Automated Metering Infrastructure (AMI) Installation Project

WaterSMART: Water and Energy Efficiency Grants for FY2020
BOR-DO-20-F001 — Funding Group II

Prepared For:
Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
Denver Federal Center
Bldg. 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225
dolson@usbr.gov
303-445-3697

Submitted By:
City of Santa Ana
20 Civic Center Plaza
Santa Ana, CA 92701
Nabil Saba, Water Resources Manager
nsaba@santa-ana.org
714-647-3378

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A. Executive Summary

Date: October 3, 2019
City: Santa Ana
County: Orange County
State: California

Applicant Name: City of Santa Ana
Project Length of Time: 30 months
Estimated Completion Date: June 31, 2022
Located on a Federal Facility: No

To further increase the City of Santa Ana's water supply reliability and support water conservation and management efforts, the City has embarked on replacing all of its 44,565 manual-read water meters to advanced metering infrastructure (AMI) which will update City's existing metering, billing and management systems. The City of Santa Ana received $300,000 from Bureau of Reclamation in 2019 for the first phase of the project or installation of 11,250 meters.

This funding request is to support the replacement of the remaining 33,315 manual-read meters with AMI technologies and installation of all the necessary components including material and equipment (registers, meters, meter boxes, lids, software, hardware, AMI tower materials), Meter Data Management System (MDMS), leak detection system, interactive web portal installation, as well as pressure-monitoring capabilities. **City of Santa Ana has already started the software development and is ready to start installation of the meters upon execution of the agreement for this funding request.** This will be a transformational project for the City and its customers who are currently receiving their water bills at every other month intervals which means they may not find out about their high-water usage or leak situation for up to 75 days. AMI will provide real-time operational modeling information, establish a leak detection system, and provide water-consumption data to allow individuals to manage their water usage. Implementation of this project will result in quantifiable water and energy savings, as well as support broader water reliability benefits by providing the following:

- Estimated minimum water savings of 1,409 acre-feet per year,
- Associated energy savings of 25,038,609 kilowatt-hours (kWh) per year,
- Streamlined water conservation measures through immediate water leakage detection, which can significantly reduce energy consumption and water waste.
- Reduced time, labor, cost, energy, and Greenhouse Gas emissions compared to the existing metering system, which requires personnel to physically drive to and manually read each meter,
- Modernized and increased dependability of the City's aging water infrastructure by embracing new smart metering technologies

The proposed project is not located on a Federal facility.

B. Background Data

The City of Santa Ana is the second most populous city in Orange County, California, and with a population of 324,528 at the 2010 census, Santa Ana is the 57th-most populous city in the United States. According to the 2000 U.S. Census, of U.S. cities with more than 300,000 people, Santa Ana is the 4th-most densely populated behind only New York City, San Francisco, and Chicago, and slightly denser than Boston. City of Santa Ana has a service area of 27 square miles and supplies over 12.5 billion gallons of water with 44,565 meter connections to its residents that are mostly considered disadvantaged.

The City of Santa Ana (City) relies on approximately 71 percent local groundwater from the Orange County Groundwater Basin (OC Basin), 28 percent purchased water from the Metropolitan Water District (MWD), and 1 percent recycled water through the Orange County Water District (OCWD) Green Acres Project.

The majority of the City's potable water supply comes from groundwater in the OC Basin. OCWD is responsible for managing the OC Basin, including water quality and groundwater replenishment, and the City manages its 21 groundwater wells and distribution system. The OC Basin is not adjudicated and as such, pumping from the OC Basin is managed through a process that uses financial incentives to encourage groundwater producers to pump a sustainable amount of water. The remaining 28 percent of the City's water supply is supplemented by MWD that receives water from the Colorado River via the Colorado River Aqueduct (CRA) and the Lake Oroville watershed in Northern California through the State Water project (SWP). The water obtained from these sources is treated at a regional plant called 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 Metropolitan Lower Feeder and SWP water through the Yorba Linda Feeder. The City manages and maintains seven imported water connections that receive water through MWD's Orange County and East Orange County Feeder pipelines. The seven metered connections have a total capacity of 60,580 gallons-per-minute and transfer water into the City's distribution system.

As shown below in Table 1, the City's total water demand in 2015 was 36,656 acre-feet and is expected to increase to 39,716 acre-feet by 2040.

Table 1: Actual and Project Water Demands in Acre Feet

Use Type	Actual	Projected Water Use				
	2015	2020	2025	2030	2035	2040
Single-Family	14,084	14,093	15,138	15,242	15,238	15,260
Multi-Family	10,399	10,406	11,177	11,254	11,251	11,267
Commercial, Institutional, Industrial (CII)	12,025	12,033	12,925	13,014	13,010	13,029
Landscape (Large)	147	147	158	159	159	159
Total	36,656	36,678	39,397	39,669	39,658	39,716

The City maintains 480 miles of transmission and distribution mains, 10 reservoirs with a storage capacity of 49.3 million gallons, seven pumping stations and 26 booster pumps, four pressure regulating stations with pressure reducing and safety valves (PRV/PSV) that allow flows between the water system's two pressure zones (High Zone to the Low Zone), 21 groundwater wells, and seven import water connections. The City's Public Works Agency - Water Resources Division oversees and maintains the daily operations of the water system.

The table below provides a summary of the City's water service accounts and size of meters by customer class, based on numbers from the City's 2010 Urban Water Management Plan.

Table 2: Summary of City of Santa Ana Water Service Accounts and Meter Sizes

CUSTOMER CLASS	APPROXIMATE NUMBER OF ACCOUNTS
Single-Family Residential	35,581
Multi-Family Residential	3,565
Commercial, Institutional, Industrial	5,406
Landscape	12
TOTAL	**44,565**

METER SIZE	NUMBER OF UNITS
3/4"	5462
5/8"	31387
1"	4139
1 ½"	1401
2"	1675
3"	320
4"	146
6"	35
TOTAL	**44,565**

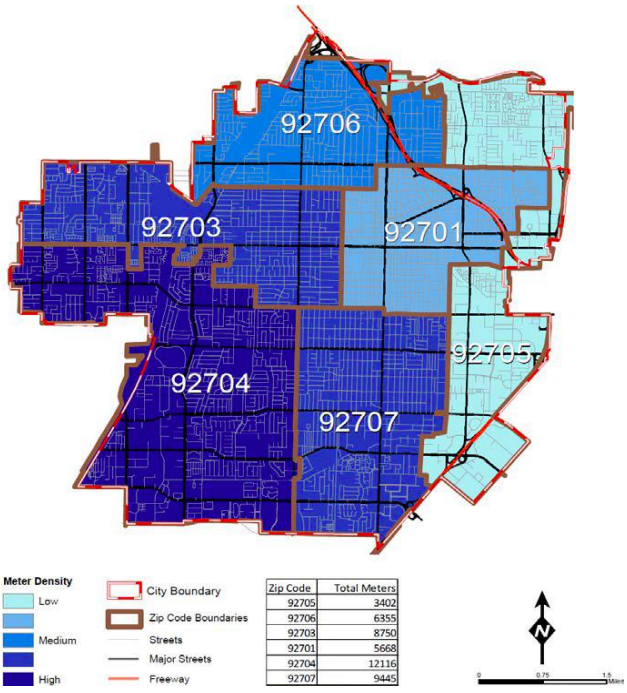
Because of the drought conditions, on April 14, 2015, MWD took action to reduce water deliveries to its member agencies, including the City of Santa Ana's share, which was reduced by 15 percent. Following this action, on June 2, 2015, the City Council of Santa Ana declared a Phase 2 Water Supply Shortage. By this resolution, the City Council declared that a water shortage existed and ordered that water customers must reduce their monthly total potable water consumption by 12 percent, using 2013 as the base year. Overall, City of Santa Ana water use decreased by 16.97 percent between June 2015 and February 2016 — the nine months of the initial statewide conservation mandate — achieving a 12 percent reduction.

While the 2016-2017 and the current water conditions have improved, the long-term impacts from the historic drought, as well as continued drought conditions of 2018, have served as a warning for the City to explore new energy efficiency methods to save every drop of its precious water resources.

The City of Santa Ana's current water supply from groundwater production in the OC Basin is limited and MWD has considered the potential impacts climate change may have on the quantity of imported water available; Therefore, the City hopes to help increase the reliability of its water supply through implementation of Advanced Metering Infrastructure (AMI). This water conservation project will address the potential shortfalls in the City's water supply by directly improving water conservation and management efforts.

Figure 1 shows a meter density map for the City based on zip code.

Figure 1: Meter Density Map

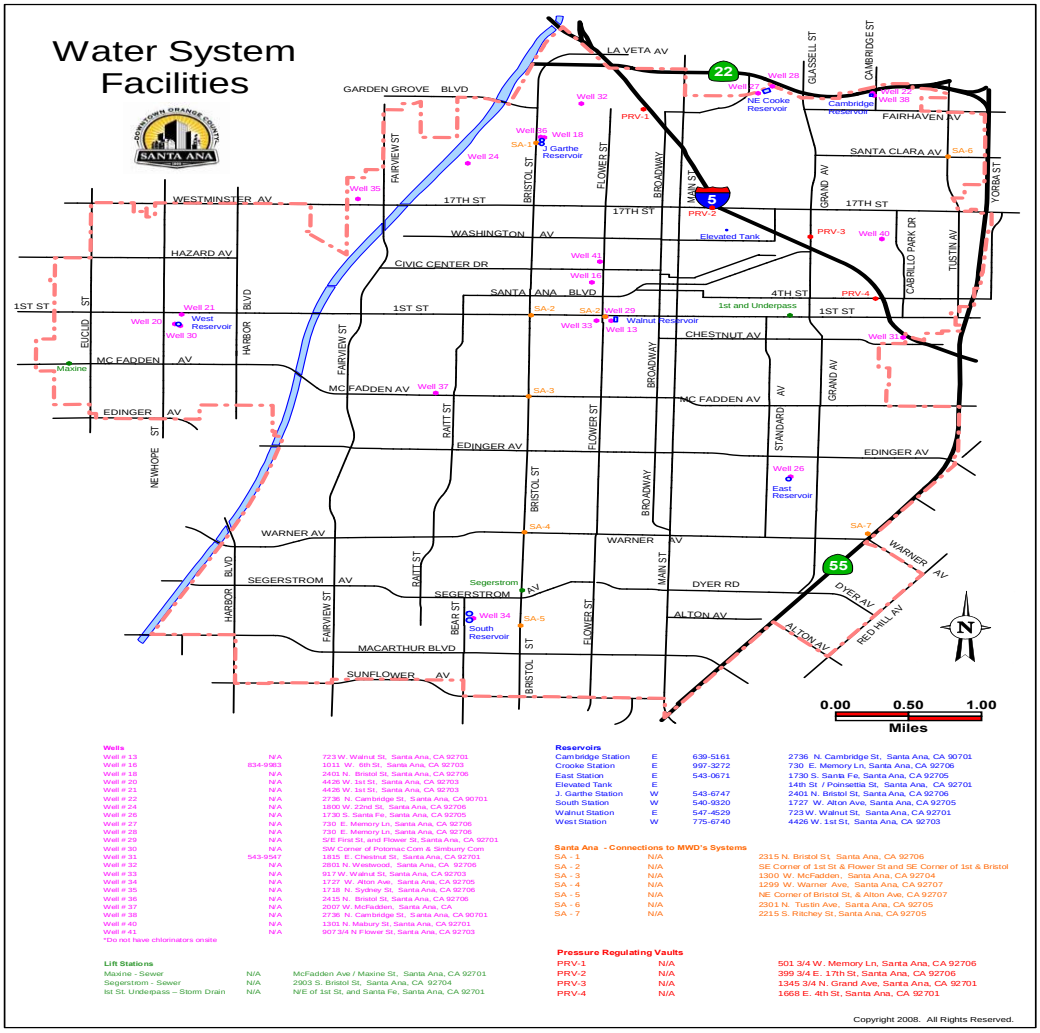


The City of Santa Ana received a grant from the Drought Response Program of Bureau of Reclamation in 2018 for its Well 32 Rehabilitation Improvements that is currently in process. The City of Santa Ana also received a grant from the Water Energy Efficiency Grant Program of Bureau of Reclamation in 2019 for the first phase or installation of 11.250 meters.

B. Project Location

The Automated Metering Infrastructure (AMI) Installation Project is located in City of Santa Ana in Orange County, California, approximately 30 miles southeast of Los Angeles. The City of Santa Ana is bounded on the north by the Cities of Garden Grove and Orange, on the east by the Cities of Tustin and Irvine, on the south by the City of Costa Mesa, and on the west by the Cities of Westminster and Fountain Valley. The approximate project latitude is 33°44'N and longitude is 117°52'W. See Figure 2 for a map of the City including the locations of the water system facilities.

Figure 2: Location Map of Existing Water System Facilities



D. Technical Project Description

The City of Santa Ana's AMI project addresses the largest sources of water loss for the City and will significantly improve the City's water management, conservation, and water supply reliability efforts. The current meter reading process involves Public Works personnel who must physically drive to each of the 44,565 metered locations within the City to manually read water meters every other month.

The City's current billing system is not efficient and one of the reasons for water waste: City currently issues bi-monthly bills to its customers which means a customer will not find out about a potential leak in the system for as long as 60 days after occurrence. In addition, the current billing system uses Enquesta which cannot store large volumes of meter reads or easily create billing determinants from the attained data. The City's existing meter reading system is also inefficient due to its excessive labor time to read meters, cost of vehicle maintenance, and Greenhouse Gas emissions from the vehicle miles traveled.

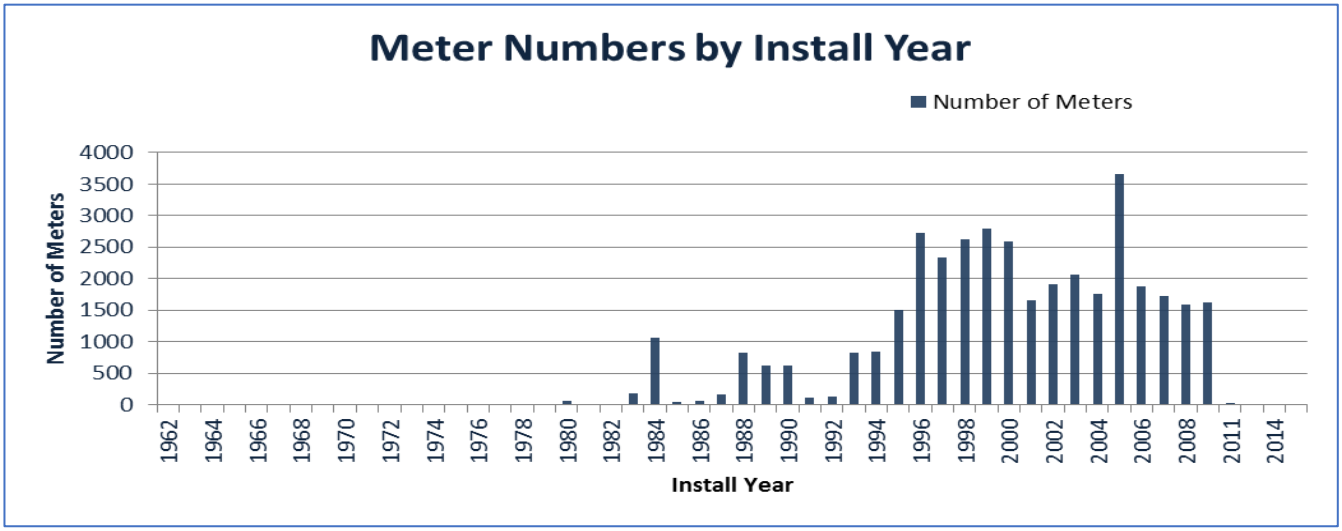
AMI is a transformational technology. This technology will provide the City of Santa Ana with an excellent data collection platform, a bi-directional control network, and automate a very expensive and at times challenging business function. The deployment of an AMI system will open the door to a wealth of data previously unavailable to the City and its customers. In this proposed project, the City's existing outdated water meters will be replaced to be compatible with the Advanced Metering Infrastructure (AMI), which will provide real-time data, as well as allow meters to be read remotely from a central location through a radio-frequency-based fixed communications network. This system will include an interactive web portal, leak detection technologies, Meter Data Management System (MDMS), and pressure monitoring. Implementation of AMI will improve water resource management, improve customer and City communication and proactivity, streamline water conservation measures, and modernize the City's existing water infrastructure through advanced technologies.

D.1.1. Existing System Details:

City of Santa Ana retained Black & Veatch to prepare an AMI Feasibility Report in 2016, a Road Map to Smart Water Utility to evaluate the use of smart metering technologies for the City. Black & Veatch reviewed the City's current metering practice and requirements, evaluated the manual meter reading process and accessed the relevant market leading solutions to evaluate available options and scenarios. Following summarize the current issues and practices:

1. **Metering Infrastructure:** The Black & Veatch report indicates that 85 percent of City's manual read water meters are over 10 years old. Figures 3 shows details of the meters installed by year. The data shows that almost half of the meter population is over 15 years old.

Figure 3: Number of Meters by Installation Year



The City staff replace about 1,500 meters each year under the City's Meter Replacement Program. This translates to over eight years if staff only concentrated on replacing the meters proposed for this project and ignoring all other needs, which is not a practical process and yet requires a long time to address the biggest source of water loss for the City.

2. **Current Meter Accuracy:** As part of preparing the AMI feasibility report, City conducted an accuracy testing for the existing meters and has found that 34,002 meters (approximately 80%) did not meet current accuracy standards and must be replaced. The meters are replaced depending on the size if they are not performing to the desired accuracy level, or become defective. City repairs meters that are 3 inches and larger, if they are old (at least 20 years), then the meters are changed. It is estimated that the aging meters have resulted in non-revenue water losses estimated at a minimum of $2.9M over life expectancy.

3. **Meter Reading & Billing Process:** The City has a manual meter-reading process and uses three full-time meter readers. Meter readers use Radix handheld tablets to collect meter data. The City uses Enquesta for its billing system, which cannot store large volumes of meter reads or easily create billing determinants from the attained data. Meters are read on a bi-monthly cycle with half of the meters or approximately 22,250 meters being read in a one-month cycle. The City of Santa Ana has considered migration of all customers to monthly meter reading and billing, but it has been cost-prohibitive because of the significant cost of additional meter-reading resources and changes to the billing systems. The current billing cycle has a significant impact on late detection of water loss.

D.1.2. Proposed System Details

UtilitiWorks Consulting, LLC was retained to assist the City with procurement, design and implementation of the AMI system. **At this point, the design phase has been completed and City will start the procurement phase of the meters and the software integration upon Notice of Award of funding.**

In the proposed project, the City will replace all of its meters with new meters for a complete AMI system. In conjunction with the AMI system, a Meter Data Management System (MDMS) will be implemented so that raw meter data can be aggregated, preprocessed, and validated. Unlike the City's existing Enquesta system, which cannot store large volumes of hourly meter reads, MDMS can analyze hourly data, provide billing determinants and real-time billing data to both the City and the customers. As a companion product to MDMS, the overall system will be connected to an interactive web portal to allow customers to view their water consumption and changes in rate structure to target any water waste.

Below is visual comparison of the existing and new meters:

Existing Meter:

New Meter:

Illustration of wireless component and new meter:

Implementation of the Smart metering technology will allow the City of Santa Ana to:

- Remotely and continuously monitor and diagnose problems, pre-emptively prioritize and manage water waste using data-driven insights.
- Provide customers with the information and tools they need to make informed choices about their behaviors and water usage patterns via multiple communication paths Identify defective or stopped meters from the meter read data. The accuracy of new meters will result in recording actual usage and therefore lower losses.
- Enabling increased support for billing system and customer service representative tools to deliver improved and new customer service experiences.
- Plan engineering planning activities based on accurate water audit.

With implementation of AMI, City will have all of the data required to support monthly billing for 100 percent of its customers without any incremental costs to obtaining the monthly reads that will result in customer awareness of its uses and substantial water savings for the City.

The following describes the project implementation phases:

Task 1: Design Phase – Completed

The City with assistance from its consultant has completed the following:

a. **Request for Proposals(RFP)** for procurement of a vendor and installer for the meters and software system: The AMI system will require the procurement of new meters, communication modules to upgrade some of the meters, installation of a radio frequency (RF) network, an AMI software head end system (HES), a meter data management system (MDMS) to store meter reads and a customer portal to provide data to customers. The City intends to host the AMI HES, MDMS and customer portal solution. The AMI RF network will be owned and managed by the City.
b. **Implementation Plan** that includes the details pertaining to engineering tasks for the meter installation project and software development and migration from the current system. This plan includes recommended implementation strategy for AMI and related programs. In general, the methodology divides the project work into specific phases, each with its own measurable outcome which builds from the previous phase. This plan provides a roadmap on how various deployments take place, and it serves to memorialize the commendations and decisions made regarding smart metering technology, data collection network, communication method, system head -end control computer and software, meter data management software, endpoint installation, hosting, staffing consideration for smart metering technologies, schedule, preparation of documents, and installation/ implementation, resource allocation, training requirements and system integration
c. **Communication Plan:** for public outreach includes a variety of customer facing materials such as door hangers, status letters, press releases, brochures, and webpages
d. **Staffing Plan:** AMI project implementation will impact multiple organizations throughout the City, including metering, field services, IT, billing, customer service,

engineering, etc. The project will also be a high visibility effort that will be viewed internally and externally as a transformational initiative. The City has determined the required resources from multiple departments across the City organization for a successful AMI project. The solutions and more specifically, the MDMS system, provides many new reports and analytics capabilities to identify leaks, stopped or problem meters, tampering, etc. These capabilities are determined as extremely valuable by Santa Ana and are considered essential for gaining the full benefits of the AMI system and therefore, appropriate staffing levels have been determined to take advantage of the AMI system capabilities. This document will be updates as needed to accommodate the changes that made be made during the design and implementation process.

Task 2: Software Installation Phase – In Process

a. **Software Installation: In Process:** The City of Santa Ana with assistance from its consultant has completed an in-depth review of needs and capabilities. This included the current state of the AMI and smart metering industry and important design considerations regarding data collection network, communication methods, headend software control, meter data management systems and hosting options. MDMS Requirements and Installation Requirements and Capabilities have also been completed. Technology department staff are monitoring the software installation
b. **Remaining work include:** Performing all the required software testing and migration of billing data to the new platform, and training for customer service staff to learn AMI system

Task 3: Meter Installation Phase- To begin immediately upon Notice of Funding

a. Advertise to receive proposal for procurement and installation of smart meters and related appurtenances
b. Award contract at a regularly scheduled City of Santa Ana City Council meeting
c. Review and approve submittals and shop drawings for required construction materials
d. Equipment procurement for meter reading tower/hardware will follow the specifications of AMI system chosen in procurement process
e. Installation of AMI towers and replacements of all meters
f. Integration of the new meters and the software systems in place

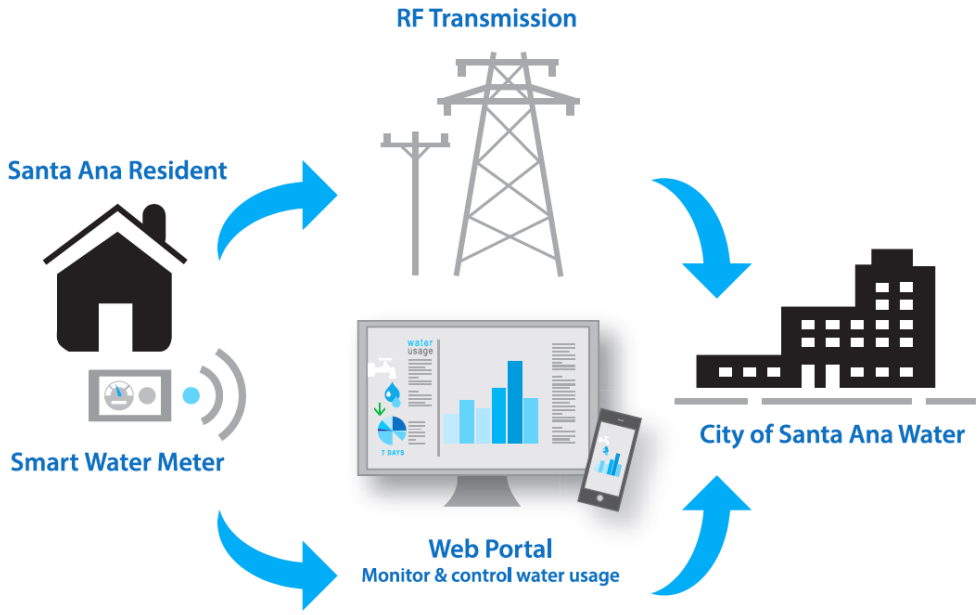
Construction management will be performed by Santa Ana Public Works staff and UtilitiWorks Consulting, LLC and will include compliance with plans and specifications, inspection of all work performed, process of invoices and change orders, transfer of current system, testing, grant compliance, and oversight of all aspects of the contracts.

Task 4: Public Outreach – In Process

a. Develop a comprehensive customer and stakeholder communications plan
b. Conduct neighborhood meetings, customer notifications, community outreach and engagement.

See Figure 4 for a conceptual map of the AMI system.

Figure 4: Proposed AMI System Conceptual Map



The resulting water savings are estimated to be 1,049 acre-feet per year, with an associated energy savings of 25,038,609 kilowatt-hours (kWh) per year. In addition to savings in water usage and energy consumption, this project will significantly reduce City of Santa Ana's carbon footprint based on vehicle miles travelled.

This project directly aligns with the City's strategic plan for water conservation and to utilize new technologies to increase operational efficiencies, improve delivery of services, and enhance communication and education in the community. This project will be completed in less than 30 months after funding approval.

E. Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings

Up to 30 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings. All applicants should be sure to address the following:

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

Implementation of the AMI system for City's water metering is expected to conserve over 1,409 acre-feet per year.

Describe current losses: Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

With more than 80 percent of the existing meters operating beyond their life expectancy, the main source of current water loss is from having meters that are beyond their life expectancy. In addition, the two-month billing does not allow the customers to take the expected steps in a timely manner to avoid water loss. This translates to double the water loss as compared to any other agency with one-month billing process. Due to the urban setting of the City, the water lost is either absorbed through storm drain system or seepage into the ground.

Conserved water will help supplement the City's finite water supply from groundwater production in the Central Groundwater Basin, as well as help reduce the City's dependence on expensive imported water purchased from MWD.

Describe the support/documentation of estimated water savings: Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are <u>not</u> sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.

The City of Santa Ana's water supply was 36,656acre-feet from all sources (imported water, local groundwater and recycled water) in 2015. All imported and local groundwater is used for potable water. Water conserved by this project will reduce imported water from the Colorado River Aqueduct.

Installation of AMI meters reduce water loss due to leakage and encourages conservation. To estimate the amount of water lost annually to leaks, a documented average leakage rate for typical homes was used. The Water Research Foundation's "California Single-Family Water Use Efficiency Study" (2016) documents an average leakage rate of 30.7 gallons per household per

day for a California study group from 2005. This equates to 11,200 gallons per year, or 0.0343 acre-feet per year per household. Leakage sources are typically the valves (faucets, water bibs, etc.), broken or cracked pipes, hot water heaters, and irrigation systems. Leakage either soaks into the ground (broken or cracked pipes, water bibs) or goes into drains and the wastewater system. In addition, the City of Santa Ana has determined that, with the proposed project in place, individual accounts which consume higher amounts of water than allotted in City's lower rate tiers, can save 10% annually by receiving an early warning that they are approaching the highest rate tier. By dividing the savings from those accounts by the total number of accounts, the savings was calculated to be an additional 0.008 acre-foot per meter per year. This brings the total savings to 0.0423 acre-feet per year per AMI meter. Conserved water will reduce City's amount of imported water.

The number of meters in the proposed project is 33,315.

With the installation of 44,565 new AMI meters, an annual average savings of about 3,796 acre-feet per year: **33,315 meters x 0.0423 acre-feet/meter = 1,409 acre-feet/year**

Actual water savings will be verified by comparing historical data for water usage prior to implementation of the AMI meters system.

Energy Savings by Reducing City of Santa Ana's Water System Electrical Usage:

City of Santa Ana averaged the monthly KHW used in all of its facilities and dividing it by Total System Flow provided the average of 440.2 KWH used per AF of water. The annual energy savings for City of Santa Ana's system energy usage as a result of this project would therefore be:

33,315 meters = 1409 AF x 440.2 kWh/AF = 620,242 kWh/year

Energy Savings from Reduced Vehicle Miles Driven:

This project would create an additional energy savings through reducing fossil fuel consumption. By replacing the manually-read meters with AMI meters, City staff will no longer need to drive to the 33,315 meter locations to record water usage data. It is conservatively assumed that .2 miles is driven for each meter.

33,315 meters x .2 miles/meter x 6 (no of times meters are read per year) = 39,978 miles/year

Using EPA's average of 21.5 miles/gallon and adding 10 percent for the stop-and-go condition, we estimate the following:

39,978 miles per year / 21.5 miles per gallon = 1859 x1.10 = 2,045 gallons/year

U.S. EPA parameters specify 1.25 therms/gallon of fuel and 29.3 kWh/therm. Using these values, there will be **approximately 74,912 kWh/year that will be saved as a result of this project.**

Energy savings from hot water leakage

Some water loss is due to leakage from hot water lines and faucets. DWR has developed a tool entitled *Estimates of Water Savings, Energy Savings, and GHG Emissions Reduction*, which can be found at http://www.water.ca.gov/waterenergygrant/docs/Attachment2_Worksheet.xlsx. This tool calculates energy savings from electric and natural gas hot water heating systems. It has been determined that 40 percent of customer losses are indoor. Of this amount, 60 percent of the loss is hot water. Assuming that within its service area, 20 percent of hot water losses are from electric water heaters, and 80 percent are from gas water heaters. Using the DWR tool, the combined energy savings for both types of hot water heating systems was calculated to be **24,343,455 kWh/year based on 1,409 AFY of water savings**.

Total Energy Savings

As shown below in Table 3, the total energy savings as a result of this project would therefore be **25,038,609 kWh per year as a result of 1,409 AFY reduction in potable water use**.

Table 3: Summary of Total Energy Savings from Project Implementation

Total Energy Savings	
Source of Energy	**Energy Savings (kWH) for 1,409 AFY**
System Usage	620,242
Reduced Vehicle Miles	74,912
Hot Water	24,343,455
Total:	**25,038,609**

Please address the following questions according to the type of infrastructure improvement you are proposing 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:

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

The calculations and explanations above provide the method used to estimated average annual water savings that are expected from the project. Actual water savings will be verified by comparing to historical data for water usage prior to implementation of the AMI meters system.

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

As noted above, the industry acceptable leakage rate for households were interpolated to calculate the water usage based on the percentage of size and no of meters proposed in this project.
The installation of the AMI system will consist of smart meters that communicate over a radio frequency (RF) network to the software application that remotely collects the meter reads, alarms and events. The meters will provide hourly readings on a daily basis and this data will be provided to the customers on a web portal. Customers can also set alerts that automatically notify them via email or text if usage rises above certain preset limits. As noted earlier, City of Santa Ana has identified customer education and outreach as an essential part of implementing this project. The City has started the process by preparation of the AMI Fact Sheet that is already posted on the website.

The technical paper by Frank Tantzky (Albstadtwerke in 2011) notes that "the average run-time of a leak event has been reduced to one and a half days after installation of an AMI system." Considering current bi-monthly billing process, this means that the average Santa Ana customer may not be able to act on their excessive water usage or leakage for about 75 days as compared to 1.5 days. Customer education and incentive to reduce their water bills will have a great impact in water conservation.

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.

The City of Santa Ana has been proactively studying the proposed project and maintains numerous planning documents addressing water shortages and conservation alternatives including:

- City of Santa Ana Drought Action Plan-See the following link:

https://www.dropbox.com/home/work/ess/Projects/SA%20SRF/City%20of%20Santa%20Ana/From%20Santa%20Ana?preview=Drought+Action+Plan.pdfAMI

- Feasibility Report: A Roadmap to a Smart Water Utility Report (2016)-See the following link: https://www.dropbox.com/home/work/ess/Projects/SA%20SRF/City%20of%20Santa%20Ana/From%20Santa%20Ana/AMI?preview=SA+AMI+Feasibility+Report_Final_10192016_MD.pdf
- City of Santa Ana Permanent Water Conservation requirements (Municipal Code section 39-106)- See the following link: https://library.municode.com/ca/santa_ana/codes/code_of_ordinances?nodeId=PTIITHCO_CH39WASE_ARTVIWASHCOPL_DIV4REGOWACOPH_S39-106PEWACOREROAGWAWA
- Urban Water Management Plan (2015) – See the following link: https://www.santa-ana.org/sites/default/files/Documents/urban_water_management_plan.pdf
- City of Santa Ana Water Master Plan (2017) – See the following link: https://www.santa-ana.org/sites/default/files/Documents/2017WaterMasterPlan.pdf
- DWR California Single-Family Water Use Efficiency: https://www.irwd.com/images/pdf/save-water/CaSingleFamilyWaterUseEfficiencyStudyJune2011.pdf
- Climate Action Plan: https://www.santa-ana.org/sites/default/files/Documents/climate_action_plan.pdf

These planning documents recognize water conservation as the most cost-effective way to remedy current and future water resource management issues. This was proven by the impressive reduction of water usage during the recent California drought. As noted above, the City of Santa Ana is committed to saving the City's precious water resources and has a permanent water conservation policy that requires repair of leeks within 48 hours of notification. However, as demonstrated, the City and its customer do not currently have the proper tools to proactively reduce water waste and this effort is limited to visual observation or delayed identification of leaks.

AMI technologies serve as reliable management tool to help with identifying customer use patterns and performing real time audits to enhance water and energy efficiency and sustainability for the City. Recognizing this great potential, the City retained Black & Veatch to develop an AMI Feasibility Report: A Roadmap to a Smart Water Utility Report in 2016, to understand how the City can best leverage the AMI technologies to provide higher levels of customer service and water usage information to enable water conservation by customers, as well as improve the water system operations and

efficiency. This Feasibility Report suggests that conversion of manual-read meters to AMI technologies will provide significant benefits to the City. The City has now retained UtilitiWorks Consulting, LLC that has completed the design phase and is moving forward to assist the City with the implementation of the AMI system.

The City of Santa Ana is dedicated to supporting water reliability and water conservation. On May 19, 2015, the City passed a Water Conservation Ordinance No. NS-2877 (See Appendix D of the 2015 UWMP). The purpose of the Water Conservation Ordinance is to encourage reduced water consumption within the City through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within the City. It provides procedures, rules, and regulations for mandatory water conservation that gain results while minimizing the effect of a water shortage on the City's water customers.

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).*

The City of Santa Ana will not be installing distribution main meters as part of the proposed project.

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

The manufacturers and models of devices and materials will be selected through a competitive bid process. The RFP for the procurement of meters will be issued immediately upon notice of award.

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

To verify the amount of water savings, historical water usage data prior to implementation of the AMI system will be compared with water usage data after implementation of the AMI system for two years.

E.1.2. Evaluation Criterion B — Water Supply Reliability

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region. 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 p. 52 of the FOA for additional information).

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

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

     Southern California has experienced several significant droughts in the last 15 years, which has resulted in drastic decrease of water supplies. The City currently relies on a combination of valuable local groundwater from the OC Basin managed by OCWD, as well as imported water from the MWD. Prior to 2018's winter, the snowpack and groundwater levels decreased due to severe dry conditions, reducing the amount of local groundwater supply and imported water available for the City.

     Severe drought conditions in California led to a State of Emergency declaration by the governor in January 2014. In April 2015, the governor followed up with Executive Order B-29-15 which mandated the State Water Resources Control Board (SWRCB) impose water use restrictions to achieve a state-wide 25% reduction in potable water usage through February 2016. With this mandate, every water utility in the state was ordered to reduce water usage by a percentage relative to 2013 levels.

     Because of the persistent drought conditions in recent years, MWD took action to reduce water deliveries to its member agencies, including the City of Santa Ana, effective July 1, 2015, enforcing heavy surcharges if the specified allocations were exceeded. The City of Santa Ana's water deliveries were reduced by 15 percent.

     Following this action, on June 2, 2015, the City Council of Santa Ana declared a Phase 2 Water Supply Shortage that implemented additional regulations and restrictions on the delivery of water. By this resolution, the City Council declared that a water shortage existed throughout the area served by the City of Santa Ana Water Resources Division and ordered that water customers must reduce their monthly total potable water consumption by 12 percent, using 2013 as the base year. Overall, the City of Santa Ana's water use decreased by 16.97 percent between June 2015 and February 2016, the nine months of the initial statewide conservation

mandate. Although this is a step forward, the City hopes to systematically increase its water conservation efforts and water reliability through the implementation of AMI, as climate change and environmental impacts continue to influence water sources.

As shown in the City's 2015 UWMP, the City's population is projected to increase from 335,299 in 2015 to 343,766 by 2040. The City's total water demand is expected to increase from 36,656 acre-feet in 2015 to 39,716 acre-feet or over 8 percent by 2040.

The City of Santa Ana is one of MWD's 26 member-agencies (including 14 cities, 11 municipal water districts, and one county water authority), and AMI project implementation will increase water supply reliability not just for the City but also for the region. This will help ensure the City serves as a responsible member by reducing its dependence on the finite supply from MWD, and implementation will also help prepare for population growth and increasing water demands.

The City is dedicated to improving its water conservation efforts and this project will support water reliability during times of drought and help prepare for projected increases in water demands.

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

The City obtains its potable water supply from two sources: imported water through the MWD, and groundwater from the Orange County Basin managed by OCWD. The City is fully dependent on MWD and OCWD for its water supply and coordinates its long-term and water-shortage planning with these agencies. MWD is a 26-member agency managing the water basins serving its members. City of Santa Ana like other members rely on the same basins to supply water to their customers. Therefore, every conservation step will not only help the City but it will benefit the whole region by offsetting groundwater pumping and it will help the state-wide initiative by lowering the import rate.

City of Santa Ana was an early adopter of conservation measures during the early stages of the drought. While this was a responsible action, which has delivered the desired results, the same level of success may be difficult to maintain moving forward. Typically, water utilities see conservation taper off as water use reaches a

level of daily necessity, and thus further reductions beyond the initial progress are difficult to achieve. Therefore, the City wants to take advantage of the AMI technology for water leak detection to conserve water.

The City can better contribute to supporting water reliability in the region by developing robust water conservation efforts and the effectively maintaining its water production assets. The AMI system will streamline water conservation management efforts to support the reliability of the City's water supply. This project will also increase water supply reliability by allowing the City and its customers within the service area to effectively manage and monitor water usage through an interactive web portal. Implementation of leak detection technologies will help preserve the City's valuable water supply by ensuring that water leakages are identified and addressed immediately, so that the City can better maintain the reliability of its assets. Water savings realized by implementation of the AMI system, will supplement the groundwater in the OC Basin benefitting the region and all member agencies. It will also reduce the City's need for purchase of expensive imported water from MWD.

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

  No additional mechanisms will be necessary to allocate the conserved water for its intended use. The conserved water will be used to supplement the groundwater supply from the OC Basin and reduce the need to purchase imported water.

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

  The total estimated amount of conserved water, 1,409 acre-feet, will be used to supplement the City's finite water supply from the OC Basin, as well as offset the need to purchase costly imported water.

2. *Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:*
   - *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*

     The City of Santa Ana is among the top 4 densely populated communities in the nation. As such, the proposed AMI installation project will benefit municipal, parks and recreational facilities, industrial, and residential sectors. This project will benefit the municipal sector by improving overall operational efficiency for the City's water distribution system and meter reading system, ensuring faster identification of and solutions to water leaks, reducing meter reading costs, and improving data accuracy to help staff better optimize the water distribution system, and improving billing for customers. Industrial users are one of the largest water consumers for the city and

this transition will enhance overall operational efficiencies, reduce water waste and leaks, and reduce overall costs from overuse of water. Most importantly, the project will benefit the overall environment by enhancing water reliability, conserving valuable water, reducing greenhouse gas emissions, and improving water conservation management.

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

  While the project does not directly benefit the species, the environmental benefits gained by energy and water conservation, reduction of greenhouse gas emissions will benefit not only the City of Santa Ana but the region in general. management, which will benefit the surrounding environment and wildlife overall.

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

  As it was noted earlier, City of Santa Ana was one of the first agencies to respond to MWD that called on its 26-member agency for water conservation. The goal for the City of Santa Ana is to continue to meet or exceed the statewide conservation targets and enhance the prior strategies deployed for water conservation. Implementation of AMI provides a more targeted approach to conservation program and allows an effective partnership with the customers by increasing transparency of information for internal and external use and gain better insight into water pricing options that support conservation are desired outcomes of this effort.

- *Will the project benefit Indian tribes?*

  No, this project will not affect Indian tribes.

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

  The City of Santa Ana has an average median household income below state and federal levels. According to the U.S Census Bureau (2013-2017), the median household income is $57,151 in 2017 dollars, with 19.5 percent of the population in poverty. The median household income in California (2013-2017) was 67,169. This AMI installation project will benefit all residential customers with low-income households.

- *Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved water will go and where it will be used, including whether the conserved water will be used to offset groundwater pumping, used to*

reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

This project will increase water supply reliability by allowing the City and customers within the service area to efficiently manage and monitor water usage through an interactive web portal. The AMI system will streamline water conservation management efforts to support the reliability of the City's water supply. Implementation of leak detection technologies will also help preserve the City's valuable water supply by ensuring that water leakages are identified and addressed immediately.

The conserved water will be used to supplement the groundwater supply from the OC Basin and reduce the need to purchase imported water for the City of Santa Ana. Reduced draw from the OC Basin will benefit MWD and its 26-member agencies and their customers that covers the coastal and most heavily populated portions of Southern California.

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

Yes, the City of Santa Ana provides water to parts of City of Orange. This project also includes the meters in the City of Orange and this project will allow the Cities to work together to lower the water consumption for both cities.
In addition to the AMI system, this project will involve implementation of an interactive web portal where customers can view their water consumption data, water conservation tips, and associated water pricing. This tool will increase customer awareness of water usage and facilitate communications between the City and its customers, thereby encouraging collaboration to increase water conservation. This collaboration will reduce dependency on expensive imported water from MWD and the limited groundwater from the Central Groundwater Basin and, in turn, increase reliability of the City's current water supplies.

The City of Santa Ana is committed to keeping its community informed and has prepared an AMI Fact Sheet to educate the public about AMI technologies. Implementation of the AMI system allows a better customer services and promotes partnership between its customer and the agency that will be very beneficial in meeting current and future water conservation goals. The fact sheet can be found at: https://www.santa-ana.org/sites/default/files/Documents/AMIFactsheetFinal.pdf

- *Is there widespread support for the project?*

Yes, AMI technologies have proven to be an effective metering system for various cities and the proposed project has widespread support among City of Santa Ana customers and water management agencies. The attached support letters from MWD and OCWD express these agencies strong support of City's project.

The City of Santa Ana has utilized a strong campaign to introduce water conservation that exceeded the goals set for the City. Since adoption of the water conservation mandates, the City of Santa Ana has observed a positive response expressed by the behavior modification. With greater level of customer education, the City expects to see a quick transition by its customers to use the real-time data provided after AMI implementation. Customer response on the recent water conservation is indicative of their support to continue with more savings when AMI is implemented.

The City of Santa Ana is committed to keeping its community informed and has prepared an AMI Fact Sheet to educate the public about AMI technologies. Implementation of the AMI system allows a better customer services and promotes partnership between its customer and the agency that will be very beneficial in meeting current and future water conservation goals. The fact sheet can be found at: https://www.santa-ana.org/sites/default/files/Documents/AMIFactsheetFinal.pdf

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

This project directly affects water customers within the service area because it will allow them to view their water usage and receive alerts and notifications through an interactive web portal. In addition, the City can use this tool to help educate the public on water conservation issues. In addition, the amount of saved water will allow for more reliability for the City and the region.

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

An integral part of the City of Santa Ana's AMI implementation is deployment of the Meter Data Management System (MDMS). MDMS provides a deeper level of meter data analytics because it can deliver granular data at more regular intervals that the City can use to take action with greater intelligence and run more efficiently. Additionally, this increased efficiency will allow the City to focus resources on programs that support water and energy conservation, proactive customer service, and operational strategies through data- supported analysis.

Implementation of AMI allows the customers as well as the City, to monitor water usage, system leaks, and water waste. Therefore, this project will be able to streamline future water conservation measures and policies in the City, as well as improve the ability to address any leaks immediately when they are detected in

order to prevent water waste. Water conservation efforts offset the need to purchase expensive imported water or the need to develop costly new local groundwater or recycled water supplies.

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

  This project will not directly prevent a water-related crisis. However, in times of drought, the water conservation benefits from this project will help alleviate the City's reliance on valuable groundwater and imported water supplies, as well as prepare the City for future needs. In addition, implementation of the AMI system, will help educate the commercial, industrial owners and residents of the City on their water use patterns that will be very beneficial in achieving the water conservation goals of the city and the financial goals of the water customers. This will allow the City to have optimum water usage from the OC Basin resulting in reduced competition for the water supply.

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

  NOT APPLICABLE

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

   No.

E.1.3. Evaluation Criterion C — Implementing Hydropower

This criterion is not applicable to this project.

E.1.4. Evaluation Criterion D — Complementing On-Farm Irrigation Improvements

This criterion is not applicable to this project.

E.1.5. Evaluation Criterion E — Department of Interior Priorities

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
   a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;

      Advanced smart meter technologies have a proven track record in providing real time water-consumption data by allowing for remote meter-reading from a central location through a radio frequency transmission network. The City of Santa Ana plans to use this technology to more efficiently manage its limited water resources and streamline water conservation measures.

   b. Examine land use planning processes and land use designations that govern public use and access; NOT APPLICABLE
   c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards. NOT APPLICABLE
   d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity; NOT APPLICABLE
   e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands; NOT APPLICABLE
   f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing; NOT APPLICABLE
   g. Shift the balance towards providing greater public access to public lands over restrictions to access. NOT APPLICABLE

2. *Utilizing our natural resources*
   a. Ensure American Energy is available to meet our security and economic needs;

      This project will achieve significant energy savings through reduced purchases of imported water, reduced process and distribution of water. In addition, there will a significant reduction in vehicle miles travelled and fuel supplies. The reduction of greenhouse gas will result in a cleaner environment and reduced energy spent dealing with its impacts.

   b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications; NOT APPLICABLE
   c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle; NOT APPLICABLE
   d. Manage competition for grazing resources. NOT APPLICABLE

3. *Restoring trust with local communities*
   a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands; NOT APPLICABLE
   b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local

communities.

Implementation of this project will reinforce the partnership between the City and the regional water districts and water distributors. OCWD manages the groundwater basin beneath central and northern Orange County to ensure water availability for the 2.4 million population of this County. MWD is the regional wholesaler that provides water for 26-member public agencies to deliver to nearly 19 million people living in Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties. Both agencies are very supportive of this project as it is stated in their letters posted in Appendix 3.

4. *Striking a regulatory balance*
   a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public; NOT APPLICABLE
   b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis. NOT APPLICABLE

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

      Implementation of AMI is a modernization project for City's aging water infrastructure and valuable assets that will replace the current outdated manual-read meters with the latest available technology in the industry. Leak-detection technologies and accurate meter readings will allow the City to swiftly address failures or discrepancies in the system and plan for the future needs accordingly. This project for implementation of advanced smart meter technologies and modernizes City procedures directly supports the White House initiative to modernize infrastructure in USA.

   b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;
   c. Prioritize DOI infrastructure needs to highlight: 1) Construction of infrastructure; 2) Cyclical maintenance; 3) Deferred maintenance.

      The City of Santa Ana proposed AMI installation project is a direct example of construction of infrastructure that will replace manual-read meters that are past their life expectancy with advanced smart meters and therefore reducing the cyclical maintenance requirements. Installing an advanced automated metering system will provide real-time information for correcting water leaks and system discrepancies rather than having a deferred maintenance system for meter replacement.

E.1.6. Evaluation Criterion F — Implementation and Results

E.1.6.1. Subcriterion F.1 — Project Planning

Does the applicant 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:
Identify any district-wide, or system-wide, planning that provide support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done

As mentioned above, the City of Santa Ana has developed numerous planning documents addressing water shortages and conservation alternatives including:

- City of Santa Ana Permanent Water Conservation requirements (Municipal Code section 39-106) - see at: https://library.municode.com/ca/santa_ana/codes/code_of_ordinances?nodeId=PTIITHCO_CH39WASE_ARTVIWASHCOPL_DIV4REGOWACOPH_S39-106PEWACOREROAGWAWA
- Water Conservation Ordinance No. NS-2877 – (Appendix D of the 2015 UWMP)
- City of Santa Ana Strategic Plan – Community Facilities and Infrastructure – see at: https://www.ci.santa-ana.ca.us/cm/creating-our-future-strategic-planning-process
- City of Santa Ana Drought Action Plan – see at: https://www.dropbox.com/home/work/ess/Projects/SA%20SRF/City%20of%20Santa%20Ana/From%20Santa%20Ana/AMI?preview=SA+AMI+Feasibility+Report_Final_10192016_MD.pdf
- Urban Water Management Plan (2015)- see at: https://www.santa-ana.org/sites/default/files/Documents/urban_water_management_plan.pdf
- Climate Action Plan: https://www.santa-ana.org/sites/default/files/Documents/climate_action_plan.pdf
- City of Santa Ana Water Master Plan (2017) - see at: https://www.santa-ana.org/sites/default/files/Documents/2017WaterMasterPlan.pdf
- AMI Feasibility Report: A Roadmap to a Smart Water Utility Report (2016)
- City of Santa Ana Capital Improvement Program 2018-2019 – see at: https://www.santa-ana.org/sites/default/files/FY18-19-CIP.pdf

Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect

The 2017 Water Master Plan addresses the need for the current replacement of the aging water meters and leak detection technologies by implementation of AMI system. The City of Santa Ana Drought Action Plan recognizes the importance of implementation the AMI system by requiring completion of the AMI feasibility report as one of its goals. Since completion of the report, the City of Santa Ana has been striving to identify the necessary funding to implement the project.

In addition, The City's Five-Year Strategic Plan sets the following as primary objectives for its goal to maintain its infrastructure:

- Establish and maintain a Community Investment Plan for all City assets.
- Address deferred maintenance on City buildings and equipment.

The City's Strategic Plan clearly identifies investing resources and technology to extend the service life of existing infrastructure to protect the City's investment and support a high quality of life standard as the strategy to reach its goals. In addition, the AMI Feasibility Report identified opportunities for improvement regarding the City's water conservation program, including improving the ability to measure the effectiveness of individual programs and presentations of an easy to interpret measurement of water to customers, enabling them to better participate in the water conservation efforts. This AMI project will directly address these improvement opportunities through its real-time water consumption data and interactive web tool. The City of Santa Ana's Climate Resiliency Assessment Report identifies drought and air quality as two important factors that will be helped by implementation of the AMI system.

E.1.6.2. Subcriterion F.2 — Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).

All Water and Energy Efficiency Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency 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. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative

effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

Note: program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

The City of Santa Ana proposes to use the following performance measures to quantify the benefits of the AMI system upon completion of the project:

Performance Measure No. 1: Improving Water Management through the implementation of monitoring tools

- The historical average amount of water utilized by a household or commercial entity as per meter data on file with the District
- Before and after water consumption data will be evaluated using at least one-year of post project data.
- Before and after water supply (production) data will be evaluated using at least one-year of post project data
- Project total savings will be compared with historical water production data to identify trends in water use, evaluate future water needs, and estimate City of Santa Ana capacity

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

- The City of Santa Ana will be also be calculating the quantity of energy savings resulting from the water use data by comparing pre-and-post project energy billings for water production and distribution, taking into account changes in pricing structure that would affect the anticipated cost savings.
- Anticipated cost savings are based on reduction of energy usage for water production and distribution due to a lesser demand for water.

Performance Measure No. 3: Improved Water Management

- The Final Project Implementation Report will contain a section entitled Improved Water Management. A portion of the project journal will be dedicated to documenting general management improvements. This information will similarly be included in the annual audit report.

E.1.6.3. Subcriterion F.3 – Readiness to Proceed

Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

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

The City of Santa Ana's proposed project is ready for implementation. Upon grant approval, City will start the procurement process to receive the required metering equipment. As described above, City has completed the design phase and development of the RFP for procurement. The City of Santa Ana also has retained the services of a Consultant Project Manager that will be overseeing the implementation of the overall AMI project and is ready to start on the implementation phase.

Table 4: Outline of Estimated AMI Implementation Plan

Estimated AMI Implementation Plan			
Task	**Phase**	**Start**	**Finish**
Task 1: Design Phase	Contract with an AMI Project Manager	Completed	
	CEQA Process	Completed	
	Preparation of detailed implementation plan	Completed	
	RFP for procurement of metering equipment	Completed	
Task 2: Software Installation	Software Installation	In Process	July 2021
Task 3: Meter Installation	Advertise / Review of Proposals / award of contract	Immediately upon Notice of Award estimated January 2020	April 2020
	Implementation Period	June 2020	June 2022
Task 4: Public Outreach	Conduct neighborhood meetings, consumer notifications / community engagement	In Process	June 2022

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

There are no permit requirements for this project.

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

  All engineering and design work to start installation of the meters have been completed and the procurement will start upon notice of award of grant funding. The City of Santa Ana retained Utilitiworks Consultants LLC, who has completed the RFP for the AMI procurement & implementation. They will also serve as the Project Manager to oversee this project.

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

  There are no new policies or administrative actions needed. As a regular process, the award of the contracts needs to be approved by the City Council that have been stipulated in the schedule.

- *Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?*

  The CEQA process was completed by City staff. The compliance cost has not been discussed with Reclamation, however, $25,000 has been allocated for the NEPA process.

E.1.7. Evaluation Criterion G — Nexus to Reclamation Project Activities

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.

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

  The City is not connected to Reclamation project activities.

  - *Does the applicant receive Reclamation project water?*
  - NOT APPLICABLE
  - *Is the project on Reclamation project lands or involving Reclamation facilities?*
    NOT APPLICABLE
  - *Is the project in the same basin as a Reclamation project or activity?*
    NOT APPLICABLE
  - *Will the proposed work contribute water to a basin where a Reclamation project is located?*
    NOT APPLICABLE

- *Will the project benefit any tribe(s)?*
  No, this project will not have an impact on any tribes.

E.1.8. Evaluation Criterion H — Additional Non-Federal Funding

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 using the following calculation:

Table 5: Percentage of Non-Federal Funding for Project

Percentage of Non Federal Funding		
Non-Federal Funding Amount	**Total Project Cost**	**Non-Federal Funding Percent**
$8,086,347	**$9,586,347**	**84.35%**

SECTION 2: PROJECT BUDGET

Standard Form 424 Budget Information C

This document is included in the separate submission with all of the City of Santa Ana's completed Standard Form 424 copies.

A. Funding Plan and Letters of Commitment

The City of Santa has received state funding in the amount of $4,000,000 towards completion of 44,565 meters and the AMI implementation project. The fully executed agreement is provided in Appendix 4. The City applied and received $300,000 from Bureau of Reclamation Water Energy Grant Program in 2019 for phase I or installation of the first 11,250 meters. The City of Santa Ana has authorized funding from the Water Utility Capital Project Funds for the remainder of its contribution.

B. Budget Proposal

Table 6: Total Project Costs by Source

SOURCE	AMOUNT
State Funding *	**$2,990,239**
Costs to be reimbursed with the requested Federal funding	**$1,500,000**
Costs to be paid by the applicant	**$5,096,108**
Value of third party contributions	**$0**
Total Project Cost- Phases I & II	**$9,586,347**

**State funding in the amount of $4,000,000 has been proportioned based on the no. of meters: 11,250 meters for phase I and 33,315 meters for the current proposed project*

Table 7: Funding Sources

Funding Sources	Amount
City of Santa Ana - Cash Contributions	$4,979,528
City of Santa Ana value of in-house resources	$116,580
Bureau of Reclamation Grant for this proposal	$1,500,000
State Funding for both phases	$2,990,239
Total:	**$9,586,347**

Table 8: Budget Proposal for this project

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				**$77,369**
Water Resources Director	$84.09/Hour	108	Hour	$9,082
Project Manager	$69.47/Hour	312	Hour	$21,675
Water Service Supervisor	$44.34/Hour	702	Hour	$31,127
Information Services & Network Manager	$76.19/Hour	144	Hour	$10,971
Customer Service Representative	$31.35 /Hour	144	Hour	$4,514
Fringe Benefits				**$39,211**
Water Resources Director	$48.55 /Hour	108	Hour	$5,244
Project Manager: Senior Civil Engineer	$31.89/Hour	312	Hour	$9,950
Water Service Supervisor	$23.77/Hour	702	Hour	$16,687
Information Services and Network Manager	$39.16/Hour	144	Hour	$5,639
Customer Service Representative	$11.74/Hour	144	Hour	$1,691
Equipment				**$5,694,533**
Meters and BTU Units	$170.93/Each	33,315		$5,694,533
Supplies and Materials				
Not Applicable				
Contractual/Construction				**$2,878,704**
Installation of AMI system for	$58.51/meter	33,315		$1,949261
Network hardware & Installation	$220,000/EA	1	Each	$220,000
Software and system integration	$684,443EA	1	Each	$684,443
Environmental & regulatory compliance	$250/Hour	100	Hour	$ 25,000.
Third-Party Contributions				
None				$0
Other				**$896,530**
Develop Implementation Plan, bid documents and support installation			Hour	$896,530
Total Direct Costs				**$9,586,347**
Indirect Costs				
Total Estimated Project Costs				**$9,586,347**

C. Budget Narrative

Salaries and Wages:
The Program Manager for this project will be Nabil Saba, PE and the direct City Project Manager will be Rudy Rosas, PE, throughout design and construction. They will be assisted with support from Information System and customer service representative for system integration. Key personnel are listed in Table 8. The salaries for these employees are not anticipated to be escalated within the contract implementation period. The salary rates for all positions is available below:
https://www.ci.santa-ana.ca.us/hr/other-employers/employee-salary-and-benefit-information

Fringe Benefits:
Fringe Benefits are included in Table 8 for key staff involved in the proposed project.

Travel:
Travel is not included in this proposal

Equipment:
Cost estimate from Feasibility Report conducted by Black & Veach was used to determine the costs of equipment for this project.

Materials and Supplies:
Material and supply for this project were included as part of the equipment cost and part of the contractor's work and has been estimated as part of the installation cost.

Contractual/Construction:
City of Santa Ana is awarding the contract to retain an independent Project Management Consultant to run the AMI program on April 15, 2019. The Project Management Consultant is responsible to prepare the bid documents for advertising the opportunity. The most qualified proposer will be awarded the contract to install the system. The cost for the equipment and installation costs were identified in the AMI Feasibility Report: A Roadmap to a Smart Water Utility Report (2016) prepared by Black & Veatch.

Third-Party In-Kind Contributions:
There are no third-party contributions towards this project.

Environmental and Regulatory Compliance Costs:
The project is categorically exempt from the provisions of CEQA. However, $25,000 has been allocated for environmental and cultural report studies if that would be necessary under Federal regulations.

Other Expenses:
As described above, the City of Santa Ana has retained a project management firm with expertise in AMI projects to oversee the AMI project development and implementation.

Indirect Costs:
These costs are included in Table 8, the Budget Proposal summary.

Total Costs:
The total cost of the project is included in Table 8, the Budget Proposal summary.

SECTION 3: ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants should consider the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

The internal evaluation of the project has determined that the project falls under Categorical Exemption for CEQA as identified by the State Resources Agency. (CEQA Guidelines 14 CCR Section 15300-15331). The Notice of Exemption was filed on July 31, 2018.

The major part of the project involves replacement of existing meters and does not require any earth disturbance for this part of the project. The location of the towers has been identified to be within the compounds of the Public Works Utility Yard and/or Civic Center Plaza. Both locations have been fully disturbed with construction of multiple buildings, full site pavement and various facilities.

Because there is "no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment," the project will have a Categorical Exemption.

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.

Two locations have been identified for the antenna locations:

- City Public Works Maintenance Facility: 220 S. Daisy Street, Santa Ana,
- City Hall Campus located at 20 Civic Center Plaza, Santa Ana, CA.

Repeat Network Collectors will be installed on existing light poles as needed for data transmission.

Both locations are developed sites that are fully paved. In addition, both sites have gone through full environmental process examining the cultural resources and biological impacts. As it is demonstrated in the pictures below, both sites include several elements that required

displacement of soil that were considered in their environmental documents at the time of development.

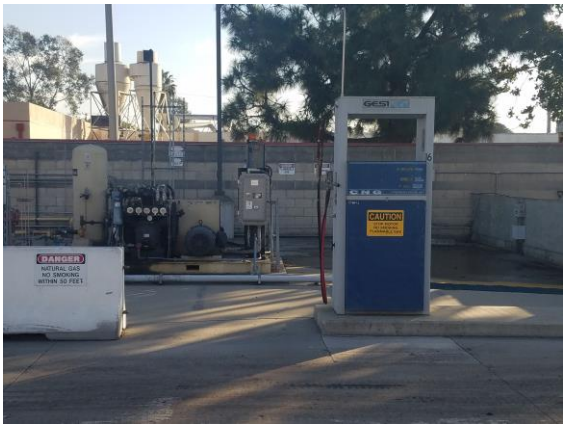
As shown in the pictures below, the Public Works Maintenance Facility includes a pump station for both regular gas and GNC that contain many underground tanks. In addition, the facility includes several large and/or multi-story building requiring deep foundations that have resulted in disturbed soil.

The City Hall campus houses the Federal Building, State of California offices along with the City of Santa Ana city hall building and parking structure. All of these buildings are multi-stories with deep foundations requiring extensive soil disturbance. Also, the whole site is fully paved. The environmental process for each of these structures considered impacts to cultural resources and biological impacts.

Therefore, the location of the antenna structures on these two sites will not have any adverse impacts on the cultural or biological resources.

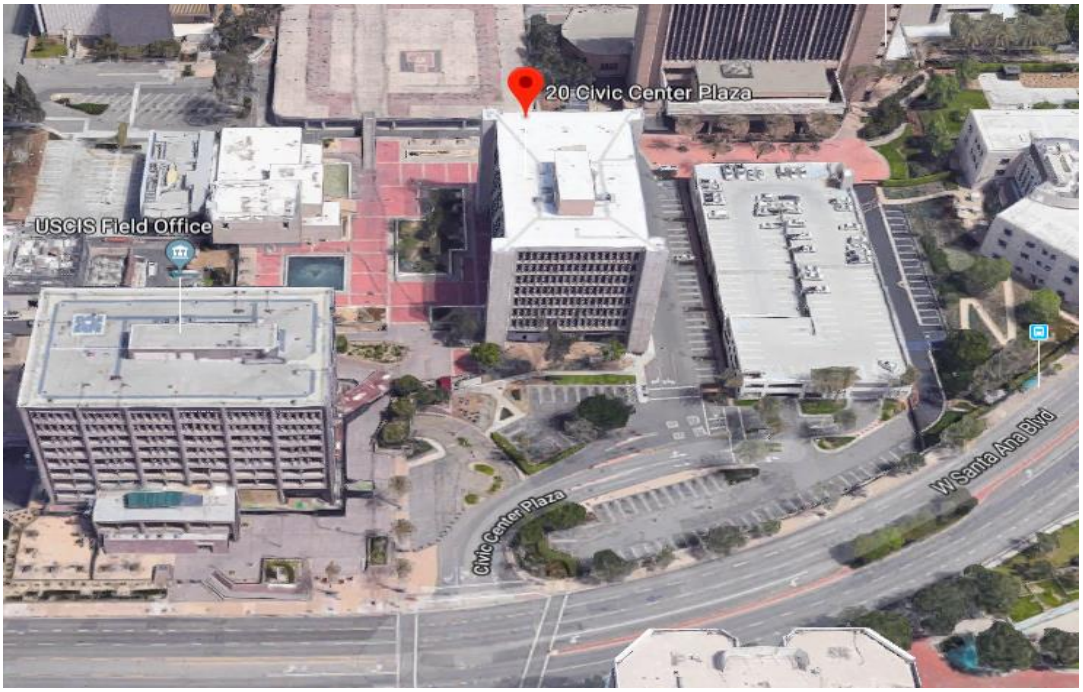
Tower Location 1: Public Works Maintenance Facility

Administration Building



City Corporate Yard

Antenna Location 2: City Hall Campus located at 20 Civic Center Plaza, Santa Ana, CA.



- *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?*

  There are no known species listed or proposed to be listed as a Federal threatened or endangered species or designated critical habitat in the project area.

- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.*

  Replacement of the meters and Installation of the towers have been identified to be within existing private and City properties and will not affect any of the creeks within the city boundary.

- *When was the water delivery system constructed?*

  The City was, for many years, a ranching community with some farming. To serve this growing agricultural and domestic community, a municipal water system was formed in 1886.

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

  No; the proposed project will not result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes).

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

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

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

  No; there are no known archeological sites in the proposed project area.

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

  No; the proposed project will NOT have a disproportionately high and adverse effect on low income or minority populations. In fact, the proposed project will have a **POSITIVE** effect on the local (and within the OC Basin) population, including low income and minority populations, of which Santa Ana has historically had one of the lowest per capita incomes in all of Orange County. The local population (of which more than 78 percent was of Hispanic or Latino race in 2010) will benefit from the energy efficiency and water savings that AMI implementation will bring. In addition, the drought-stricken basin-wide population will benefit from the increased availability of water supply.

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

  No, the proposed project will not have any impact on tribal lands.

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

  No; the proposed project will NOT contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

SECTION 4: REQUIRED PERMITS OR APPROVALS

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

SECTION 5: LETTERS OF SUPPORT

Per Reclamation's application guidelines in Section D.2.2.7. Letters of Support, all statements of support from interested stakeholders are included in Appendix 3.

SECTION 6: OFFICIAL RESOLUTION

MAYOR
Miguel A. Pulido
mpulido@santa-ana.org

MAYOR PRO TEM
Juan Villegas
Ward 5
jvillegas@santa-ana.org

COUNCILMEMBERS
Vicente Sarmiento
Ward 1
vsarmiento@santa-ana.org

David Penaloza
Ward 2
dpenaloza@santa-ana.org

Jose Solorio
Ward 3
jsolorio@santa-ana.org

Vacant
Ward 4

Cecilia Iglesias
Ward 6
ciglesias@santa-ana.org

CITY OF SANTA ANA

September 19, 2019

Mr. Josh German
Bureau of Reclamation
Water Resources and Planning Division
P.O. Box 25007, MS 84-51000
Denver, CO 80225

Dear Mr. German,

On April 16, 2019, the City Council of the City of Santa Ana adopted Resolution Number 2019-021 authorizing the submittal of a grant application for the Bureau of Reclamation's WaterSMART Water Energy and Efficiency Grants program for the City's Automated Meter Infrastructure project. The members of the City Council of the City of Santa Ana have not changed since the adoption of the Resolution, and the Resolution is still in effect.

Attached is a copy of the Resolution for your reference and use. Please do not hesitate to contact Mr. Fuad S. Sweiss, Executive Director of the City's Public Works Agency, at (714) 647-5654 should you have any questions.

Sincerely,

Miguel Pulido
Mayor

CITY ATTORNEY
Sonia R. Carvalho

CITY MANAGER
Kristine Ridge

CLERK OF THE COUNCIL
Daisy Gomez

20 CIVIC CENTER PLAZA - P.O. BOX 1988, M31 - SANTA ANA, CALIFORNIA 92702
TELEPHONE (714) 647-6900 - FAX (714) 647-6954 - www.santa-ana.org

APPENDICES:

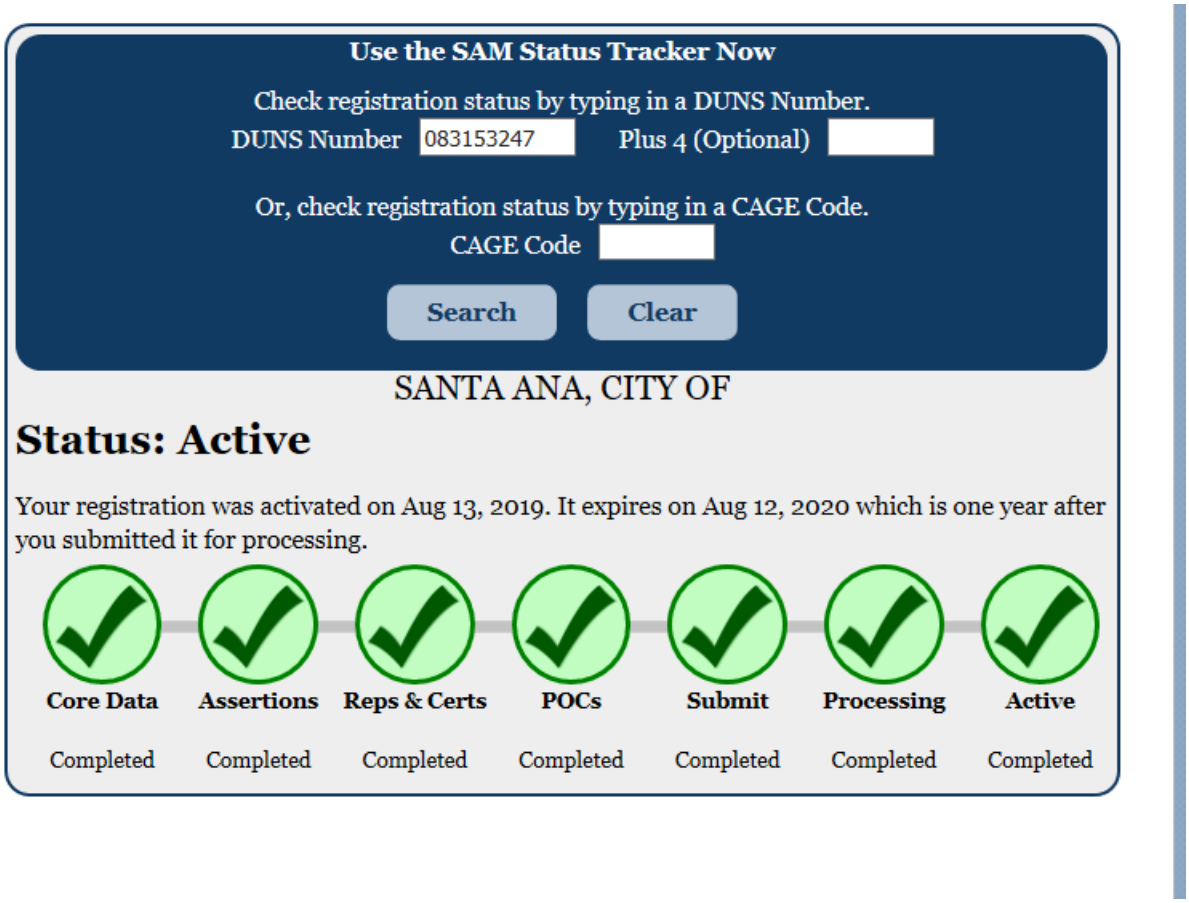
Appendix 1: Proof of SAM Registration

Appendix 2: CEQA Notice of Exemption

Appendix 3: Letters of Support

Appendix 4: Executed AMI Grant Agreement with State

Appendix 1: PROOF OF SAM REGISTRATION



Appendix 2: CEQA Notice of Exemption

FILED

JUL 31 2018

ORANGE COUNTY CLERK-RECORDER DEPARTMENT

BY: NA DEPUTY

Recorded in Official Records, Orange County
Hugh Nguyen, Clerk-Recorder

NO FEE

201885000839 3:25 pm 07/31/18
323 OR02 Z01
0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00

MAYOR
Miguel A. Pulido
MAYOR PRO TEM
Michele Martinez
COUNCIL MEMBERS
P. David Benavides
Vicente Sarmiento
Jose Solorio
Sal Tinajero
Juan Villegas

CITY MANAGER
Raul Godinez II
CITY ATTORNEY
Sonia R. Carvalho
CLERK OF THE COUNCIL
Maria D. Huizar

30-2018-0811

CITY OF SANTA ANA

PLANNING & BUILDING AGENCY
20 Civic Center Plaza (M-20)
P.O. BOX 1988 • Santa Ana, California 92702
(714) 667-2700 • Fax (714) 973-1461
www.santa-ana.org

NOTICE OF EXEMPTION

From the Requirements of the California Environmental Quality Act (CEQA)

Fee Exemption per California Government Code Section 6103

To: COUNTY CLERK
County of Orange
P.O. Box 238
Santa Ana, CA 92702

From: City of Santa Ana
Planning & Building Agency
20 Civic Center Plaza M-20
Santa Ana, CA 92702

Project Title: Advanced Meter Infrastructure (AMI)
Date of Approval: 08/01/2018
Project Number(s): PWA-2018-1098-CITY
Project Location: 1 CityWide (Partial)
City: Santa Ana **County:** Orange **ER Number:** ER-2018-88
Project Description: This project includes replacement of existing water meters and installation of new smart water meters and related appurtenances for water meter services.

Applicant Name: Rodolfo Rosas, City of Santa Ana
Applicant Address: 20 Civic Center Plaza
SANTA ANA, CA 92702

Name of Public Agency Approving Project: City Council
Name of Person or Agency Carrying Out Project: Rosas, Rodolfo

POSTED

JUL 31 2018

ORANGE COUNTY CLERK-RECORDER DEPARTMENT

BY: NA DEPUTY

Exempt Status:
- ☐ Ministerial (Sec. 15268)
- ☐ Declared Emergency (Sec. 15269 (a))
- ☐ Emergency Project (Sec. 15269 (b through e))
- ☐ General Rule (Sec. 15061(b)(3)/(5))
- ☐ Statutory Exemption:
- ☑ Categorical Exemption: 15301(b)

Reason(s) Why Project is Exempt From CEQA:
15301(b) consists of repair/maintenance of existing public facilities.

City Contact: Rudy Rosas **Telephone:** (714) 647-3379

Signature: Edward Torres for Rudy Rosas **Title:** Assistant Engineer II **Date:** 7/31/18

SANTA ANA CITY COUNCIL

Miguel A. Pulido	Michele Martinez	Vicente Sarmiento	Jose Solorio	P. David Benavides	Juan Villegas	Sal Tinajero
Mayor	Mayor Pro Tem, Ward 2	Ward 1	Ward 3	Ward 4	Ward 5	Ward 6
mpulido@santa-ana.org	mimartinez@santa-ana.org	vsarmiento@santa-ana.org	jsolorio@santa-ana.org	dbenavides@santa-ana.org	jvillegas@santa-ana.org	stinajero@santa-ana.org

State of California - Department of Fish and Wildlife

2018 ENVIRONMENTAL FILING FEE CASH RECEIPT

DFW 753.5a (Rev. 01/01/18) Previously DFG 753.5a

Print | StartOver | Finalize&Email

RECEIPT NUMBER: 30-2018 0811

STATE CLEARINGHOUSE NUMBER *(If applicable)*: N/A

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY	LEAD AGENCY EMAIL	DATE
CITY OF SANTA ANA		07/31/2018

COUNTY/STATE AGENCY OF FILING	DOCUMENT NUMBER
Orange	201885000839

PROJECT TITLE: ADVANCED METER INFRASTRUCTURE (AMI)

PROJECT APPLICANT NAME	PROJECT APPLICANT EMAIL	PHONE NUMBER
RODOLFO ROSAS, CITY OF SANTA ANA		(714) 647-3379

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
20 CIVIC CENTER PLAZA	SANTA ANA	CA	92702

PROJECT APPLICANT *(Check appropriate box)*

☑ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,168.00	$	0.00
☐ Mitigated/Negative Declaration (MND)(ND)	$2,280.75	$	0.00
☐ Certified Regulatory Program document (CRP)	$1,077.00	$	0.00

☑ Exempt from fee

☑ Notice of Exemption (attach)

☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach previously issued cash receipt copy)

☐ Water Right Application or Petition Fee (State Water Resources Control Board only)	$850.00	$	0.00
☐ County documentary handling fee		$	0.00
☐ Other		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☐ Check ☐ Other **TOTAL RECEIVED** $ 0.00

SIGNATURE	AGENCY OF FILING PRINTED NAME AND TITLE
X Nadia Alok	NADIA AL OBAIDI, DEPUTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - CDFW/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK DFW 753.5a (Rev. 20151210)

Orange County
Clerk-Recorder's Office
Hugh Nguyen

630N Broadway Bldg. 12 Suite
101
92701

County

Finalization: 20180000251056
7/31/18 3:25 pm
323 OR02

Item	Title	Count
1	Z01	1

Elk Administrative Fee

Document ID	Amount
DOC# 201885000839	50.00

Time Recorded 3:25 pm

Total	0.00

Payment Type	Amount
NO FEE	50.00
Amount Due	0.00

THANK YOU
PLEASE RETAIN THIS RECEIPT
FOR YOUR RECORDS
www.ocrecorder.com

Appendix 3: Letters of Support

MWDOC

Street Address:
18700 Ward Street
Fountain Valley, California 92708

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

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

Brett R. Barbre
President

Joan C. Finnegan
Vice President

Larry D. Dick
Director

Bob McVicker, P.E. D.WRE
Director

Megan Yoo Schneider, P.E.
Director

Sat Tamaribuchi
Director

Jeffery M. Thomas
Director

Robert J. Hunter
General Manager

MEMBER AGENCIES

City of Brea
City of Buena Park
East Orange County Water District
El Toro Water District
Emerald Bay Service District
City of Fountain Valley
City of Garden Grove
Golden State Water Co.
City of Huntington Beach
Irvine Ranch Water District
Laguna Beach County Water District
City of La Habra
City of La Palma
Mesa Water District
Moulton Niguel Water District
City of Newport Beach
City of Orange
Orange County Water District
City of San Clemente
City of San Juan Capistrano
Santa Margarita Water District
City of Seal Beach
Serrano Water District
South Coast Water District
Trabuco Canyon Water District
City of Tustin
City of Westminster
Yorba Linda Water District

September 17, 2019

Bureau of Reclamation
Financial Assistance Support Section
Attn: Ms. Janeen Koza
P.O. Box 25007, MS 84-27814
Denver, Colorado 80225

Subject: Letter of Support for City of Santa Ana Advanced Metering Infrastructure Project

Dear Ms. Koza,

The Municipal Water District of Orange County (MWDOC) supports the City of Santa Ana's proposal for an Advanced Metering Infrastructure (AMI) project. This project will use proven technology to increase conservation and improve water management. We urge your support for the City of Santa Ana's application to secure the Bureau of Reclamation WaterSMART Water and Energy Efficiency Program funding.

By implementing AMI technology, the City of Santa Ana will be at the forefront of water management to conserve the region's valuable water resources. The AMI Project will provide the City of Santa Ana with near real-time water consumption data and improved water management tools to better manage the water system. AMI will also allow customers to immediately address issues such as water leakage or overuse, thereby reducing water waste and improving water efficiency.

The City of Santa Ana, along with MWDOC, are both part of Metropolitan Water District's 26 public member agencies that together serve 19 million people. The City of Santa Ana has been committed to conservation and has a successful history in outreach and partnership with its residents to lower per capita water use. The City of Santa Ana, along with MWDOC and Metropolitan and it's other member agencies are striving to make conservation a way of life in Southern California and more efficiently use both imported and local water supplies. AMI is a highly effective demand management tool that will contribute to this goal. We encourage your award of the City of Santa Ana's proposal and the local and regional benefits it offers.

Sincerely,

Robert J. Hunter
General Manager

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

DIRECTORS
DENIS R. BILODEAU, P.E.
JORDAN BRANDMAN
CATHY GREEN
DINA L. NGUYEN, ESQ.
KELLY E. ROWE, C.E.G., C.H.
VICENTE SARMIENTO, ESQ.
STEPHEN R. SHELDON
TRI TA
ROGER C. YOH, P.E.
AHMAD ZAHRA

SINCE 1933

ORANGE COUNTY WATER DISTRICT
ORANGE COUNTY'S GROUNDWATER AUTHORITY

OFFICERS
President
VICENTE SARMIENTO, ESQ.
First Vice President
CATHY GREEN
Second Vice President
STEPHEN R. SHELDON
General Manager
MICHAEL R. MARKUS, P.E., D.WRE

September 17, 2019

Ms. Janeen Koza
Bureau of Reclamation
Financial Assistance Support Section
P.O. Box 25007 MS: 84-27814
Denver, CO 80225

RE: Letter of Support for the City of Santa Ana Grant Application for the Automated Meter Infrastructure Project

Dear Ms. Koza:

This letter is to express our strong support for the City of Santa Ana's grant application for the Bureau of Reclamation's FY 2020 WaterSMART Water Energy and Efficiency Grants program to implement the Automated Meter Infrastructure Project.

The City of Santa Ana is in the heart of Orange County, where the dense population of approximately 330,000 and arid Southern California climate make conserving water a constant battle. The City of Santa Ana is implementing a water energy and efficiency project. This project will help the City with its ongoing water conservation efforts and prepare to respond to the recurring drought conditions in California. The project is aligned with the City's strategic plan to make greater use of technology to increase operational efficiencies.

This project will install an Advanced Metering Infrastructure (AMI) System designed to provide real time modeling information to track customer water demand and use. The AMI system and web portal technology will provide significant water savings, which increases water supply availability. This will improve current water management systems throughout the City of Santa Ana. The City currently tracks supply conditions, but information on daily customer water use is insufficient. This information is critical in evaluating user restrictions, water delivery needs and how to best meet drought compliance standards set by the State of California.

Ms. Janeen Koza
September 17, 2019
Page 2 of 2

This grant application is seeking to upgrade the City of Santa Ana's metering infrastructure and billing system that will allow its residents to effectively monitor their water consumption in real time data. The City of Santa Ana has completed all the preliminary work and is ready to immediately implement this project after receiving a Notice of Award.

I respectfully ask for your kind consideration of this grant application.

Sincerely,

Michael R. Markus, P.E., D.WRE, BCEE, F.ASCE
General Manager

Appendix 4: Executed AMI Grant Agreement

STATE OF CALIFORNIA NATURAL RESOURCES AGENCY
GRANT AGREEMENT

GRANTEE NAME: City of Santa Ana

PROJECT TITLE: City of Santa Ana Advanced Metering Infrastructure

AUTHORITY: Senate Bill No. 840 Specified Funding FY 2018/2019

PROGRAM: General Fund Specified Grant Projects

AGREEMENT NUMBER: GF1806-0

TERM OF LAND TENURE: 25 years from date of project completion as evidenced by Project Certification Form

PROJECT PERFORMANCE PERIOD IS: 2/1/2019 to 2/28/2021

Under the terms and conditions of this agreement, the applicant agrees to complete the project as described in the project scope set forth in Exhibit A and any subsequent amendments, and the State of California, acting through the Natural Resources Agency pursuant to Senate Bill No. 840, agrees to fund the project up to the total grant amount indicated.

PROJECT DESCRIPTION:

See project description on page 1 and Exhibit A of the Agreement

Total State Grant not to exceed **$4,000,000.00** (or project costs, whichever is less)

The Special and General Provisions attached are made a part of and incorporated into the Agreement.

CITY OF SANTA ANA	STATE OF CALIFORNIA NATURAL RESOURCES AGENCY
By Nabil Saba	By Julie Alvis
Title Water Resources Manager	Title Deputy Assistant Secretary
Date 4/30/2019	Date 2/6/19

CERTIFICATION OF FUNDING

AMOUNT OF ESTIMATE FUNDING		AGREEMENT NUMBER		FUND			
$4,000,000.00		**GF1806-0**		**0001– General Fund**			
ADJ. INCREASING ENCUMBRANCE				FI$Cal PO Number			
$0.00							
ADJ. DECREASING ENCUMBRANCE		FUNCTION					
$0.00		**Local Assistance**					
UNENCUMBERED BALANCE		REF NUMBER	FUND	ENACTMENT YEAR	ACCOUNT NUMBER		ALT ACCOUNT
$0.00		**101**	**0001**	**2018**	**5432000**		**000000000**
PROGRAM	PCBU	PROJECT	ACTIVITY	RPTG STRUCTURE	SVC LOC	AGENCY USE	BUDGET PERIOD
0320	**0540**	**0540GF18060**	**31819**	**05400001**	**31819**		**2018**

I hereby certify upon my personal knowledge that budgeted funds are available for this encumbrance

SIGNATURE OF ACCOUNTING OFFICER — DATE 2/20/19

Agreement No. GF1806-0

GRANT AGREEMENT
State of California - The Natural Resources Agency

Grantee Name: City of Santa Ana

Project Title: City of Santa Ana Advanced Metering Infrastructure

Agreement Number: GF1806-0

Authority: Senate Bill No. 840 Specified Funding FY 2018/2019

Program: General Fund Specified Grant Projects

PROJECT DESCRIPTION

City of Santa Ana's installation and implementation of an Advanced Metering Infrastructure (AMI) System providing real-time operational modeling information to track water customer demand and use; establishing a distribution leak detection system and providing water consumption data to allow approximately 1,000 customers and City to manage water consumption. This is Phase I of a larger project.

A detailed project scope and activities, project schedule and project budget are described and attached hereto as Exhibit A.

Grant Funds are to be used to support capital asset projects in accordance with the provisions contained in the Procedural Guide for General Fund Specified Grant Projects and this Agreement.

TERMS AND CONDITIONS OF GRANT

Special Provisions

1. Recipients of grant funds shall post signs acknowledging the source of the funds. Size, location and number of signs shall be approved by the State.

2. The Grantee may be required to record Deed Restrictions, incorporating by reference this Grant Agreement and giving public notice that the Grantee received funds under this agreement in order to assist Grantee in developing the real property and that, in consideration for the receipt of the grant funds, the Grantee has agreed to the terms of this agreement.

General Provisions

A. Definitions

   1. The term "Act" means Assembly Bill No. 97.

   2. The term "Acquisition" means obtaining a fee interest or any other interest, including easements, leases, and development rights.

   3. The term "Agreement" means this Grant Agreement.

3. Grantee shall complete the project in accordance with the Project Performance Period set forth on the signature page, unless an extension has been formally granted by the State and under the Terms and Conditions of this agreement. Extensions may be requested in advance and will be considered by State, at its sole discretion, in the event of circumstances beyond the control of the Grantee, but in no event beyond **May 1, 2024.**

4. Grantee shall at all times ensure that project complies with the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, commencing with section 21000, et. seq., Cal Code Regs tit. 14, section 15000 et. seq.) and all other environmental laws, including but not limited to obtaining all necessary permits. Grant funds will not be disbursed before the close of the period for legal challenge under CEQA.

   Grant funds for planning and document preparation may be available sooner if included in the grant project scope (Exhibit A) and approved by the State. CEQA compliance shall be completed within one (1) year from the Grant Agreement start date, unless an extension is granted by the State.

   Changes to the scope resulting from CEQA compliance are permitted provided the State determines that the project continues to meet all objectives of the General Fund Specified Grant Project and is consistent with the intent cited in the original Application.

   If a grantee's project is disapproved on grounds related to the California Natural Resource Agency's CEQA determination, the grantee shall have the option of either: (1) reimbursing the Natural Resources Agency for all state-reimbursed preliminary costs (e.g., planning, design, etc.), or (2) relinquishing any planning/design documents, including all copies, reproductions, and variations resulting from said funding, without a license to use or otherwise retain in any form.

5. Projects must comply with any applicable laws pertaining to prevailing wage and labor compliance.

6. Grantee certifies that the project does and will continue to comply with all current laws and regulations which apply to the project, including, but not limited to, legal requirements for construction contracts, building codes, environmental laws, health and safety codes, and disabled access laws. Grantee certifies that, prior to commencement of construction; all applicable permits and licenses (e.g., state contractor's license) will have been obtained.

7. Grantee shall provide access by the State upon 24-hours' notice to determine if project work is in accordance with the approved project scope, including a final inspection upon project completion.

8. Prior to the commencement of any work, Grantee agrees to submit in writing to the State for prior approval any deviation from the original project scope per Exhibit A and the application. Changes in project scope must continue to meet the need cited in the original application or they will not be approved. Any modification or alteration in the project as set forth in the application on file with the State must be submitted to the State for approval. Any modification or alteration in the project must also comply with all current laws and regulations, including but not limited to CEQA.

9. Grantee shall provide for public access and/or educational features where feasible.

10. Grantee must have (1) fee title, (2) leasehold, or (3) other interest to project lands and demonstrate to the satisfaction of the State that the proposed project will provide public

4. The State reserves the right to request reimbursement of any funds spent on the project, even funds deemed eligible costs, if the project is not completed in accordance with the Grant Agreement and the guidelines.

5. Except as otherwise provided herein, the Grantee shall expend grant funds in the manner described in the Exhibit A approved by the State. The total dollars of a category in the project budget may be increased by up to ten percent (10%) through a reallocation of funds from another category, without approval by the State. However, the Grantee shall notify the State in writing when any such reallocation is made, and shall identify both the item(s) being increased and those being decreased. Any cumulative increase or decrease of more than ten percent (10%) from the original budget in the amount of a category must be approved by the State. In any event, the total amount of the grant funds may not be increased, nor may any adjustments exceed the limits for management costs as described in the Application Guidelines.

D. Project Administration

1. Grantee shall promptly provide project reports and/or photographs upon request by the State. In any event Grantee shall provide the State a report showing total final project expenditures with the final payment request and required closing documents.

2. Grantee shall make property and facilities acquired or developed pursuant to this agreement available for inspection upon request by the State.

3. Grantee shall use any income earned by the Grantee from use of the project to further project purposes, or, if approved by the State, for related purposes within the jurisdiction.

4. Grantee shall submit all documentation for project completion, including a notice of completion as applicable and final reimbursement within ninety (90) days of project completion, but in no event any later than **May 1, 2024**.

5. Final payment is contingent upon State verification that project is consistent with project scope as described in Exhibit A, together with any State approved amendments.

6. This agreement may be amended by mutual agreement in writing between Grantee and State. Any request by the Grantee for amendments must be in writing stating the amendment request and reason for the request. The Grantee shall make requests in a timely manner and in no event less than sixty (60) days before the effective date of the proposed amendment.

7. Grantee must report to the State all sources of other funds for the project.

E. Project Termination

1. The State reserves the right to terminate a Grant Agreement for any reason at any time. There are no vested rights or entitlements to funding that a Grantee can or should rely upon, and once a notice of termination is provided to the Applicant, only authorized and eligible work prior to that notification of termination will be paid by the State.

2. Prior to the completion of project construction, either party may terminate this agreement by providing the other party with thirty (30) days' written notice of such termination. The State may also terminate this Grant Agreement for any reason at any time if it learns of or otherwise discovers that there is a violation of any state or federal law or policy by

3. Grantee and State agree that in the event of judgment entered against the State and Grantee because of the gross negligence of the State and Grantee, their officers, agents or employees, an apportionment of liability to pay such judgment shall be made by a court of competent jurisdiction. Neither party shall request a jury apportionment.

G. Financial Records

1. Grantee shall maintain satisfactory financial accounts, documents and records for the project and to make them available to the State for auditing at reasonable times. Grantee shall also retain such financial accounts, documents and records for three (3) years after final payment and one (1) year following an audit.

2. Grantee agrees that during regular office hours, the State and its duly authorized representatives shall have the right to inspect and make copies of any books, records or reports of the Grantee pertaining to this agreement or matters related thereto. Grantee shall maintain and make available for inspection by the State accurate records of all of its costs, disbursements and receipts with respect to its activities under this agreement.

3. Grantee shall use applicable Generally Accepted Accounting Principles, unless otherwise agreed to by the State.

H. Use of Facilities

1. The real property (including any portion of it or any interest in it) may not be sold or transferred without the written approval of the State of California, acting through the Natural Resources Agency, or its successor, provided that such approval shall not be unreasonably withheld as long as the purposes for which the grant was awarded are maintained.

2. Grantee shall maintain, operate and use the project in fulfillment of the purpose funded pursuant to this grant for a minimum of **25 YEARS**, consistent with the Land Tenure/Site Control requirements included in the Application Guidelines. The Grantee, or the Grantee's successor in interest in the property, may assign without novation the responsibility to maintain and operate the property in accordance with this requirement only with the written approval of the State. Grantee may be excused from its obligations for operation and maintenance of the project site only upon the written approval of the State for good cause. "Good cause" includes, but is not limited to, natural disasters that destroy the project improvements and render the project obsolete or impracticable to rebuild.

3. Grantee shall use the property for the purposes for which the grant was made and shall make no other use or sale or other disposition of the property. This agreement shall not prevent the transfer of the property from the Grantee to a Public Agency, if the successor public agency assumes the obligations imposed by this agreement.

4. If the use of the property is changed to a use that is not permitted by the agreement, or if the property is sold or otherwise disposed of, at the State's sole discretion, an amount equal to (1) the amount of the Grant (2) the Fair Market Value of the real property, or (3) the proceeds from the sale or other disposition, whichever is greater, may be reimbursed to the State. If the property sold or otherwise disposed of is less than the entire interest in the property funded in the Grant, an amount equal to either the proceeds from the sale or other disposition of the interest or the Fair Market Value of the interest sold or otherwise disposed of, whichever is greater, shall be reimbursed to the State.

5. The Grantee shall not use or allow the use of any portion of the real property for mitigation without the written permission of the State.

N. Disputes

If the Grantee believes that there is a dispute or grievance between Grantee and the State arising out of or relating to this agreement, the Grantee shall first discuss and attempt to resolve the issue informally with the Agency Grants Administrator. If the issue cannot be resolved at this level, the Grantee shall follow the following procedures:

1. If the issue cannot be resolved informally with the Agency Grants Administrator, the Grantee shall submit, in writing, a grievance report together with any evidence to the Deputy Assistant Secretary for Bonds and Grants for the California Natural Resources Agency. The grievance report must state the issues in the dispute, the legal authority, or other basis for the Grantee's position and the remedy sought. Within ten (10) working days of receipt of the written grievance report from the Grantee, the Deputy Assistant Secretary shall make a determination on the issue(s) and shall respond in writing to the Grantee indicating the decision and reasons therefore. Should the Grantee disagree with the Deputy Assistant Secretary's decision, the Grantee may appeal to the Assistant Secretary for Administration and Finance for the Natural Resources Agency.

2. The Grantee must submit a letter of appeal to the Assistant Secretary explaining why the Deputy Assistant Secretary's decision is unacceptable. The letter must include, as an attachment, copies of the Grantee's original grievance report, evidence originally submitted, and response from the Deputy Assistant Secretary. The Grantee's letter of appeal must be submitted within ten (10) working days of the receipt of the Deputy Assistant Secretary's written decision. The Assistant Secretary or designee shall, within twenty (20) working days of receipt of Grantee's letter of appeal, review the issues raised and shall render a written decision to the Grantee. The decision of the Assistant Secretary or designee shall be final.

O. Audit Requirements

Grant projects are subject to audit by the State annually and for three (3) years following the final payment of grant funds. The audit shall include all books, papers, accounts, documents, or other records of the Grantee, as they relate to the project for which the grant funds were granted.

EXHIBIT A
STATE OF CALIFORNIA NATURAL RESOURCES AGENCY
GRANT AGREEMENT

General Fund Specified Grant Projects

Grantee Name: City of Santa Ana

Project Title: City of Santa Ana Advanced Metering Infrastructure

Agreement Number: GF1806-0

Project Scope:

City of Santa Ana's installation and implementation of an Advanced Metering Infrastructure (AMI) System providing real-time operational modeling information to track water customer demand and use; establishing a distribution leak detection system and providing water consumption data to allow individuals to manage their water consumption. This is Phase I of a larger project. Elements funded by General Fund grant include the following:

- Planning for AMI project deployment and implementation
- Procuring AMI system including developing system specifications and bid documents
- Installing at least one funder acknowledgement sign
- Installing approximately 4,000 of AMI meters to primarily high-use customers
- Retrofitting and updating meter boxes and structures as needed to allow for AMI signal transmission
- Installing approximately 4,000 of AMI Radios
- Installing AMI data collection infrastructure dependent on system selected
- Installing approximately 10 AMI Towers
- Integrating software, data and related information technology activities and improvements
- Installing software and systems integration (AMI Head-in System, HES and Meter Data Management System, MDMS). Specific HES and MDMS software make/model will be specific to the AMI system selected (to be determined).
- Deploying interactive customer portal to all users to monitor and track individual water usage
- Training staff to use and inspect AMI system

Project Schedule:

Activity Description	Timeline
Preliminary work on the project- Contract with an AMI Project Manager	February-April 2019
Development of Implementation Plan and bid documents to purchase AMI Technology and Software	February-May 2019
Environmental Review (CEQA) City of Santa Ana- submit CEQA Document to the State	Already completed via NOE submittal
Public Works Encroachment Permit for Installation of AMI Collector Towers	April-May 2019
Award Contract for Meter Installation (Phase 1) and Software Development	June 2019
Provide construction staking; mobilization as required	June-July 2019
Review and approve shop drawings for materials required to construct the project	July-August 2019
Submit final site design/plans/specifications to State	September 2019
Purchase equipment, conduct installation, train staff, inspect installation	October 2019-February-2020
Submit evidence of bond acknowledgement sign	February 2020
Submit Project Closeout package with final Payment Request to State	April 2020

Cost Estimate: See Exhibit A1

Exhibit A-1: Cost Estimate
City of Santa Ana
City of Santa Ana Advance Metering Infrastructure
GF1806-0

Project Elements	Total Project Costs	General Fund Grant
NON-CONSTRUCTION COSTS		
Direct Project Management & Administration Staff Time (direct costs only)	$150,000	$150,000
Develop Implementation Plan and Bid Documents	$250,000	$250,000
SUB-TOTAL Non-Construction Costs (not to exceed 25% of the grant)	**$400,000**	**$400,000**
CONSTRUCTION COSTS		
Funder Acknowledgement Sign and Installation	$920	$920
Installation of AMI Meters	$1,250,000	$1,250,000
Installation of AMI Radios	$750,000	$750,000
Installation of AMI Towers	$500,000	$500,000
Software and Systems Integration and Training (AMI Head-in System, HES and Meter Data Management System, MDMS). Specific HES and MDMS software make/model will be specific to the AMI system selected (to be determined).	$750,000	$750,000
SUB- TOTAL Construction Costs	**$3,250,920**	**$3,250,920**
Contingency (not to exceed 10% of grant)	$349,080	$349,080
PROJECT GRAND TOTAL	**$4,000,000**	**$4,000,000**

*Only direct project management costs are eligible; no overheard/indirect costs are reimbursable. In-service payroll may not include a "billable rate" or administrative cost allocation.

**All invoices and receipts for all project expenditures from all funding sources will be retained and made available in the event of any future State Audits.