

## **City of Coachella Advance Metering Infrastructure (AMI)**

**Provide a brief, informative, and descriptive title for the proposed work that indicates the nature of the project.**

The City of Coachella (City) was incorporated on November 26, 1946 and encompasses approximately 32 square miles in Riverside County, more specifically the Eastern Coachella Valley. Shortly after incorporation, in the summer of 1951, low water pressure in the area prevented local businesses from operating efficiently, thereby causing the formation of the City's Water Department. In 1954, the City passed a bond to purchase and consolidate three private water companies: Abdelnous Water Company, Coachella Water Works, and Highway Water Company. The City Water Department was established in 1957, which is administered and managed by the Utilities General Manager for Coachella Water Authority (CWA) under direct supervision of the City Manager.

With the promulgation of the new maximum contaminant level (MCL) for chromium-6 in the State of California, Coachella Water Authority is going from no treatment of its groundwater to full treatment at all five of the wells. The total cost of the system is estimated at \$35 million, which will increase in rates significantly (around 100-120%). The project will allow customers to proactively manage their accounts either by computer or mobile device. The project will allow Coachella Water Authority to start rolling out the AMI register to customers as old registers are replaced.

The primary purpose is to engage customers on water use, conservation, and increase efficiency.

### **Project Summary**

The Coachella Advance Meter Infrastructure project will install the necessary hardware for implementing the Automated Metering Infrastructure (AMI) for Coachella Water Authority. The work will consist of installation of three base stations and associated hardware to make the system fully functional. Additional costs will be covered by the Coachella Water Authority as defined below in subsequent sections of this grant.

### **Project Manager**

Scott L. Rogers, P.E.  
Utilities General Manager  
City of Coachella  
53462 Enterprise Way Coachella, CA 92236  
Phone 760.501.8112  
Fax 442.400.5770

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## **Executive Summary**

April 27, 2017

City of Coachella

53462 Enterprise Way, Coachella, CA 92236

### **Summary:**

The project will consist of installing the three base stations need to start collecting data from the AMI registers. The base stations receive data from registers on the water meters and repeater station. The data received by the base stations are then transmitted through a cellular connection to the cloud. The data is then populated into the billing system available to customers and customer service representatives.

It is estimated that the project will take six months to complete upon receiving the grant funding.

The total cost of three base stations is \$150,000.

This project is not located in a federal facility.

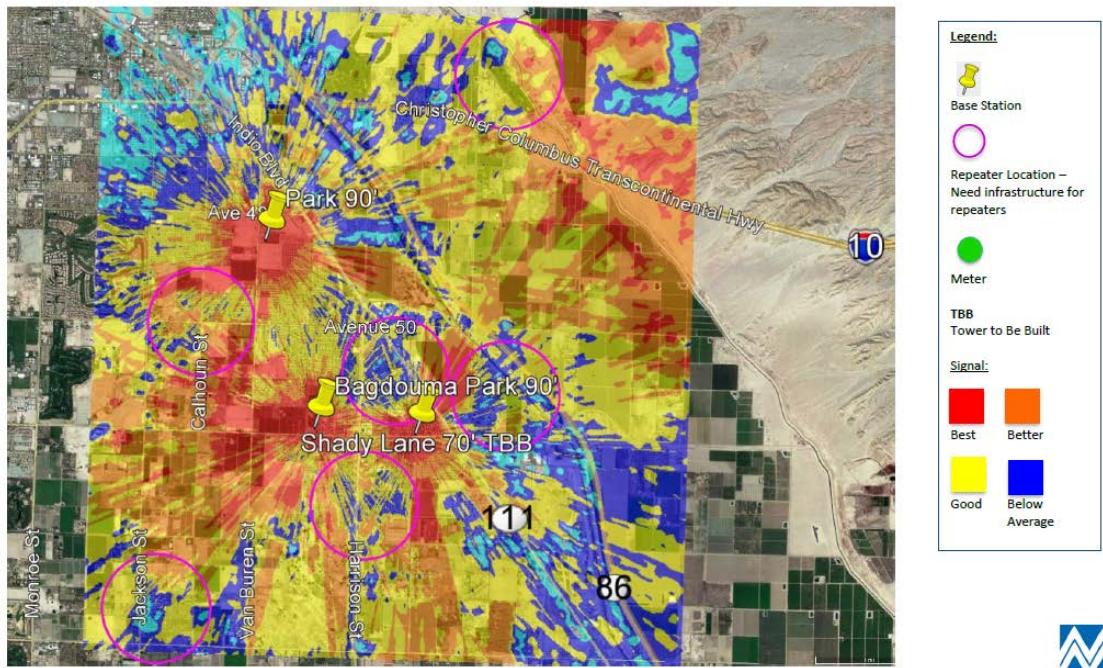
### ***Background Data***

On June 9, 2016, utility staff met with Master Meter and HD Supply to review the capabilities of AMI and determine the costs associated with the full deployment of an AMI system. The first step in the process is to determine the necessary infrastructure of an AMI system to collect the data from the radio registers of the meter. Master Meter performed the propagation study based on the existing location of City of Coachella's facilities located in Riverside County, and was completed on August 29, 2016.

Figure 1 - Propagation Study Result



Coachella Water Authority – Coachella, CA



\*Utility to confirm meter service locations. Propagation study based on addresses provided by city/utility and geocoded by Master Meter.  
\*\*Propagation Study/Quote uses existing towers/tanks/infrastructure. If at time of installation infrastructure no longer exists, utility needs to pay an additional fee for tower installation.

Master Meter, Inc. | 101 Regency Pkwy, Mansfield, Texas 76063 | T 817.842.8000 | F 817.842.8100 | www.mastermeter.com

1.00 x 8.50 in

Coachella Water Authority operates and maintains the City's water system. The source of supply for the City is from five groundwater wells that pump from the Indio Sub-basin as identified in California Department of Water Resources Bulletin No. 118. All water that is pumped for municipal, domestic and industrial users.

The City is responsible for the water service for its residents. The water department serves a population of a little over 45,000 and a service area size of approximately 53 square miles. As of October 2016, there were 8,154 connections to the system. In the next nine years, the City's population is estimated to double to over 92,000 people by 2025. In Table 1, is the total demand for the City by 2035 at nearly 32,000 acre-feet.

Table 1- Water Demands

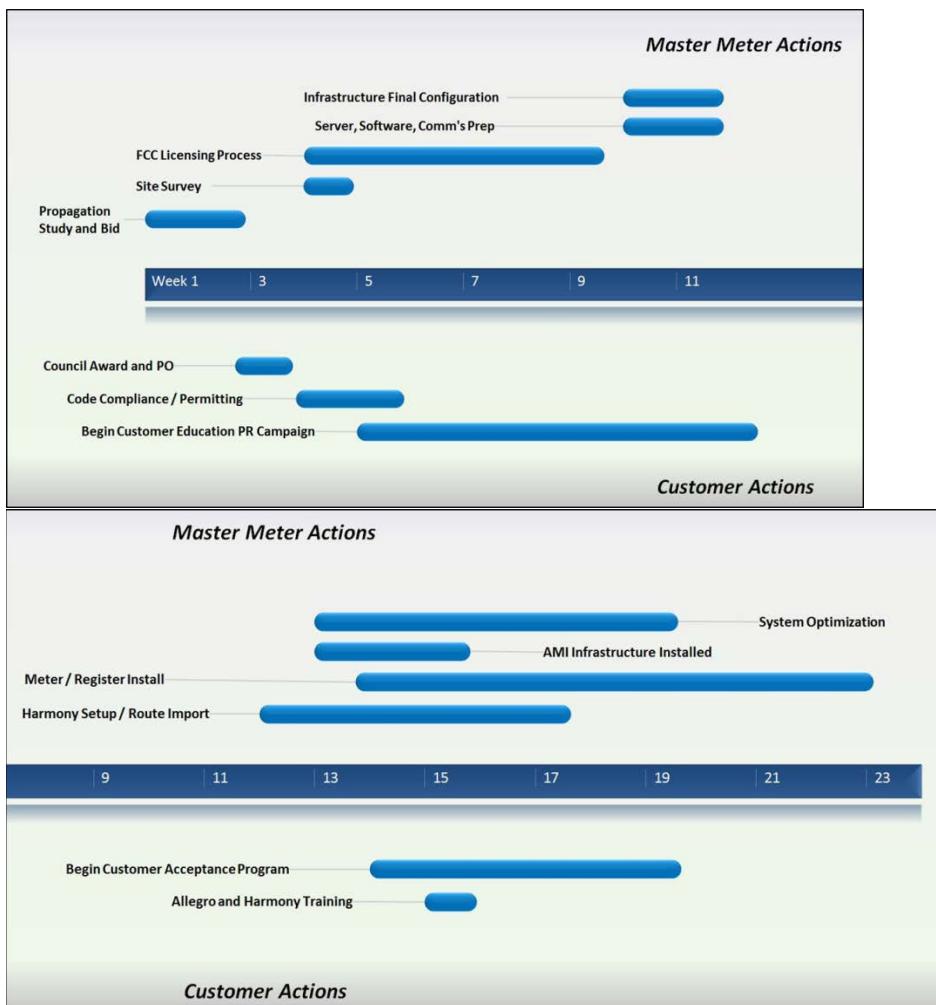
Total System	2016 Total Demand (ac-ft)	2020 Total Demand (ac-ft)	2025 Total Demand (ac-ft)	2030 Total Demand (ac-ft)	2035 Total Demand (ac-ft)
Single Family Residential	3,652	5,188	8,260	12,868	19,012
Multi-Family Residential	217	588	1,329	2,440	3,921
Commercial	514	901	1,674	2,835	4,382
Schools / Institutional	223	297	444	664	958
Industrial	867	910	996	1,124	1,295
Landscape Irrigation	422	603	966	1,510	2,236
Total:	5,896	8,487	13,668	21,441	31,805

## Project description

The project will consist of the implementation of the base stations for the AMI system. The Coachella Water Authority will then carry-out the remaining tasks either through rates or grants depending on availability.

Currently, the propagation study has been completed. The next step is to get to bid to perform site survey, obtain the FCC license, install the software, and installation of the base stations and repeaters. Below in Figure 1, shows the design and construction schedule for the project.

## Design and Construction Schedule



## Identify the problems and needs

The existing metering system for Coachella is read through an Automated Meter Reading (AMR) system. 80-percent of the meters in the CWA system are AMR. Currently staff drives around with a receiver in their vehicle, which polls the meter

register for customer usage data. The data is collected by the receiver. Once the staff is done for the day or week, the receiver data is uploaded to the financial system for billing purposes. It takes approximately two days for all the meters to be read with the AMR system. If the system doubles in number of connections, it is assumed that the time will also double to four days per week with the current staffing levels or additional staff will be required to meet the two days of meter reading.

The project is intended to address two issues. The first issue is increased efficiency in the use of water by residents and catching leaks on the customer side of the meter. By increasing customer efficiency and project customer engagement, customers will have better control over their water usage and more important overall cost to them. The community of Coachella is disadvantaged community (DAC) according to the State of California Department of Water Resources at below 80% of statewide median household income.

### **Identify the expected outcomes**

The AMI system will be installed as part of the implementation of the rate increase due to the large cost impact of the necessary capital investment in order to meet the lower maximum contaminant level (MCL) for hexavalent chromium of 10 parts per billion (ppb) set by the State of California Water Resource Control Board. The current estimated costs for the treatment systems will take the average bill from \$50 per month to nearly double by the year 2021. The ability for the customer to engage their water usage and help identify leaks quicker is important to help the customer control consumption, reduce leakage, increase efficiency and keep costs low.

## **Evaluation criteria**

### **E.1.1 Planning Efforts Supporting the Project**

**Describe how your project is supported by an existing planning effort. Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?**

In January 2017, the Coachella Water Authority prepared an engineering report, Advanced Metering Infrastructure (AMI) and Customer Portal. This report reviews, evaluates implementation, estimated costs and recommends a solution for the implementation of advance metering infrastructure (AMI) and customer portal.

**Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.**

The city has considered two alternatives to AMI Installation. One alternative is to implement AMI and the other is to not implement an AMI system. The implementation of AMI would greatly impact the interaction of customers on a real-time basis with their water usage, encourage conservation and provide a platform for the utility to engage its customers. The ability for customers to view their account and manage their water use is important for not only conservation but also ability for the customer to manage the cost of water.

The second alternative is to do nothing, which is not the optimal solution for both the utility and customers. The ability for customers to engage and be responsible for water usage is important to both the customer to control their bill and utility to encourage conservation efforts.

### **E 1.2 Project Benefits**

**What are the benefits to the applicant's water supply delivery system?**

The AMI will consist of the hardware necessary to send and receive signals from the Allegro registers (endpoints). Additionally, the existing registers will need to be replaced with the newer technology, which can serve both AMR and AMI until all the registers are replaced.

The AMI system will decrease water usage, supply more accurate water usage for the city's residents, and allow this data to be collected electronically, increasing the efficiency reporting and billing.

### **E 1.3 – Project Implementation**

*Up to 15 points may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project 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 for 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 proposed AMI system consists of base stations, repeaters, and radio registers. The CWA system needs three base stations. The base stations receive the data from the water meter registers and repeaters. The proposed locations for the three base stations are located at the locations shown in **Table 1**. Base stations are mounted at 90 feet high to provide the most coverage of the City. It is proposed to use the existing lighting poles in the parks to provide this height.

**Table 1** –Base Station Locations

Locations
Bagdouma Park
Shady Lane Park
Rancho Las Flores Park

The base stations will require electricity, 90-foot antennas (if necessary), and internet connection is required for the base stations.

A total of six repeaters will be located at various locations throughout the City and are identified in **Table 2**.

**Table 2** - Repeater Locations

Locations	
1.5 MG Reservoir	Spoils Yard
Calhoun St & Avenue 50	Amezcu/Garcia MHP
City Hall	High School PS

The repeaters are typically mounted to street lights, utility or traffic poles. Electricity must be provided to the location of the repeater equipment. The main location for the server is proposed to be located at the Corporate Yard at 53462 Enterprise Way, Coachella, CA 92236.

The meter registers will send to or receive data from the base stations and the repeaters. The usage data is sent on intervals of 15 minutes, 30 minutes or 1 hour. The ability to provide usage data to customers is important for managing their consumption and more importantly the cost of their bill. Additionally, the collection of data will be able to allow customer service representatives to do meter interrogations on their desktops and inform the customer of usage periods (e.g. irrigation timers running for 6 hours). Furthermore, the software collecting the data will use built-in analytics to identify homes with leaks. As part of the proposed system, letters will be automatically sent to those customers.

Below is the replacement schedule for the following meters. Under the General Accounting Office (GAO) 13, meters need to be replaced to accurately register flow volume used by each customer. Currently, 5,543 meter registers need to be replaced in the next 7 years is shown in **Table 3**.

**Table 3 - Meter Replacements**

	Currently Scheduled Replacements						
	2017	2018	2019	2020	2021	2022	2023
Quantity	1,422	0	533	340	518	1,143	1,578

Currently, no permits are expected for the project as most of the towers needed are existing.

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

The project is proposed to be design-build by the selected meter manufacturer, which is Master Meter. Master Meter is the sole-source meter manufacturer previously selected by the utility to provide the metering equipment. Due to the previous investment into Master meter, it is reasonable for the AMI infrastructure to designed and built by Master Meter. The AMI system is proposed to include base stations, repeaters, AMI meter registers, cloud hosted data storage and software-as-a-service. The advantages of the Master Meter system is the ability to migrate from AMR to AMI, the ability for the system to communicate both two-way either from register to the base station or vice-versa. Additionally, the register is fully encapsulated preventing tampering and water intrusion issues.

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

N/A

**E 1.4 Nexus to Reclamation**

**• How is the proposed project connected to a Reclamation project or activity?**

The reclamation project Thomas E. Levy groundwater replenishment facility provides supply water to the aquifer where Coachella wells pump.

**• Will the project help Reclamation meet trust responsibilities to any tribe(s)?** N/A

**• Does the applicant receive Reclamation project water?** Not directly.

**• Is the project on Reclamation project lands or involving Reclamation facilities?** No.

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

- **Will the proposed work contribute water to a basin where a Reclamation project is located?** Yes. Reduced demand means increased water replenishment to the groundwater basin.

### **Environmental and cultural resources compliance**

*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 will not disturb any surrounding environment. The project will utilize existing infrastructure.

**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?**

None.

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

Yes, the Whitewater Storm Channel is considered a “Waters of the U.S.”; however, the project will not impact on the channel.

### **When was the water delivery system constructed?**

The City Water Department was established in 1957, which is administered and managed by the Utilities General Manager for Coachella Water Authority (CWA) under direct supervision of the City Manager.

**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.**

N/A

**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.**

N/A

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

None.

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

The proposed project will not have an adverse impact on low income or minority population.

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

No.

- 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.

### **Required permits or approvals**

No permits are required for the project. Funding for the project is going to City Council for the next fiscal year FY17-18 budget.

### **Project Budget and Narrative**

**The funding plan must include all project costs, as follows:**

- **How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).**

The City of Coachella requests \$75,000 in grant funding to support the AMI Base Stations. The total cost of the stations is \$150,000.

The Coachella Water Fund will provide the additional \$75,000 for the project xx/xx/2017.

There are no time constraints or contingencies on the availability of the funds.

**Describe any costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:**

We have not incurred any cost for this project yet.

## Funding Plan

### How the expenditure benefits the Project

The costs for the system are summarized below.

Item	Cost
AMI	
Base Stations	\$150,000
<b>Total</b>	<b>\$150,000</b>

**Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards the cost share unless otherwise allowed by statute.**

No other funds have been received for this project.

\$75,000 of the project costs will come from the Coachella Water Fund. These are committed funds.

Funding Sources	Amount
<b>Non-Federal Entities</b>	
1. City of Coachella Water Fund	\$75,000
<b>Non-Federal Subtotal</b>	<b>\$75,000</b>
<b>Other Federal entities</b>	
None	\$0
<b>Other Federal Subtotal</b>	<b>\$0</b>
Requested Reclamation Funding	\$75,000
<b>Project Total</b>	<b>\$150,000</b>

**Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.**

N/A

**RESOLUTION NO. 2017-25**

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COACHELLA  
GRANTING ITS CITY MANAGER TO APPLY FOR A WATERSMART WATER AND  
ENERGY EFFICIENCY GRANT TO THE U.S. BUREAU OF RECLAMATION**

**WHEREAS**, the City of Coachella and Coachella Water Authority, the Coachella Valley Water District and other water agencies, and stakeholder groups within the Riverside County portion of the Indio sub-basin watershed have established a Regional Water Management Group in accordance with the *Integrated Regional Water Management Planning Act of 2002*; and

**WHEREAS**, the U.S. Department of Interior's WaterSMART (*Sustain and Manage America's Resources for Tomorrow*) provides grant funding for the efficient use of water and integration of water and energy policies to support the sustainable use of all natural resources; and

**WHEREAS**, the grant program is administered by the U.S. Bureau of Reclamation; and

**WHEREAS**, the U.S. Bureau of Reclamation requires the grant applicant to designate, by resolution, an authorized representative for filing the grant application; and

**WHEREAS**, the Coachella Water Authority's retail water agencies, including the Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs requested the Authority to implement water conservation projects within its Water Service Area.

**NOW, THEREFORE, BE IT RESOLVED, DETERMINED, AND ORDERED** by the City Council of the City of Coachella, as follows:

**Section 1. Incorporation of Recitals.** The City Council hereby finds and determines that the foregoing Recitals of this Resolution are true and correct and hereby incorporated into this Resolution as though fully set forth herein.

**Section 2. Application.** That application be made to the U.S. Bureau of Reclamation to obtain a WaterSMART Water and Energy Efficiency Grant to receive a grant for the Coachella Water Authority, Water Service Area.

**Section 3. Authorization.** The City Manager of the City of Coachella/Coachella Water Authority is hereby authorized and directed to prepare the necessary data, conduct investigations and file such application with the U. S. Bureau of Reclamation.

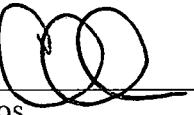
**PASSED, APPROVED and ADOPTED** this 26<sup>th</sup> day of April, 2017.

  
\_\_\_\_\_  
Steven A. Hernandez  
Mayor

**ATTEST:**

  
\_\_\_\_\_  
Angela M. Zepeda  
City Clerk

**APPROVED AS TO FORM:**

  
\_\_\_\_\_  
Carlos Campos  
City Attorney

STATE OF CALIFORNIA                      )  
COUNTY OF RIVERSIDE                      ) ss.  
CITY OF COACHELLA                        )

**I HEREBY CERTIFY** that the foregoing Resolution No. 2017-25 was duly adopted by the City Council of the City of Coachella at a regular meeting thereof, held on the 26<sup>th</sup> day of April, 2017, by the following vote of Council:

AYES:           Councilmember Bautista, Councilmember Sanchez, Councilmember Perez,  
                  Mayor Pro Tem Martinez and Mayor Hernandez.

NOES:           None.

ABSENT:          None.

ABSTAIN:        None.

Andrea J. Carranza  
Andrea J. Carranza  
Deputy City Clerk



# COACHELLA VALLEY WATER DISTRICT

*Established in 1918 as a public agency*

GENERAL MANAGER  
Jim Barrett

ASSISTANT GENERAL MANAGER  
Robert Cheng

April 26, 2017

David Murrilo  
Acting Commissioner  
U.S. Bureau of Reclamation  
1849 C Street, N.W.  
Washington, D.C. 20240-0001

Dear Acting Commissioner Murrilo:

Subject: WaterSmart: Water and Energy Efficiency Small-Scale  
Coachella Water Authority – Advanced Metering Infrastructure Program

On behalf of the Coachella Valley Water District (CVWD), I encourage you to support Coachella Water Authority's (CWA) Watersmart: Water and Energy Efficiency Small-Scale Grant. CWA intends to use the funds to install Advanced Metering Infrastructure (AMI) in the City of Coachella as a first step to a larger City-wide AMI effort to promote water conservation through "smart" metering technology that provides real-time data and information to water staff and customers. The customers will have access through the web and mobile application to monitor the consumption of their home. This effort will help reduce water usage by stopping leakage and water over-use in a timely and efficient manner, thereby translating into significant water savings.

The primary drinking water supply for the Coachella Valley including the CWA is the Coachella Valley Groundwater Basin, which is in overdraft. The Coachella Valley Water Management Plan was developed to eliminate the overdraft. The key tools the plan identifies for accomplishing this goal are increased conservation, and full utilization of existing local and imported water supplies in lieu of groundwater. CVWD, CWA and its partners recently submitted the Coachella Valley Water Management Plan to the California Department of Water resources for approval as our Alternative Groundwater Sustainability Plan in accordance with the Sustainable Groundwater Management Act.

CVWD supports CWA's proposed use of AMI meters to improve water use efficiency, reduce their customers' impact on the Coachella Valley groundwater basin and reduce the need for additional imported water in the future.

Sincerely,

  
J. M. Barrett  
General Manager

HE:il/Comm/042617support for CWA Watersmart grant



## CITY OF COACHELLA

1515 SIXTH STREET, COACHELLA, CALIFORNIA 92236

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April 27, 2017

David Murrilo  
Acting Commissioner  
Bureau of Reclamation  
1849 C Street NW  
Washington DC 20240-0001

RE: WaterSmart: Water and Energy Efficiency Small-Scale  
Coachella Water Authority – Advanced Metering Infrastructure Program

Dear Mr. Murrilo,

On behalf of the City of Coachella, I encourage you to support Coachella Water Authority's (CWA) WaterSmart: Water and Energy Efficiency Small-Scale Grant. The Authority intends to use the fund to install Advanced Metering Infrastructure (AMI) as a first step to a larger City-wide AMI effort to promote water conservation through "smart" metering technology that provides real-time data and information to water staff and customers. The customers will have access through the web and mobile application to monitor the consumption of their home. This effort will help reduce water usages by stopping leakages and water over-usage in a timely and efficient manner, thereby translating into significant water savings.

City of Coachella has a population a little over 45,000 residents and is supplied with water from CWA through groundwater wells. The City of Coachella is a disadvantaged community with a medium household income (MHI) of \$37,408. Currently, our average water bills range from \$40 to \$50 for an average customer, or 1.0% of MHI.

Converting from standard meters to AMI will also help the Coachella Water Authority to enhance the engagement of its customers to be proactively in the amount of water consumed.

We look forward to working closely with CWA as they implement the AMI project to ensure consistency with regional goals and best practices. We encourage your support of this important project and urge your favorable consideration.

Sincerely,

A handwritten signature in blue ink that appears to read "William B. Pattison, Jr."

William B. Pattison, Jr.  
City Manager