMART: Water and Energy Efficiency Grants for FY 2017; and

WHEREAS, the District is capable of providing the amount of matching funds of up to \$1,464,706 in cash and/or in-kind contributions specified in the grant application’s funding plan; and

WHEREAS, if selected for a WaterSMART: Water and Energy Efficiency Grants for FY 2017, the District will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement;

NOW, THEREFORE, SOUTH COAST WATER DISTRICT BOARD OF DIRECTORS DOES HEREBY RESOLVE, ORDER AND DETERMINE AS FOLLOWS:

Section 1: The Board approves the submission of the application for the WaterSMART: Water and Energy Efficiency Grants for FY 2017 by the District for fiscal year 2016-17, fiscal year 2017-18.

Section 2: In the event grant funding is provided by the United States Bureau of Reclamation, the Board authorizes the General Manager of the District or his designee to accept the grant and sign any contract for administration of the grant funds and delegate the Chief Financial Officer to act as a fiscal agent for any grant funding received.

Section 3: This resolution shall take effect immediately.

Section 4: The Secretary shall certify to the adoption of this resolution and henceforth and thereafter the same shall be in full force and effect.

PASSED AND ADOPTED this 26th day of January, 2017.

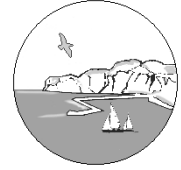
President

ATTEST:

Secretary

DRAFT

SOUTH COAST WATER DISTRICT STAFF REPORT



Meeting Date: January 16, 2017 **Budgeted:** N/A

To: Administration &
Finance Committee

Budgeted Amount: N/A
Cost Estimate: N/A

From: Carolyn Rathbone

Funding Source: N/A
Project #/Account #: N/A

Briefer: Cassandra Garcia

**Subject: ADVANCED METER INFRASTRUCTURE IMPLEMENTATION PILOT
PROJECT, PHASE I GRANT APPLICATION RESOLUTION**

SUMMARY

Adoption of a Resolution authorizing the District to enter into an agreement with the U.S. Department of the Interior, Bureau of Reclamation under the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2017.

RECOMMENDED ACTION

The Administration and Finance Committee recommend the Board of Directors approve Resolution No. 11-16/17 entitled, “A Resolution of the Board of Directors of South Coast Water District Endorsing WaterSMART: Water and Energy Efficiency Grant for 2017.”

BACKGROUND/ANALYSIS

The Advanced Meter Infrastructure Implementation Pilot Project (AMI Pilot Project) is an approved project on the District’s 5-Year CIP for Fiscal Years 2019 and 2020. \$300,000 in grant funding is available through the U.S. Department of Interior, Bureau of Reclamation’s program called WaterSMART: Water and Energy Efficiency Grants for Fiscal year 2017 for projects such as this.

To take advantage of the grant funding staff is in the process of finalizing a grant application for \$300,000 for the AMI Pilot Project.

Staff is proposing the AMI Project as part of its long-term goal of water supply reliability and water use efficiency. The Project includes the upgrade of 3,008 existing Badger water meters, currently drive by AMR read, with an AMI cellular technology 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. This Project will serve as the pilot for Phase 2 of the

AMI Implementation Program, which would expand the program to include all 12,523 potable and recycled water accounts. It is the goal of the District to fully test and fine-tune the AMI system to maximize benefits to both the District and its customers prior to implementing the technology District-wide.

It is anticipated that Phase 1 will result in a savings of 90 acre-feet per year, 252,000 kilowatt hours per year, and 157,797 pounds of CO2 per year. Furthermore, deployment of a Customer Portal through which water users will have online access to their own real-time hourly water usage data will prompt District customers to make positive changes to their water behaviors. The proposed AMI Project will reduce real system losses and increase water use efficiency through the availability of near real-time data on water usage and daily water needs.

The AMI Project will expand upon the District's efforts to promote water use efficiency by accomplishing the following: 1) More rapid identification and correction of water leaks, 2) More accurate meter readings compared to aging meters, and 3) Reduced potable water usage based on customer education through the AMI Project's data on water usage.

The 3,008 meters identified to be part of the AMI Project were chosen based on high consumption or by reading route. The 3,008 meters include the entire potable and recycled irrigation meters. They also include meters in the areas of Dana Point, Capistrano Beach, Laguna Beach and a few in San Clemente.

Staff anticipates the total project cost of the AMI Pilot Project to be \$1,764,706 with the District funding \$1,464,706 and \$300,000 coming from the WaterSMART grant.

The Funding Award for the grant is estimated at September 30, 2017. The AMI Project needs to be completed by September 30, 2019.

The attached resolution is a requirement of the grant. This resolution verifies the District's legal authority to enter into an agreement; the Board of Directors supports the submittal of the grant application; the capability of the District to provide the amount of funding specified in the Funding Plan; and that the District will work cooperatively with Reclamation to meet established deadlines for entering into a cooperative agreement.

PRIOR RELEVANT BOARD ACTION(S)

N/A