
# Automated Metering Infrastructure (AMI) Project, Funding Group II

## WaterSMART: Water and Energy Efficiency Grants for FY2019
## BOR-DO-19-F004

***Prepared For:***
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# Contents

## Table of Figures and Tables

# SECTION 1: TECHNICAL PROPOSAL

## *A. Executive Summary*

**Date**: March 19, 2019
**City:** Long Beach
**County:** Los Angeles County
**State:** California

**Applicant Name:** Long Beach Water Department
**Project Length of Time:** 12 months
**Estimated Completion Date:** July 1, 2020
**Located on a Federal Facility:** No

To further increase LBWD water supply reliability and support water conservation and management efforts, LBWD has embarked on replacing its existing meters with Advanced Metering Infrastructure (AMI), which will update LBWD's existing water metering system, increase water conservation through accurate and real-time meter readings, take advantage of leak detection technologies, educate customers on water use, and improve LBWD's management of the system. LBWD's service area comprises of a total of 89,750 water meters, however, this project involves replacement of 11,397 of the meters that are large or difficult to read with AMI system. In order to attain water readings, employees must physically drive to each of these meter locations to manually read the meters. This method is costly and highly inefficient due to its necessary use of travel, labor, and time. The proposed project specifically addresses the following:

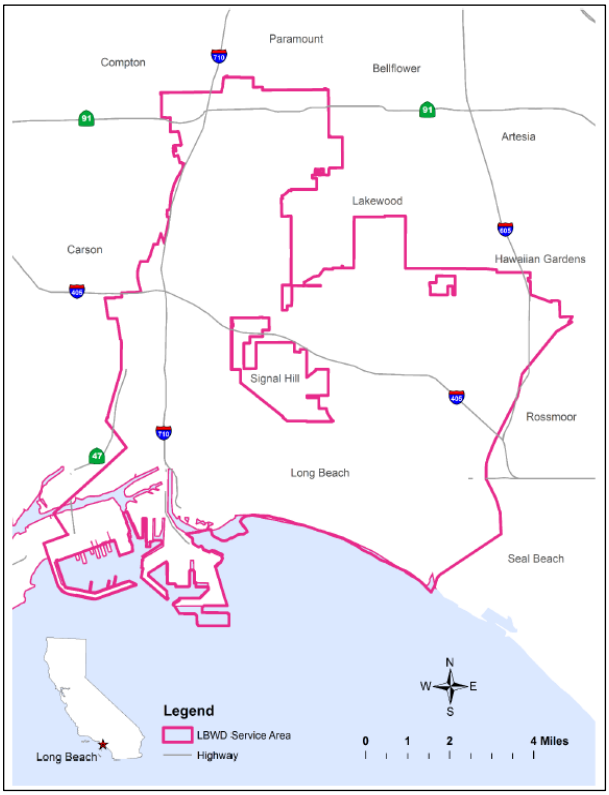
1. These water meters are associated with higher water consumption, which means water conservation measures and leak detection technologies would have the most significant impacts, or
2. These water meters are difficult to read meters, which means there are obstructions or barriers blocking the meter, leading to inaccurate readings, additional use of time, and potential dangers for meter readers.

This funding will support the LBWD's own staff to install 11,397 meters with AMI. The remaining 78,353 meters will be installed by an independent contractor and are not part of this proposal. This water conservation project will result in quantifiable water savings and support broader water reliability benefits by providing the following:

- Estimated water savings of 1,367 acre-feet per year
- Associated energy savings of 25,385,749 kilowatt-hours (kWh) per year
- Streamlined water conservation measures through immediate water leakage detection, which can reduce energy consumption and water waste.
- Reduced time, labor, cost, energy, and Greenhouse Gas emissions compared to the existing metering system requiring personnel to drive and manually read each meter
- Modernized and increased dependability of the City's aging water infrastructure by embracing new smart metering technologies

## B. Background Data

*Figure 1: LBWD Service Area*



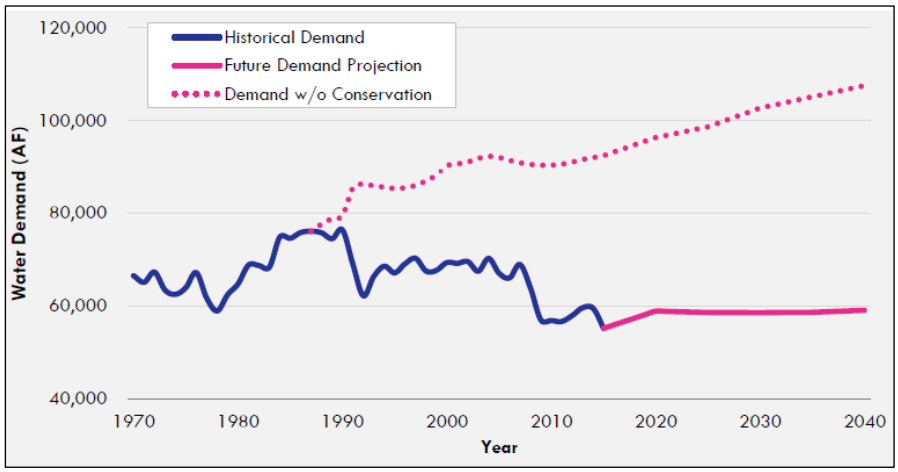

LBWD is responsible for managing all water supply within the City of Long Beach. LBWD's water service area covers approximately 50 square miles (see Figure 1). According to the 2015 Urban Water Management Plan, LBWD owns, operates, and maintains 31 active groundwater wells, 907 miles of water mains, 6,501 fire hydrants, and 750 miles of sanitary sewer lines. This entire infrastructure is used to provide water service to 89,750 active customer accounts, which include: 60,000 single-family homes, 14,800 duplexes, 96,900 apartment and condominium units, 1,100 dedicated landscape irrigation accounts, and 6,600 commercial, industrial and government accounts. Today, 12,197 active customer accounts are in what are known as SB 535 Disadvantaged Communities. These are communities designated by the California Environmental Protection Agency as disadvantaged based on the guidelines set forth in California State Senate Bill 535 (2012) and State Assembly Bill 32 (2006). LBWD has no agricultural accounts.

LBWD currently receives its potable water supply from two sources: imported water through the MWD, and groundwater from the Central Groundwater Basin, which underlies the northwestern portion of the City. MWD imports water into Southern California from the Colorado River, as well as runoff from the western slopes of the northern Sierra Nevada Mountains.

Water conservation and recycled water supplies also act as water supply sources for LBWD because they directly offset the need to purchase imported water and pumped groundwater. During a water shortage, short-term water conservation measures essentially provide LBWD with an emergency water "supply" to compensate for reductions in wet-water supplies — very similar to purchasing expensive spot-market supplies during water shortages, or similar to investing in some other type of shortage-year supplies. Water conservation efforts have reduced the per capita water usage in Long Beach from a high of 175 gallons per capita per day (GPCD) in 1984, to 111 GPCD in 2014. The drought and mandatory water restrictions in 2015 lowered demand even further to just 102 GPCD. Water conservation efforts reduce the City's dependence on its imported water supply (Figure 2). In addition, the City's recycled water distribution system has vastly expanded its customer base and now supplies

more than 120 service connections, compared to previously serving just one City park in the 1980s. LBWD recycled water customers include public and private irrigation customers, such as parks, schools, golf courses, cemeteries, and nurseries. The recycled water is also used by THUMS, a consortium of oil companies, which uses the recycled water to re-pressurize offshore oil-bearing strata in order to prevent land subsidence.

*Figure 2: Conservation Reduces Imported Water Supply Dependence*




According to the LBWD's 2015 Urban Water Management Plan, the City used 32,693 acre-feet of water from local Central Groundwater Basin production (42%), and 35,100 acre-feet of water delivered from MWD (46%) in 2015. The remaining 9,190 acre-feet (12%) of the City's water usage is provided by recycled water. The total water usage was 76,983 acre-feet (95 million M3).

The most significant factors altering water usage between 2015 and 2040 will be the increase in water demand from the multi-family sector, offset by a decrease in water usage attributable to water conservation efforts. The multi-family sector is expected to increase from 15,517 acre-feet in 2015 to 20,562 acre-feet in 2040. The total water demand is expected to increase by 7% in 2040.

LBWD has the rights to pump 32,693 acre-feet per year of groundwater from the Central Groundwater Basin aquifer. In addition, LBWD has rights to pump 0.7 acre-feet per year from the West Coast Basin Aquifer that underlies the southeast portion of the City, although this right is currently not being exercised. LBWD total water demand is currently close to the minimum 100 gallons per capita per day (GPCD) allocation guaranteed in the MWD Water Supply Allocation Plan (WSAP). MWD WSAP, which is state law, entitles LBWD to a "preferential right" of MWD supplies in an amount that is greater than LBWD's projected need for those supplies. LBWD's current water supply from groundwater production in the Central Groundwater Basin is limited and MWD has considered the potential impacts climate change may have on the quantity of imported water available. Therefore, LBWD hopes to help increase the reliability of the City's 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.

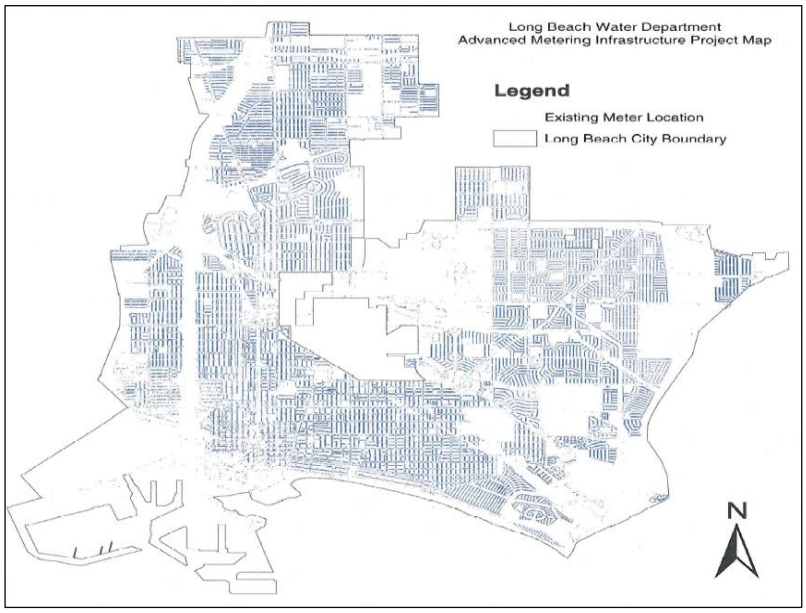
The City's Energy Resources Department provides natural gas utility service to 500,000 customers in Long Beach and Signal Hill, delivered through more than 1,800 miles of gas pipelines. The City is currently in the process of implementing a Smart Gas Metering Program for gas utilities, which is similar to this project's AMI system for water meters. Electrical energy is primarily provided by Southern California Edison Company. With the implementation of this AMI project, there will be significant energy savings from reduction in water leakages and reduction in the need for additional imported water pumping and distribution. This project will also produce energy savings from reduced vehicle miles currently traveled for the existing metering system, in which employees have to physically drive to each of the 89,750 meters' locations every month to manually read the data.

LBWD had a partnership with the United States Bureau of Reclamation and the Los Angeles Department of Water & Power, and together operated the country's largest seawater desalination research facility for exploring the feasibility of the "Long Beach Method" which could reduce desalination energy requirements by 20 to 30 percent. Currently, the desalination facility is not active and is not a cost-effective option for water supply reliability due to high energy costs, but it may become a more relevant water resource asset in the future.

## *C. Project Location*

The AMI project area is located in the City of Long Beach, California, which is directly adjacent to the City of Carson on the west. The project latitude is {33°46'6" N} and longitude is {118°11'44" W}. This project involves replacement of the existing municipal metering system within LBWD's water service area (See Figure 1). Figure 3 shows the AMI project map with existing meter locations within the City. This map is also included as Appendix 2.

*Figure 3: AMI Project with Existing Meter Locations*



## *D. Technical Project Description*

This project is a water conservation project that will directly improve the City's water management, conservation, and water supply reliability efforts. Currently, meter-reading personnel must physically drive to each of the 89,750 metered locations within the City to manually read water meters each month. This method is inefficient because it requires excessive time, labor, vehicle maintenance costs, and Greenhouse Gas emissions from the vehicle miles traveled. This project involves replacement of 11,397 of the meters that are large or difficult to read with AMI system. LBWD proposes to perform this work in-house as the agency's meter readers are most familiar with the locations of these meters. Currently, in order to attain water readings, employees must physically drive to each of these meter locations to manually read the meters. This method is costly and highly inefficient due to its necessary use of travel, labor, and time. The proposed project specifically addresses the following:

1. These water meters are associated with higher water consumption, which means water conservation measures and leak detection technologies would have the most significant impacts, or
2. These water meters are difficult to read meters, which means there are obstructions or barriers blocking the meter, leading to inaccurate readings, additional use of time, and potential dangers for meter readers.

The remaining 78,353 meters will be installed by an independent contractor and are not part of this proposal.

AMI is a transformational technology. This technology will provide LBWD 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 LBWD and its customers. In this proposed project, the City's existing large and difficult to read 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. 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.

UtiliWorks Consulting, LLC was retained by LBWD to develop an AMI/MDM Assessment and Strategic Roadmap Report in 2016. Based on this report, of the 89,750 residential, commercial, and industrial meters within LBWD's service area, 35,382 of these meters are more than 13 years old and are expected to be replaced with AMI. The remaining 54,368 are expected to be replaced with radio and new AMI compatible registers for retrofits. Concrete and steel meter boxes and lids that are not compatible with AMI are also expected to be replaced with AMI-compatible composite materials. In conjunction with the AMI system, a Meter Data Management System (MDMS), Leak

Detection system, water quality, pH changes, pressure, and potential tampering devices are expected to be implemented.

The MDMS will be responsible for AMI data cleansing, calculating, providing data consistency, and disseminating metered consumption data. 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 wasters.

Consumption trends and effectiveness of conservation programs can be verified using AMI/MDMS data. AMI will allow LBWD to proactively monitor consumption activities and violations and set thresholds to identify high users. Customer portals also provide tools to help customers manage their cost and demand with alerts and targeted messaging. A customer can set a specific budget and receive alerts when they are close to exceeding the limit. The purpose of this project is to increase water conservation through leak detection, education, and improved communication between LBWD and its customers. An interactive web portal for customers, detailing water consumption data and cost information, as well as implementation of economic incentives to meet targeted consumption rates, will provide the customers with the necessary tools to effective water conservation behavior.

The resulting water savings are estimated to be 1,367 acre-feet per year, with an associated energy savings of 25,385,749 kilowatt-hours (kWh) per year. In addition to savings in water usage and energy consumption, this project will significantly reduce LBWD's carbon footprint based on reduced vehicle miles travelled.

With the implementation of AMI, the Operations Department can gain real-time insight into the water distribution system. The installation of AMI meters represents the first time that the design of the distribution system can be compared to the volumetric treated water that moves through the system in real-time. Engineering design and capital improvement budgets can be planned more accurately as a result of this new dataset. In addition to enhanced distribution system monitoring, the system can provide system alerts for backflow detection and prevention.

The overall AMI implementation project will be conducted in phases to track the effectiveness of the implementation and how it meets the pre-established acceptance criteria. A proof-of-concept phase involving approximately 1,000 water meters began in May 2018 and will be completed in May 2019. The independent contractor deployment of AMI is expected to begin in June 2019 and be completed by July 2020, while the replacement of the large and hard-to-access meters by LBWD staff portion will wait for approval of this grant by USBR, which we anticipate to be in July 2019. LBWD has completed all necessary planning process, including procurement of the meters and will be able to start the installation of the meters using in-house installers immediately.

Implementation of the proposed project for this grant application is expected to be completed within one years.

## *E. Evaluation Criteria*

### E.1.1 Evaluation Criterion A — Quantifiable 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.*

As a direct result of updating the City's existing water metering system to AMI, the City's conservation estimate is 1,367 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)?*

LBWD has been completing an accelerated approach for repair of its water main distribution lines that has resulted in a reduction of main line breaks from about 150 per year down to 25 main breaks per year, reducing the unaccounted water loss within the distribution system. LBWD also has a methodical approach to select and test water meters for accuracy and programmatic replacement. With this proactive approach, it is easily identifiable that the majority of the current water loss is related to the existing large and hard to reach water meters that have not been replaced for at least the last 13 years.

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 not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

LBWD's water supply averaged 76,983 acre-feet from all sources (imported water, local groundwater and recycled water) from 2010 to 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, LBWD has determined that, with the proposed project in place, individual accounts which consume higher amounts of water than allotted in LBWD'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 by LBWD 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 LBWD's amount of imported water.

The number of meters in the proposed project is 11,397 or about 13% of the overall meters in the system. However, because the 11,397 meters include the largest meters, the percentage of water used by these meters equates to 36%. This percentage was calculated by tracking the actual water use in a 12-month period (February 2018-2019).

*Table 1: Water Use by Meter Size in Project Area*

| Water Use by Meter Size | | | | |
|---|---|---|---|---|
| **Work to be performed by** | **MTR_TYPE_SIZE** | **Quantity** | **Water Usage in 12 months** | **% of Total Water Use** |
| Contractor or LBWD RTU | Water Disc 3/4 Inch | 70,863 | 8,829,203 | 42% |
| Contractor or LBWD RTU | Water Disc 1 Inch | 11,644 | 2,331,037 | 11% |
| Contractor - Retrofit newer meters only, or LBWD RTU | Water Disc 1-1/2 Inch | 2,725 | 1,398,665 | 7% |
| Contractor - Retrofit newer meters only, or LBWD RTU | Water Disc 2 Inch | 1,910 | 2,133,410 | 10% |

| | | | | |
|---|---|---|---|---|
| LBWD Staff - Exchange older meters | Water Disc 1-1/2 Inch | 1,333 | 789,374 | 4% |
| LBWD Staff - Exchange older meters | Water Disc 2 Inch | 1,163 | 1,298,740 | 6% |
| LBWD Staff | Water Compound 3 Inch | 99 | 259,407 | 1% |
| LBWD Staff | Water Compound 4 Inch | 155 | 515,263 | 2% |
| LBWD Staff | Water Compound 6 Inch | 61 | 574,589 | 3% |
| LBWD Staff | Water Compound 8 Inch | 4 | 30,792 | 0% |
| LBWD Staff | Water FM 10 Inch | 20 | 771,760 | 4% |
| LBWD Staff | Water FM 4 Inch | 3 | 9,640 | 0% |
| LBWD Staff | Water FM 6 Inch | 40 | 334,921 | 2% |
| LBWD Staff | Water FM 8 Inch | 59 | 712,205 | 3% |
| LBWD Staff | Water Turbine 10 Inch | 2 | 27,447 | 0% |
| LBWD Staff | Water Turbine 1-1/2 Inch | 255 | 111,568 | 1% |
| LBWD Staff | Water Turbine 2 Inch | 89 | 89,566 | 0% |
| LBWD Staff | Water Turbine 3 Inch | 31 | 69,445 | 0% |
| LBWD Staff | Water Turbine 4 Inch | 30 | 57,498 | 0% |
| LBWD Staff | Water Turbine 6 Inch | 7 | 117,495 | 1% |
| LBWD Staff | Water Turbine 8 Inch | 5 | 445,535 | 2% |
| | | | 20,907,560 | 100% |

| | # meters |
|---|---|
| Contractor | 79,101 |
| LBWD | 11397 |
| Large meters | 3,356 |
| Small meters RTU | 8,041 |

With the installation of 89,750 new AMI meters, an annual average savings of about 3,796 acre-feet per year is achieved. This amount is then adjusted to calculate the water savings for this project:

**89,750 meters x 0.0423 acre-feet/meter = 3,796 acre-feet/year x 36% = 1,367 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 Water System Electrical Usage

Long Beach Water Department average the monthly KHW used for all of its facilities and dividing it by Total System Flow Provided the average of 1275 KWH used per AF of water. The annual energy savings for energy usage as a result of this project would therefore be:

**11,397 meters = 1,367 AF x 15,296 kWh/AF = 1,742,925 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 11,397 meter locations to record water usage data. It is conservatively assumed that .2 miles is driven for each meter.

**11,397 meters x .2 miles/meter x 6 (no of times meters are read per year) = 13,676 miles/year**

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

**13,676 miles per year / 21.5 miles per gallon = 636 x1.10 = 700 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 25,638 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 23,617,816 kWh/year based on 1,367 AFY of water savings.

### Total Energy Savings

As shown below in Table 2, the total energy savings as a result of this project would therefore be kWh per year as a result of 371 AFY reduction in potable water use. It should be noted, that this value is a minimum energy savings as cost of imported water pumping has not been added.

*Table 2: Summary of Total Energy Savings with Project Implementation*

| Total Energy Savings | |
|---|---|
| **Source of Energy** | **Energy Savings (kWH) for 1,020 AFY** |
| System Usage | 1,742,295 |
| Reduced Vehicle Miles | 25,638 |
| Hot Water | 23,617,816 |
| **Total:** | **25,385,749** |

*Please address the following questions according to the type of infrastructure improvement you are proposing for funding. See Appendix A: Benefit Quantification and Performance Measure Guidance for additional guidance on quantifying water savings.*

*(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.

*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.*

LBWD maintains numerous planning documents addressing water shortages and conservation alternatives, including:

- Urban Water Management Plan (State approved water conservation plan) http://www.lbwater.org/UWMP
- Water Surplus and Drought Management Plan (MWD) http://www.mwdh2o.com/PDF_About_Your_Water/2.4_Water_Supply_Drought_Management_Plan.pdf
- Water Shortage Contingency Plan: http://www.lbwater.org/ConservationShortagePlan.
- Utiliworks' AMI/MDM Assessment and Strategic Roadmap Report (May 2016): https://www.dropbox.com/s/r7xknrhc2enygzi/FINAL%20LBWater%20AMI%20Assessment%20160524.pdf?dl=0
- LBWD 2017-2018 Capital Improvement Program (CIP) http://www.lbwater.org/sites/default/files/files/FY%2018%20Budget%20Summary.pdf
- DWR California Single-Family Water Use Efficiency: https://www.irwd.com/images/pdf/save-water/CaSingleFamilyWaterUseEfficiencyStudyJune2011.pdf
- City of Long Beach Climate Resiliency Assessment Report
- http://www.aquariumofpacific.org/downloads/AOPs_2015_Report_on_Resiliency_(1-7-16).pdf

The above-mentioned planning documents all cite conservation as the simplest, most cost-effective way to remedy, or at least postpone, a myriad of resource management issues. This project is the beneficiary of more than 85 years of work LBWD has done to deliver precious water in the semi-arid southwest. The lack of local supplies and the difficulties associated with imported supplies have motivated LBWD to construct and operate one of the most efficient water delivery systems in California. The installation of smart meters furthers this effort. This proposed project conserves water through education, real time feedback to residential water users, and financial incentives.

*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).*

LBWD does not have distribution main meters as part of this project. The AMI meters will replace 89,750 active meter customer accounts, which include: 60,000 single-family homes, 14,800 duplexes, 96,900 apartment and condominium units, 1,100 dedicated landscape irrigation accounts, and 6,600 commercial, industrial, and government accounts. This project proposes to replace the 11,397 of the largest and most difficult to reach meters with LBWD's own forces.

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

The AMI radio endpoints installed will be the Sensus SmartPoint® 520M pit set module. The manufacturers and models for all other products has been selected through a competitive bid process.

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

Actual water savings will be verified upon project completion by comparing historical water usage data prior to implementation of the AMI system, with water usage data after implementation.

### 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.*

*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:*
*o 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.*

Southern California has experienced several significant droughts and water shortages since the 1970s, which has resulted in significant decreases in water usage. 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.

Given the challenges facing water utilities in California due to the drought, state regulations around conservation, LBWD has made conservation a priority in all of its operations. As noted above, the aggressive replacement of aging waterlines had reduced the water loss due to water main breaks minimal. According to the 2015 UWMP, the total reduction from 2007 through 2015 was an incredible 22%. While LBWD has experienced impressive success in its water conservation program, continuing this success at such high levels may prove difficult. This project will support water conservation efforts made by LBWF and ensure reliability during times of drought and help prepare for projected increases in water demands.

*Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?*

LBWD 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, LBWD wants to take advantage of the AMI technology for water leak detection to conserve water.

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

*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.*

LBWD obtains its potable water supply from two sources: imported water through the MWD, and groundwater from the Central Groundwater Basin, which underlies the northwestern portion of the City. MWD is a 26-member agency managing the water basins serving its members. LBWD like other members rely on the same basins to supply water to their customers. Therefore, every conservation step will not only help LBWD but it will benefit the whole region by offsetting groundwater pumping and it will help the state-wide initiative by lowering the import rate. Implementation of AMI allows LBWD to detect and address water leaks in the system in an efficient and timely manner to prevent water waste. It will also help conserve water by allowing customers and the City to monitor water usage consumption and alert customers if there is excessive usage.

*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. The conserved water will be used to supplement the ground water supply from the Central Groundwater Basin and reduce the need to purchase imported water.

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

LBWD estimates with implementation of the proposed project an annual average savings of about 1,367 acre-feet per year will be achieved because of this project.

*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 proposed project will benefit all the industries with largest water meters, commercial, apartment complexes by adopting the AMI technologies. Where currently the high bill reports only flag those that have meter readings equal to two times expected usage, owners will be able to follow their water usage patterns on hourly basis, making informed decisions on usage and conservation with the incentive of having lower bills. Reduction of water waste and the energy expended for its production will result in water and energy efficiency and benefit the environment.

*Will the project benefit 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 Long Beach but the region in general.

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

As mentioned above, LBWD was one of the first agencies to adopt the State and MWD's call for conservation and achieved impressive results. The goal for LBWD 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. LBWD's service area does not include any tribal lands.

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

Yes, all meters within the service area will be updated, including all economically disadvantaged communities within the service area. This project will support reliability of water supplies, which will minimize needs to increase water rates to all customers, including economically disadvantaged communities, when water shortages occur.

*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.

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

Yes, 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.

*Is there widespread support for the project?*

Yes, AMI technologies have proven to be an effective metering system for various cities. LBWD has utilized a strong campaign by introducing water conservation and its various elements such as this program through a water ambassador program and the Mission H2O campaign. LBWD has also received multiple letters of support that are listed in Appendix 4.

*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.

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

An integral part of the LBWD'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 LBWD can use to take action with greater intelligence and run more efficiently. Additionally, this increased efficiency will allow LBWD 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 is not planned to prevent any water-related crises or conflicts.

*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

NOT APPLICABLE

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

NOT APPLICABLE

### 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;*

This project is to leverage the AMI technologies to significantly improve he measurement and management of LBWD's resources that will bring direct benefit and value for its customers. Implementation of advanced smart meter technologies that provide water-consumption data in real time and allows for remote meter-reading from a central location through a radio-frequency based fixed communications network. This technology can help the City streamline water conservation and water supply management measures and adapt to changes in the environment.

*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 involve significant energy savings that can help meet environment and economic needs. The energy savings will be realized in all aspects of the operation including vehicle miles traveled, reduction in processing and distribution of water and less dependence on purchased imported water supplies and its conveyance.

*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* NOT APPLICABLE

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

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

*4. Striking a regulatory balance* NOT APPLICABLE

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

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

*5. Modernizing our infrastructure*

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

Implementation of AMI will modernize the LBWD's aging water infrastructure by replacing antiquated manual-read meters, as well as aging meter boxes and lids. This project embraces advanced smart meter technologies and, consequently, modernizes City procedures.

*b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs.* NOT APPLICABLE

*c. Prioritize DOI infrastructure needs to highlight: 1. Construction of infrastructure; 2. Cyclical maintenance; 3. Deferred maintenance*.

This AMI project highlights construction of infrastructure by replacing aging, manual read meters with advanced smart meters. The new advanced meters will decrease cyclical maintenance requirements by automating and updating the metering system so that water leaks and system discrepancies can be identified and addressed immediately. This project will also defer annual meter replacement and meter maintenance spending for faulty meters by installing new AMI ready meters with long-term warranties.

### E.1.6. Evaluation Criterion F — Implementation and Results

#### *E.1.6.1. Subcriterion F.1 — Project Planning*

*Points may be awarded for proposals with planning efforts that provide support for the proposed project. Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Please self-certify, or provide copies of these plans where appropriate, to verify that such a plan is in place. Provide the following information regarding project planning:*

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

LBWD maintains numerous planning documents addressing water shortages, water management strategies, and water conservation goals, including the following:

- 2015 Urban Water Management Plan (UWMP)
- AMI/MDM Assessment and Strategic Roadmap Report (May 24, 2016)
- Drought Contingency Plan
- Los Angeles Gateway Integrated Regional Water Management Plan
- Water Conservation and Water Supply Shortage Plan
- LBWD 2017-2018 Capital Improvement Program (CIP)
- City of Long Beach Climate Resiliency Assessment Report

*(2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).*
LBWD's robust 2017-2018 Capital Improvement Program and 2015 Urban Water Management Plan (UWMP) are designed to address current and future water conservation goals. The City of Long Beach Board of Water Commissioners has adopted values to support the LBWD mission, including support of water conservation activities and effective communication within LBWD and the community at large. This project will support these values through its interactive web portal which provides City generated information to customers, facilitates communication and water conservation actions between the City and customers, and creates potential for education on water conservation. In addition, according to the AMI/MDM Assessment and Strategic Roadmap Report, UtiliWorks has 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 Long Beach 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*

*Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project. 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). For more information calculating performance measure, see Appendix A: Benefit Quantification and Performance Measure Guidance.*

*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).*

LBWD proposes to use the following performance measures to quantify the benefits of the AMI system upon completion of the project:

Performance Measure No. 1: Quantifiable Water Savings

LBWD is required to conduct a water audit and produce an annual report. These reports will serve as the baseline for quantifying water savings. Detailed records of system improvements will be documented in a Project file. These records will be analyzed routinely with a summary analysis entered as a component of future water audit reports. A Final Project Implementation Report will be submitted to Reclamation to verify post-Project benefits. The post-project benefit objective for Performance Measure No. 1. is 3,796 acre-feet of potable water saved annually through implementation of the project, consisting of the installation of 89,750 AMI meters or 1,367 acre-feet of potable water saved after completion of installation for the meters in this project.

Performance Measure No. 2: Improved Water Management

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

Performance Measure No. 3: Implementing Energy Efficiency in Water Management

The Final Project Implementation Report will contain a section entitled Increased Energy Efficiency in Water Management. This will be achieved by comparison of billing from pre-project installation for water production and distribution cost due to reduction in demand. Other energy savings such as those in cost of vehicle usage and fuel costs will also be calculated.

### *E.1.6.3. Subcriterion F.3— Readiness to Proceed*

*Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement. 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 LBWD's proposed project is ready for implementation.** Upon grant approval, LBWD will place the order to receive the required equipment and start the installation of the project. As described above, LBWD has completed the AMI study and has identified a vendor to provide all the required equipment. LBWD also has a Consultant Project Manager that will be overseeing the implementation of the overall AMI project and is ready to start on installation of the proposed large and hard to reach meters.

LBWD will using temporary meter installers for the project who have a working relationship with the agency and therefore there will be no learning curve and the operation will be efficiently managed by the in-house LBWD supervisors. LBWD estimates a maximum of one year to complete this project.

The estimated project schedule is provided below in Table 1.

*Table 3: LBWD Estimated AMI Project Schedule*

| Estimated AMI Project Schedule | | |
|---|---|---|
| Phase | Phase Start | Phase Finish |
| Application Review | March 19, 2019 | July 1, 2019 |
| Equipment order and delivery | July 1, 2019 | September 30, 2019 |
| Project Implementation | October 1, 2019 | July 1, 2020 |

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

LBWD has completed the CEQA process and no other permits or approvals are anticipated to be required in order to implement the Project.

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

All preliminary and assessment work for this project has been completed. LBWD retained Utiliworks who prepared a strategic roadmap for the AMI implementation. The Project Manager to oversee this project has been retained and is ready for the implementation of the large and hard to access meters. LBWD has also identified the AMI system and the required equipment and will be able to place the order for the equipment immediately upon getting the notice of award.

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

LBWD board members are fully supportive of this project and there are no administrative actions or new policies required.

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

CEQA process for this project has been completed and the Notice of Exemption is included in Appendix 3.

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

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

*Does the applicant receive Reclamation project water?*

Reclamation's WaterSMART Program focuses in part on the uses of technology to balance future water supply and demand needs throughout California and the western United States. The proposed Project demonstrates the opportunities for significant water and energy conservation through remote sensing, state-of-the-art software, and systems integration. Water conserved is directly related to the CALFED Bay-Delta Program which is a major ongoing Reclamation activity. LBWD has and continues to have a close working relationship with the Lower Colorado Regional and Southern California offices.

*Is the project on Reclamation project lands or involving Reclamation facilities?*

The Project focuses on municipal water delivery and distribution and does not directly involve Reclamation project lands or facilities.

*Is the project in the same basin as a Reclamation project or activity?*

There are numerous Reclamation projects and activities in the Central and West Coast Basins including the ongoing Basin Study, a collaborative effort by Reclamation and the Water Replenishment District and the development of the GRIP project by WRD (of which LBWD is a member agency), as a large part of the potable water supply is based on groundwater management.

*Will the proposed work contribute water to a basin where a Reclamation project is located?*

LBWD receives water from the Colorado River Aqueduct. The project will contribute 3,756 acre-feet of water per year to the Colorado River Aqueduct.

*Will the project benefit any tribe(s)?*

The project will not help Reclamation meet trust responsibilities to 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 4: Percentage of Non-Federal Funding*

| Percentage of Non-Federal Funding | | |
|---|---|---|
| **Non-Federal Funding Amount** | **Total Project Cost** | **Non-Federal Funding Percent** |
| $3,367,570 | $4,867,570 | 69.18% |

# SECTION 2: PROJECT BUDGET

## *Standard Form 424 Budget Information C*

Submitted separately with all other relevant SF-424 forms.

## *A. Funding Plan and Letters of Commitment*

The total project cost is estimated at $4,867,570. The WaterSMART Grant Funding Group II request is for $1,500,000. LBWD has authorized financing for the remaining $3,867,570 needed to complete this project.

LBWD will finance all Project costs not funded by Reclamation. The funding plan anticipates that WaterSMART Grant funds will be used to purchase equipment as outlined below in Table 5's Summary of Proposed Budget. The majority of LBWD's commitment to funding is through labor to install approximately 11,397 pieces of equipment as well as the purchasing of the remaining materials and supplies.

Non-Reclamation funding will be provided solely by LBWD and therefore letters of commitment from third parties are not required.

### Project Costs

(1) It is the intention of LBWD to fund the deployment of AMI for all 89,750 meters throughout the service area, including the 11,397 meters for this project, through debt financing. The annual debt service will be paid for through the LBWD Water and Sewer enterprise funds, which are supported through rate revenue. This project is included in the LBWD budget.
(2) No costs incurred before the anticipated project start date are included in the project budget.
(3) There are no funding partners associated with the proposed project.
(4) There are no funding requests from other Federal partners. All local funds will come from rate payers. No other Federal or State funds will be used.
(5) LBWD has numerous funding requests working at various levels. Those requests are independent of the proposed project and will not affect or influence Reclamation's commitment to this Project should it receive funding.

*Table 5: Summary of Non-Federal and Federal Funding Sources*

| Summary of Non-Federal and Federal Funding Sources | |
|---|---|
| **Funding Sources** | **Funding Amount** |
| Non-Federal Entities | |
| 1. Long Beach Water Department | $3,367,570 |
| *Non-Federal Subtotal:* | $3,367,570 |
| | $0 |
| Other Federal Entities | $0 |
| 1. None | $0 |
| *Other Federal Subtotal:* | $0 |
| | |
| *Requested Reclamation Funding:* | $1,500,000 |
| | |
| ***Total Project Funding:*** | **$4,867,570** |

## *B. Budget Proposal*

*Table 6: Percentage of Cost by Funding Source*

| Funding Sources | | |
|---|---|---|
| **Funding sources** | **Percent of total project cost** | **Total cost by source** |
| Recipient funding | 69.18% | $ 3,367,570 |
| Reclamation funding | 30.82% | $ 1,500,000 |
| Other Federal funding | 0.00% | $ 0 |
| **Totals** | **100.00%** | **$ 4,867,570** |

### Budget Proposal

*Table 7: Summary of Proposed Budget*

| Budget Proposal Summary | | | | |
|---|---|---|---|---|
| | Computation | | | |
| **Budget and Item Description** | **$/Unit** | **Quantity** | **Unit** | **Total Cost** |
| **Salaries and Wages** | | | | **$575,185** |
| Meter Installer - Temporary | $26.03 | 22,097 | hour | $575,185 |
| **Fringe Benefits** | | | | **$189,811** |
| Meter Installers - Temporary | $8.59 | 22,097 | hour | $189,811 |
| **Travel** | | | | $0 |
| None | $0 | | | $0 |
| **Equipment** | | | | **$4,077,995** |
| Registers for Meters | $50 | 1358 | each | $67,900 |
| AMI Meter Replacements | $192.44 | 10,130 | each | $1,949,465 |
| AMI Meter Box Replacements | $100 | 6,970 | each | $697,000 |
| Lid Replacements | $48.28 | 10,539 | each | $508,855 |
| End points | $75 | 11,397 | each | $854,775 |
| **Supplies and Materials** | | | | $0 |
| None | $0 | | | $0 |
| **Contractual/Construction** | | | | $0 |
| None | $0 | | | $0 |
| **Environmental and Regulatory Compliance** | | | | $0 |
| Notice of Exemption | $0 | | | $0 |
| **Other Costs** | | | | $0 |
| None | $0 | | | $0 |
| **Total Direct Costs** | | | | **$4,842,991** |
| **Indirect Costs** | | | | |
| Dean Wang - Project Manager for LBWD | $39.39 | 624 | hour | $24,579 |
| **Total Indirect Costs** | | | | |
| **Total Project Costs** | | | | **$4,867,570** |

## *C. Budget Narrative*

### Salaries and Wages

Key personnel are listed in Table 8, and they are anticipated to be temporary employees. The salaries for these employees are not anticipated to be escalated it will

be established within the contract with the temporary employees that the set hourly rate shown below is for the duration of the project.

*Table 8: Key Personnel — March 2019 through April 2021*

| Job Description | Status | Salary (annual) | Hourly Rate | Hours Budgeted | Percent of Time |
|---|---|---|---|---|---|
| Meter Installer | Temporary Employee | $54,142 | $26.03 | 2080 | 100 |
| Meter Installer | Temporary Employee | $54,142 | $26.03 | 2080 | 100 |
| Meter Installer | Temporary Employee | $54,142 | $26.03 | 2080 | 100 |
| Meter Installer | Temporary Employee | $54,142 | $26.03 | 2080 | 100 |
| Meter Installer | Temporary Employee | $54,142 | $26.03 | 2080 | 100 |

### Fringe Benefits

Fringe Benefits are included in Table 7's Summary of Proposed Budget.

### Travel

Travel is not included in the budget proposal

### Equipment

Registers for retrofits, AMI meters to be replaced, meter boxes to be replaced, lid replacements and endpoints are included in this item. The cost estimate for materials and supplies is based on quotes provided to LBWD from the independent contractor providing the equipment but not installing the equipment.

### Supplies and Materials

Materials and supplies are not included in the budget proposal.

### Contractual/Construction

While LBWD is hiring an independent Project Management consultant to run the AMI program, these contractual services for this consultant are not included in the budget proposal as the efforts will begin before the potential award of the contract.

### Environmental and Regulatory Compliance Costs

The project is categorically exempt from the provisions of CEQA. A Notice of Exemption has been filed with the County of Los Angeles. These costs are considered minimal and therefore not included in the budget.

### Reporting

LBWD is hiring an independent Project Management consultant (to run the AMI program) who will provide regular reports to the LBWD Project Manager. These services by the consultant are not included in the budget proposal, as the efforts will begin before the potential award of the contract. LBWD Project Manager will be reporting to LBWD upper and executive management, as well as completing the reports required by Reclamation.

### Other Expenses

There are no other expenses.

### Indirect Costs

These costs are included in Table 7, the Budget Proposal summary.

### Total Costs

The total cost of the project is included in Table 7, 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 must respond to the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:*

The project has been evaluated for both CEQA and NEPA compliance and it has been determined that the project is a Notice of Exemption for CEQA. A Notice of Exemption, attached as Appendix 3, has been filed for this project as it falls under the categorical exemptions identified by the State Resources Agency as defined in the CEQA Guidelines (14 CCR Section 15300-15331). It has been determined that the project may have a significant effect on the environment. For CEQA we refer to Article 6. Negative Declaration Process of Sections 15070 to 15075 (Title 14. California Code of Regulations Chapter 3. Guidelines for Implementation of the California Environmental Quality Act):

"A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when: (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or; (b) The initial study identifies potentially significant effects, but: (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and; (2) 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."

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

The project is not expected to involve earth-disturbing work or otherwise affect the surrounding environment as there will not be any excavation, only replacement of existing meters and meter vault covers.

*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?*

There are no known species listed as a Federal threatened or endangered species 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.*

Yes, within the LBWD service area, there are two wetlands (Dominguez Gap Wetlands, Los Cerritos Wetlands), as well as two surface water bodies that flow through portions of the City (Los Angeles River, San Gabriel River). However, this project only involves meter replacement and **will not** have any impacts on wetlands or surface water bodies. In fact, this project will allow the City to detect system leaks and monitor water consumption data, which can then be used to support water quality efforts.

*When was the water delivery system constructed?*

The LBWD was founded in 1911 and incorporated as a MWD member agency since 1931. LBWD has been diligently upgrading potable water infrastructure in order to provide safe and reliable potable water to LBWD's customers.

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

The proposed project will not result in any modification of individual features of an irrigation system such as headgates, canals, or flumes. Only residential and business customer water meters fall within the service area, and the project will replace those meters with AMI and smart meter technologies.

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

There are no buildings, structures, or features in the proposed project area that are listed or eligible for listing on the National Register of Historic Places within this project area.

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

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. In fact, the proposed project will have a highly positive effect on all residents of the City of Long Beach and its surrounding areas including low income, disadvantaged and minority populations. The project will aid in water conservation measures and thereby decrease dependence on water imported from the State Water Project (SWP) and Colorado Aqueduct at a cost higher than local sourcing. This strategy can help limit water rate increases during shortages.

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

No, the project will not have any impacts on sacred sites or tribal lands as there are not sacred sites or tribal lands within the City of Long Beach.

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

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

# SECTION 4: REQUIRED PERMITS OR APPROVALS

LBWD staff will coordinate with the City of Long Beach staff (i.e. Department of Public Works) but no permits or approvals 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 4.

# SECTION 6: OFFICIAL RESOLUTION

The Long Beach Water Department (LBWD) has scheduled the following draft Resolution for approval on 3/21/2019. The LBWD will submit the required, adopted Resolution to the Bureau of Reclamation within the specified timeframe.

DRAFT

*RESOLUTION NO. 2019 - __*

*A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH APPROVING THE APPLICATION FOR GRANT FUNDS FROM THE BUREAU OF RECLAMATION WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS FOR FISCAL YEAR 2019*

*WHEREAS, the United States Department of the Interior has provided funds for the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2019 program; and*

*WHEREAS, the Board of Water Commissioners of the City of Long Beach desires to submit an application for grant funds from said program; and*

*WHEREAS, the Bureau of Reclamation has been delegated the responsibility for the administration of this grant program and establishing necessary procedures; and*

*WHEREAS, said procedures established by the Bureau of Reclamation require the applicant to certify by resolution the identity of the official with legal authority to enter into an agreement; that the appropriate official or governing body has reviewed and supports the application submitted; the capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the application funding plan; and that the applicant will work with the Bureau of Reclamation to meet established deadlines or entering into a cooperative agreement; and*

*WHEREAS, the applicant will enter into a cooperative agreement or grant agreement with the Bureau of Reclamation to complete the project(s) if awarded grant funds.*

*NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH HEREBY:*

*1. Appoints the General Manager, or his designee, to act as agent with legal authority to enter into the grant agreement, conduct all negotiations, execute and submit all documents*

*including, but not limited to, applications, agreements, payment requests and any other grant required correspondence which may be necessary for the completion of the grant program; and*

*2. Certifies that the Board of Water Commissioners of the City of Long Beach has reviewed and supports the proposed application; and*

*3. Certifies that the City of Long Beach has sufficient funds available to provide the amount of funding specified in the funding plan as matching funds/in-kind contributions; and*

*4. Certifies that the City of Long Beach will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.*

*Introduced, approved, and adopted this 21st day of March 2019.*

*The Secretary of the Board of Water Commissioners shall certify to the passage of this Resolution and cause a copy of the Resolution to be published pursuant to Government Code Section 6061. This Resolution shall take into effect thirty (30) days after the Secretary's certification.*

*I hereby certify that this Resolution was adopted by the Board of Water Commissioner of the City of Long Beach at its meeting on _____, 2019 by the following vote:*

*Ayes: Commissioners:* _____

_____

*Noes: Commissioners:* _____

_____

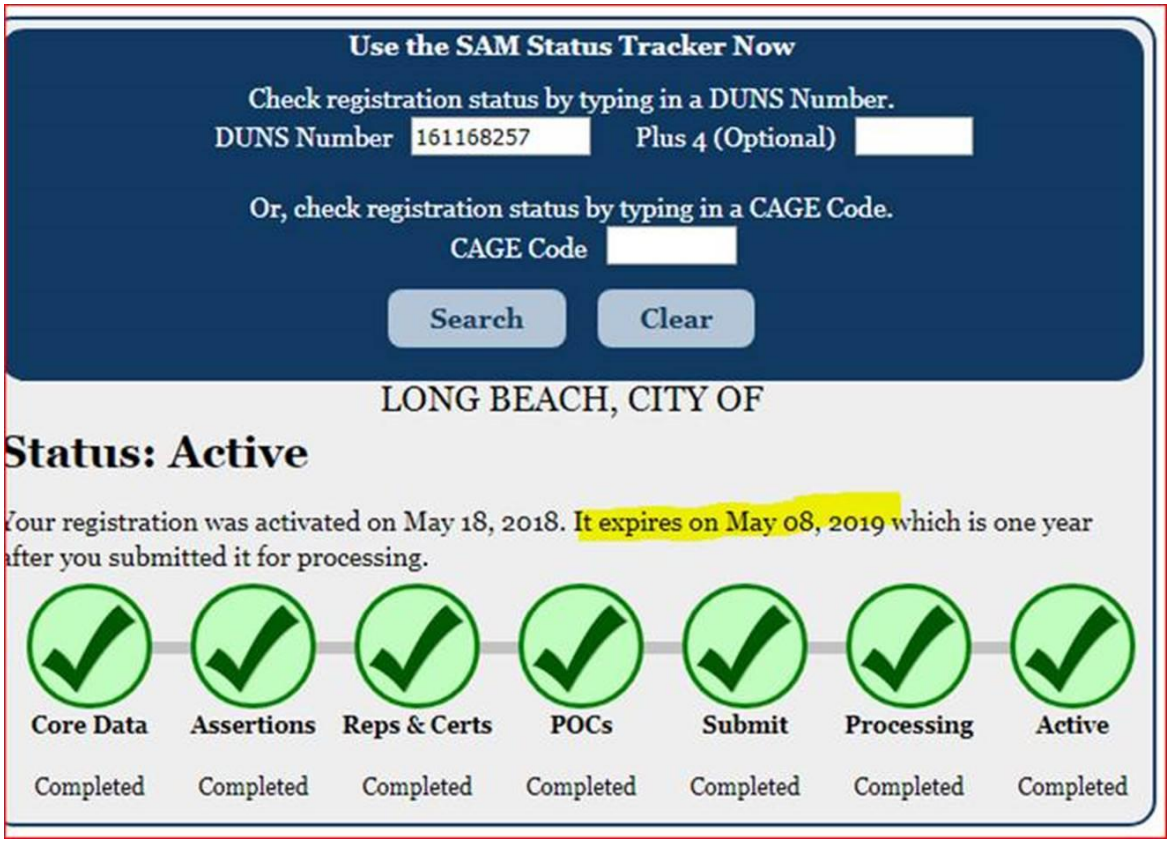
*Absent: Commissioners:* _____

_____

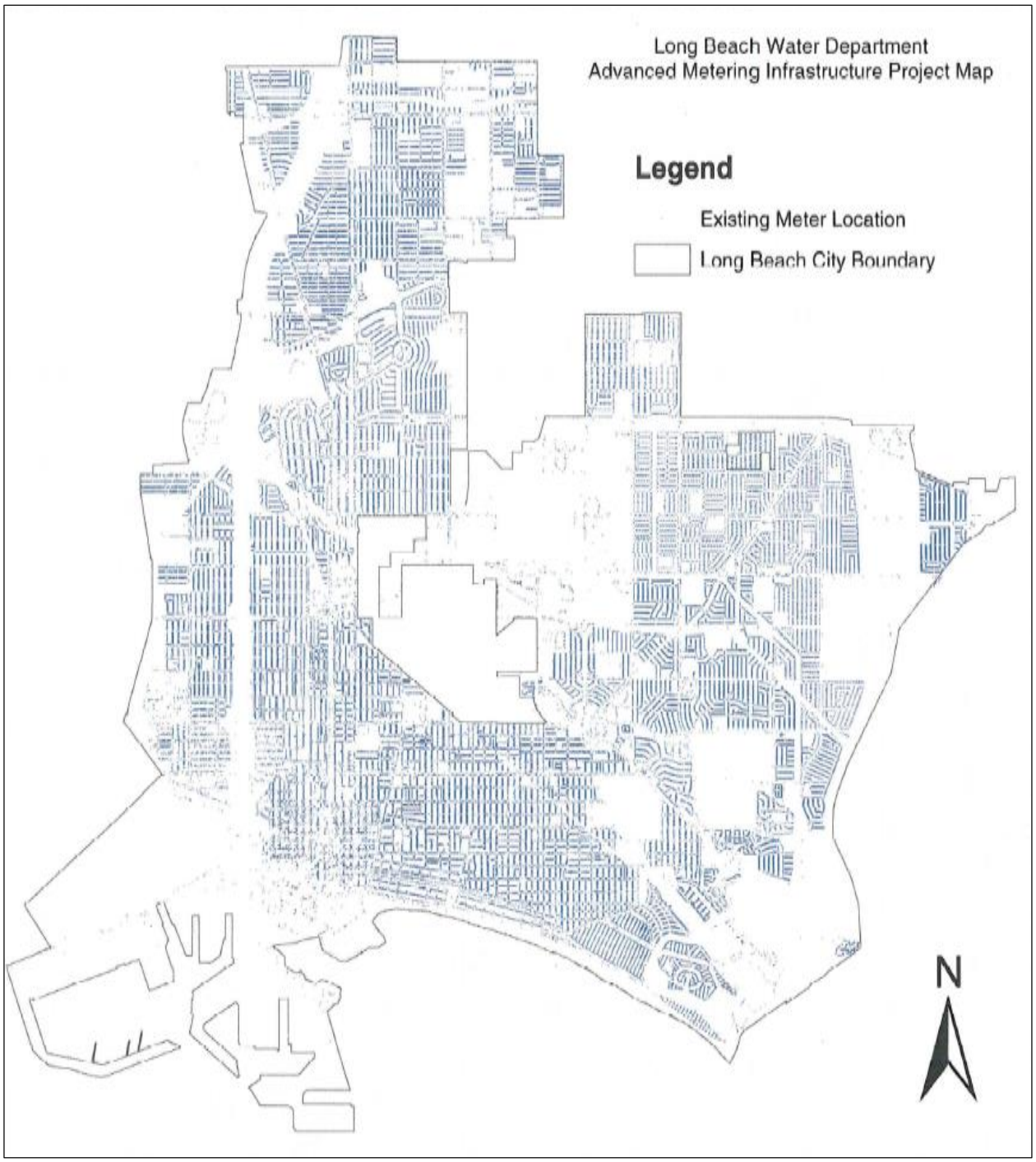
*Secretary*
*Board of Water Commissioners*

# APPENDIX 1: PROOF OF SAM REGISTRATION

The Long Beach Water Department is an agency of the City of Long Beach. LBWD will renew SAM registration in May 2019 after the submission date for this grant application package.



# APPENDIX 2: MAP OF PROJECT AREA



# APPENDIX 3: NOTICE OF EXEMPTION FOR CEQA

## NOTICE of EXEMPTION from CEQA

DEPARTMENT OF DEVELOPMENT SERVICES
333 W. OCEAN BLVD., 5TH FLOOR, LONG BEACH, CA 90802
(562) 570-6194 FAX: (562) 570-6068
lbds.longbeach.gov

**TO:** ☐ Office of Planning & Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

**FROM:** Department of Development Services
333 W. Ocean Blvd, 5th Floor
Long Beach, CA 90802

☒ L.A. County Clerk
Environmental Fillings
12400 E. Imperial Hwy. 2nd Floor, Room ~~2001~~ 1201
Norwalk, CA 90650

2017 108537
FILED
Apr 28 2017
Dean C. Logan, Registrar – Recorder/County Clerk
Electronically signed by SHERON SMITH

Categorical Exemption CE- 17-102

Project Location/Address: Multiple locations throughout Long Beach

Project/Activity Description: Replacement of existing water meters with meters that have advanced reading technology capabilities.

Public Agency Approving Project: **City of Long Beach, Los Angeles County, California**

Applicant Name: Long Beach Water Department

Mailing Address: 1800 E. Wardlow Rd, Long Beach, CA 90807

Phone Number: 562-570-2311 Applicant Signature: B. [signature]

BELOW THIS LINE FOR STAFF USE ONLY

Application Number: _____ Planner's Initials: _____

Required Permits: _____

THE ABOVE PROJECT HAS BEEN FOUND TO BE EXEMPT FROM CEQA IN ACCORDANCE WITH STATE GUIDELINES SECTION 15302, Class 2, Replacement or Reconstruction

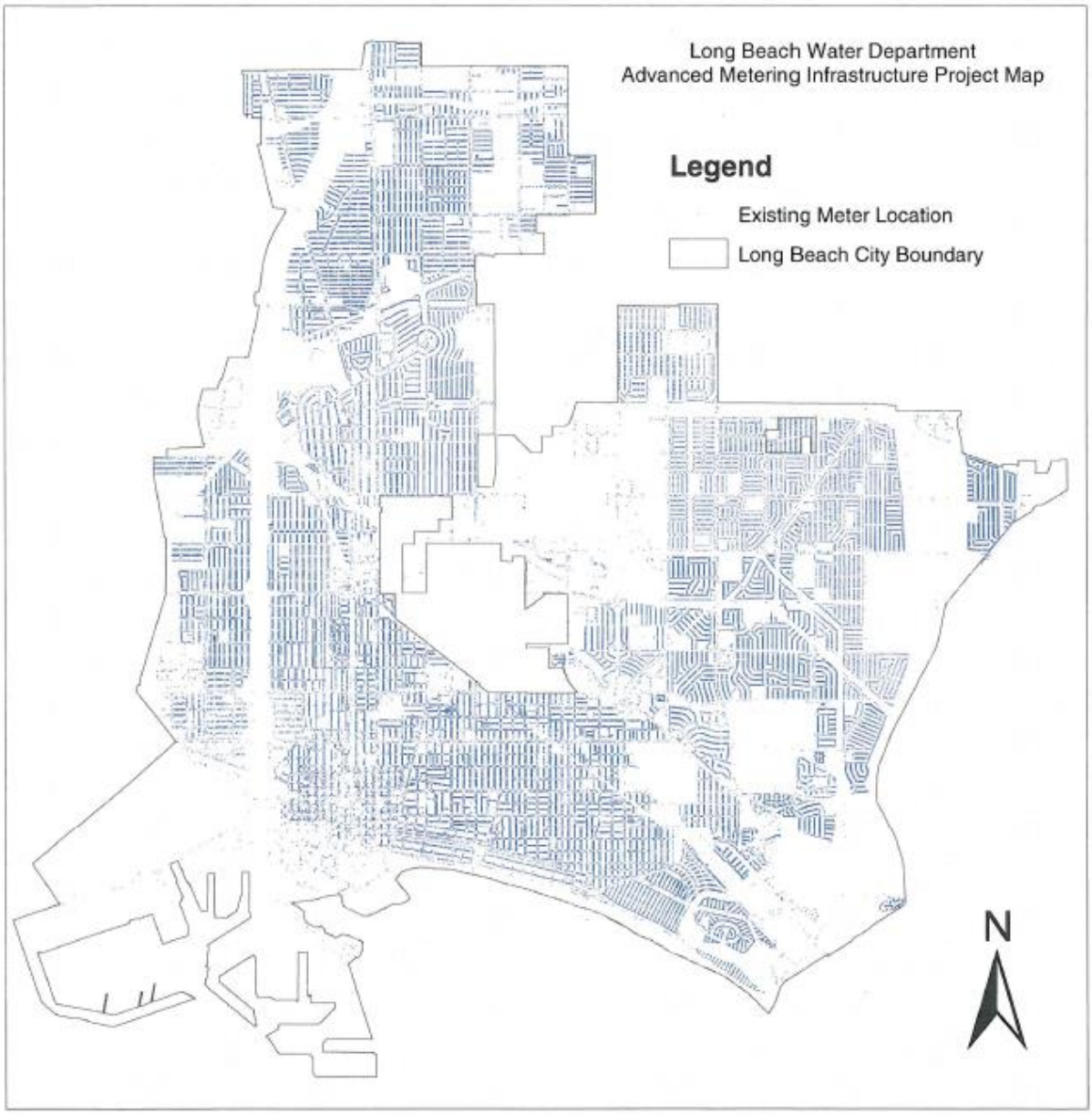
Statement of support for this finding: Replacement of existing water meters

Contact Person: Craig Chalfant Contact Phone: 562-570-6365

Signature: [signature] Date: 4/17/17

THIS NOTICE WAS POSTED
ON April 28 2017
UNTIL May 30 2017
REGISTRAR – RECORDER/COUNTY CLERK

2017 108537
FILED
Apr 28 2017



# APPENDIX 4: LETTERS OF SUPPORT

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

*Office of the General Manager*

March 18, 2019

Mr. Darren Olson
Financial Assistance Support Section
U.S. Department of the Interior
Bureau of Reclamation
P.O. Box 25007, MS 84-27814
Denver, Colorado 80225

Letter of Support for Long Beach Water Department Advanced Metering Infrastructure Project

Dear Mr. Olson:

The Metropolitan Water District of Southern California supports the Long Beach Water Department (LBWD) 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 LBWD's application to secure the Bureau of Reclamation WaterSMART Water and Energy Efficiency Program funding.

By implementing AMI technology, LBWD will be at the forefront of water management to conserve the region's water resources. The AMI Project will provide LBWD 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.

Long Beach is one of Metropolitan's 26 public member agencies that together serve 19 million people. LBWD is widely recognized as a leader in conservation and has a successful history of using technology and outreach to lower per capita water use within the seventh most populated city in California. Through regular collaboration among our member agencies, the implementation strategies, and knowledge that LBWD gains from this project will be shared across a region with over 300 retail water agencies.

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Mr. Darren Olson
Page 2
March 18, 2019

Metropolitan and its 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 appreciate your thorough review of LBWD's proposal and the local and regional benefits it offers.

Sincerely,

William P. McDonnell
Manager, Water Efficiency Team

KR:rh

CALIFORNIA STATE UNIVERSITY, LONG BEACH

PHYSICAL PLANNING & FACILITIES MANAGEMENT

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

March 13, 2019

On behalf of the department of Physical Planning & Facilities Management at California State University, Long Beach (CSULB), I am writing to express support and to request your support for the Long Beach Water Department (LBWD) application to secure Bureau of Reclamation WaterSMART Water and Energy Efficiency Program funding to install an Advanced Metering Infrastructure (AMI) Project.

By implementing AMI technology, LBWD will create "smart" water saving solutions through technological advancement that conserves the region's precious water resources. The AMI Project will provide LBWD 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.

CSULB recognizes the importance of Southern California water retail agencies, such as LBWD, continuing to strive for more efficiency with water supplies. This project will help position LBWD to create a regional model of deploying technological advancements in water management practices that translates into real water and energy savings.

Long Beach is the seventh most populated city in California, and the 39th most populous in the nation, and LBWD has served the nearly half a million residents and businesses for over a century. Long Beach is home to the second busiest port in the nation, a thriving downtown with a dynamic cultural scene, multiple tourist attractions, an award-winning parks department, a local unified school district with 84 schools, both a two-campus city college and a state university distributed through 60 diverse residential neighborhoods and 17 historic districts over 52 square miles on the Southern California coast. Long Beach is young, vibrant and diverse, with a median age of 33 years old and 25 percent of our residents under the age of 18. Both our regional and city-wide economic growth and stability relies on continued wise stewardship of our resources, particularly water.

LBWD is an important partner to the university, and has worked collaboratively to advance water conservation and efficiency goals and engage with our campus community in a variety of meaningful and constructive ways. We are happy to have this opportunity to provide this letter of support and thank you for your kind consideration of this request for support of the LBWD application for WaterSMART Water and Energy Efficiency Program Funding to help conserve resources in Southern California.

Sincerely,

Tony Malagrino

1250 BELLFLOWER BOULEVARD - MS 5701 - LONG BEACH, CALIFORNIA 90840 -5701 - 562 / 98 5-4357 - FAX 562/985-8723

# MAYOR ROBERT GARCIA
CITY OF LONG BEACH

March 6, 2019

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Dear Mr. Olson,

On behalf of the City of Long Beach, I am pleased to support the Long Beach Water Department's (LBWD) application to secure Bureau of Reclamation WaterSMART Water and Energy Efficiency Program funding to install an Advanced Metering Infrastructure (AMI) Project.

Long Beach is the seventh most populated city in California, and the 39th most populous in the nation, and LBWD has served the nearly half a million residents and businesses for over a century. Long Beach is home to the second busiest port in the nation, a thriving downtown with a dynamic cultural scene, multiple tourist attractions, an award-winning parks department, a local unified school district with 84 schools, and both a two-campus city college and a state university—all distributed through 60 diverse residential neighborhoods and 17 historic districts over 52 square miles on the Southern California coast. Our regional and citywide economic growth and stability rely on continued wise stewardship of our resources, particularly water.

That is why LBWD's application to the WaterSMART Water and Energy Efficiency Program is so critical for our community. By implementing AMI technology, LBWD will create smart, water-saving solutions through technological advancement that conserves the region's precious water resources. The AMI Project will provide LBWD with near real-time water consumption data and improved water management tools to better manage the water system. It 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 Long Beach recognizes the importance of Southern California water retail agencies such as LBWD, which continue to strive for more efficiency with water supplies. This project will help position LBWD to create a regional model of deploying technological advancements in water management practices that translates into real water and energy savings.

If you have any questions about my support, please do not hesitate to contact my office.

Sincerely,

Mayor Robert Garcia
City of Long Beach

562.570.6801 | mayor@longbeach.gov | @LongBeachMayor
333 West Ocean Blvd., Long Beach, California 90802

RESOLUTION NO. WD-1408

A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH APPROVING THE APPLICATION FOR GRANT FUNDS FROM THE BUREAU OF RECLAMATION THROUGH WATERSMART: WATER AND ENERGY EFFICIENCY GRANT FOR AN ADVANCED METERING INFRASTRUCTURE PROJECT

WHEREAS, the United States Department of the Interior provides financial assistance through WaterSMART: Water and Efficiency Grants for entities to undertake projects that result in quantifiable and sustained water savings and support broader water reliability benefits; and

WHEREAS, the Board of Water Commissioners of the City of Long Beach desires to submit an application for grant funds from said program; and

WHEREAS, the Bureau of Reclamation has been delegated the responsibility for the administration of this grant program and establishing necessary procedures; and

WHEREAS, said procedures established by the Bureau of Reclamation require the applicant to certify by resolution the identity of the official with legal authority to enter into an agreement; that the appropriate official or governing body has reviewed and supports the application submitted; the capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the application funding plan; and that the applicant will work with the Bureau of Reclamation to meet established deadlines for entering into a grant or cooperative agreement; and

WHEREAS, the applicant will enter into a cooperative agreement or grant agreement with the Bureau of Reclamation to complete the project(s) if awarded grant

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

funds;

NOW, THEREFORE, the Board of Water Commissioners of the City of Long Beach resolves as follows:

Section 1. The Board of Water Commissioners of the City of Long Beach appoints the General Manager, or his designee, to act as agent with legal authority to enter into the grant or cooperative agreement, conduct all negotiations, execute and submit all documents for the Advanced Metering Infrastructure Project including, but not limited to, applications, agreements, payment requests and any other grant required correspondence which may be necessary for the completion of the grant program.

Section 2. Certifies that the Board of Water Commissioners of the City of Long Beach has reviewed and supports the proposed application.

Section 3. Certifies that the City of Long Beach has sufficient funds available to provide the amount of funding specified in the funding plan as matching funds/in-kind contributions.

Section 4. Certifies that the City of Long Beach will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

Section 5. This Resolution shall take effect immediately upon its adoption by the Board, and the Secretary to the Board shall certify the vote adopting this Resolution.

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OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

I hereby certify that this Resolution was adopted by the Board of Water Commissioners of the City of Long Beach at its meeting on March 21, 2019 by the following vote:

Ayes: Commissioners: MARTINEZ; LEVINE; CORDERO

Noes: Commissioners: NONE

Absent: Commissioners: SALTZGAVER; SHANNON

Secretary
Board of Water Commissioners

CERTIFIED AS A TRUE AND CORRECT COPY
EXECUTIVE ASSISTANT TO THE BOARD OF WATER COMMISSIONERS
CITY OF LONG BEACH, CALIFORNIA
BY: _____
DATE: 3/21/2019

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664