

Helendale Community Services District

AMI Smart Meter Installation Program

BOR-DO-17-F011

Water SMART: Small Scale Water Efficiency Projects for Fiscal Year 2017

PREPARED FOR:

Bureau of Reclamation

Financial Assistance Operations

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May 15, 2017

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Executive Summary

Date: May 15, 2017

Name: Helendale Community Services District

City: Helendale

County: San Bernardino County

State: California

Project Summary

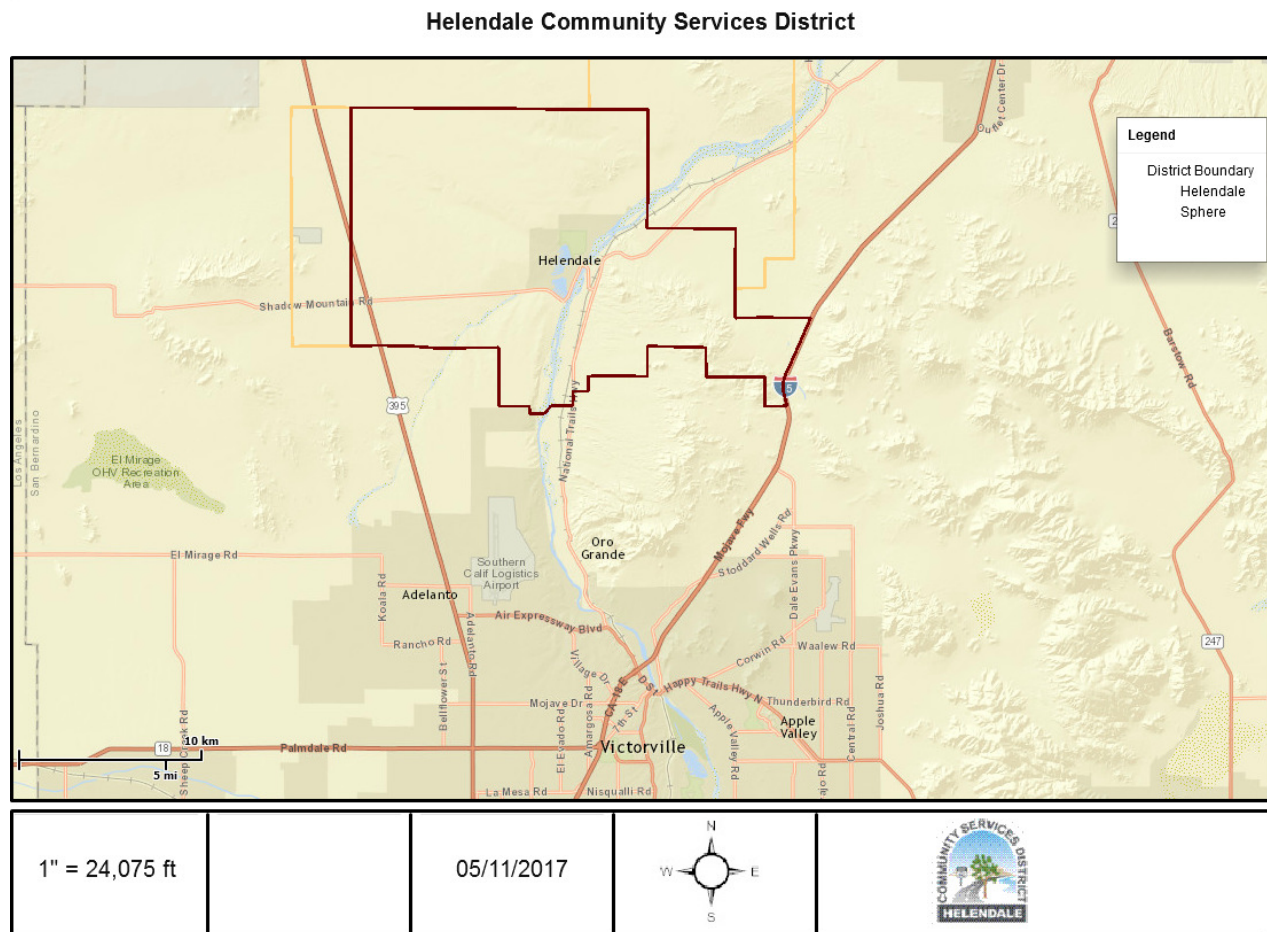
Helendale Community Services District is seeking financial assistance to install 400 new smart meters, AMI radios and a radio tower to replace the District's outdated meters and Automatic Meter Read (AMR) radios, which require a member of our Staff to drive around monthly to capture meter reads. Advanced Metering Infrastructure (AMI) consists of a smart meter and two-way communication between the meter and utility. AMI technology will assist the District in our water planning, water conservation efforts and enhance our customer service. The requested funding will allow the District with the purchase of 400 smart meters, 400 AMI radios, the radio tower, and necessary hardware/software to read meters and transmit the data. The funding will also assist the District with the cost to install the meters, AMI radios and tower. This is an important first step in a four year program to replace all of the District's old meters and AMR radios with new improved technology that will help our staff better manage the District's water.

Length of Project

The timeframe to complete the installation of 400 meters, 400 radios and the radio tower is four (4) months. Assuming funding will be available July 2017 the project will be completed by October 2017.

The proposed project **is not** located on a Federal facility.

Background Data



The Helendale Community Services District (HCSD) was formed in 2006 by resolution of the San Bernardino County Local Agency Formation Commission and assumed operational duties on April 1, 2007. HCSD provides water, sewer, solid waste, street lighting, refuse collection, parks and recreation, and graffiti abatement services to residents living within its boundaries. A five-member board of elected directors provides the governance for HCSD. “Efficient, Effective, Local Government” is the mission of HCSD.

Helendale is located within San Bernardino County approximately 98 miles northeast of Los Angeles and 54 miles north of the city of San Bernardino. The Helendale CSD boundary encompasses 116 square miles and serves a population of 6,379 according to the 2010 Census. The Helendale Water System contains 2 active wells and 4 standby wells, approximately 45 miles of pipes ranging in size from 4 inches to 16 inches in diameter, approximately 300 hydrants, and 2,812 service connections. Distribution pipelines in the District’s potable water distribution system carries water to residential, industrial and commercial users.

The District’s water supply is comprised of 100% groundwater. However the District has make up water requirements. Any imported water is purchased through Mojave Water Agency, a State Water Contractor, which comes from State Water Project supplies.

In 2016 the District pumped 1473 AFY of water to residential, commercial, institutional, and irrigation accounts. Projections for increased population will greatly increase the need for water and conservation and efficiency measures needed to support the water use of the community.

This requires immediate action on the part of the District to begin addressing these issues to ensure adequate water for future water needs. Without implementing conservation and efficiency measures such as the Smart Meter replacement program, the District will not be able to sustain future growth or increased demand. The proposed AMI Smart Meter Project will assist the District in achieving greater water conservation and efficiency as a result of this project will help us to better manage our water.

The goal is to increase efficiency and conserve water by a minimum of 10% through the installation of AMI meters. The Helendale CSD will closely track and monitor the water usage of these existing water clients to determine the water conservation savings that are achieved post AMI meter installation.

The District has not worked with Reclamation on any past projects but has an excellent record of completing projects on time and under budget.

Project Description

The District has aging meters that no longer read accurately. The useful life of the Districts current meters are between 10-15 years old. The majority of the Districts meters are over 20 years old. The problem with the aging meters is the low flows are not being read accurately which is leading to unaccounted for water loss. This impacts the Districts revenue. The other main problem the District has with our current AMR meters is that we are only able to get reads monthly. This limits our ability to help customers detect leaks in a timely manner. A leak could go undetected for at least 30 days with our current system and low continuous flows that are not registered may not be detected for much longer. With new AMI meters, the accuracy of the meters is guaranteed for 20 years and with the new technology that alerts staff to leaks, we will be able to detect leaks almost immediately. The need for the meter replacement program is a main priority of the District, because as the meters age even more, we will continue to have higher levels of unaccounted for water loss will continue to go undetected between meter reads. In an effort to increase our conservation measures it is important to the District to notify customers as soon as possible to get any leaks repaired immediately to avoid water waste. The District expects the unaccounted for water loss to go from 12% to 4% as a direct result of this project. We also expect to see an increase in conservation, and expect to see a 10% savings in water usage.

The new AMI technology will enable the District to provide better service to our customers. Advanced Metering Infrastructure (AMI) consists of a smart meter and two-way communication between the meter and utility. Staff will have access to real time consumption data, which will better improve service to customers. AMI has many other benefits including access to more data, which will help the District to make better, more informed decisions; provides more accurate billing; and customer analytics that will give the District a better understanding of customer usage and patterns. The increased data and benefits of the AMI system will lead to better resource management. Customers will also be able to better manage their water use.

Evaluation Criterion A - Planning Efforts Supporting the Project

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

The main problem this project will be addressing is the need for new meters and technology that will decrease water loss and increase water management and leak mitigation. The District has a Water Conservation Ordinance that calls for a 25% reduction in water use compared to 2013. This program will help achieve the goal of water conservation by giving the District real time water consumption data and leak alerts. Leak alerts will allow us to notify customers in a timely manner of a potential leak, which could potentially save thousands of gallons of water.

The need for new more accurate meters has been a priority for District and has been included in the previous and current Capital Improvement Plan. Funding limitations have been the main reason this program has not been implemented. Grant funding will be necessary to complete this program, however the District has already budgeted matching funds if awarded.

The District is dedicated to managing water resources effectively and the implementation of this program will give the District valuable data that will help to formulate a Water Management Plan, which is necessary to help us better, manage our water to ensure a sustainable supply and help guide future projects as they relate to water reliability.

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

The majority of the District's 2,812 meters are over 20 years old, and have surpassed their useful life. Approximately 1,823 meters are over 20 years old; 253 meters are over 15 years old, 619 are over 10 years old, and 45 meters are under 10 years old. The meters the District has in the ground have a useful life of 10-15 years. These old meters are no longer registering low flows accurately and as a result are causing unaccounted for water loss. We are currently experiencing a 12% unaccounted for water loss, which is approximately 175 acre-feet of water annually. This number is expected to increase as the meters get older. Staff expects to see a reduction of 8% unaccounted for water resulting from replacing the District's old meters. The new smart meters are guaranteed for reading accuracy for 20 years, so the District can expect to save over 2,080 AF of water over the useful life of the new Smart meters.

A large portion of the District's water losses are attributed to leaks that are not quickly or easily detectible with the current outdated metering system. With the installation of smart meters and AMI radios, the District will be able to identify leaks and other water losses almost immediately. The installation of smart meters and AMI radios will eliminate time lapses and provide immediate access to data regarding leaks. This will significantly cut down on water loss issues and help conserve water. This project also aligns with the District's water conservation goals. Installing Smart meters will result in significant water savings by allowing our staff to immediately identify and notify customers of water leaks, monitor usage, and offer education and resources to customers with high water usage. Currently the District has no technology that will alert staff or customers to leaks, so it could potentially take over a month to identify these issues. This resource will allow the district and customers to better manage their water usage which will translate into water savings. The resulting water savings will also help the District conserve energy because of reduced need for pumping.

The District chose this project over other potential projects due to the age of the meters and the

amount of water that is being lost due to the inaccuracy of the old meters. Staff anticipates the meter accuracy to continue to degrade as the years go by which will increase the unaccounted for water loss and greatly impact revenue. This project was also chosen due to the increased conservation benefits. With the recent drought, the District has put an emphasis on conservation and believes that these new AMI Smart Meters will enhance conservation and prevent prolonged leaks and helping identify small consistent leaks that often go unnoticed but add up over time.

Evaluation Criterion B - Project Benefits

- **Describe the expected benefits and outcomes of implementing the proposed project.**

The Smart Meter Replacement program will assist the Helendale Community Services District in improving its water management practices by removing 400 outdated meters that are no longer reading accurately and installing in their place 400 Smart meters with AMI radios. This will be an important first step in a 4 year program to remove all 2,812 of the District's old meters and replace them with new Smart Meters and AMI radios. The benefit of replacing these old meters will be more accurate meter reads and new technology that will allow for on-demand reads and leak detection. The Smart Meter replacement program will help the District conserve water and better manage water losses by using the technology to mitigate leaks through real-time meter reading capabilities. Approximately 96% of the District's meters are between 10 and 20 years old and have surpassed their useful life. Old meters have diminished capabilities to accurately meter or report water usage, especially very low flows. This leads to undetected leaks and unaccounted for water usage and loss, and is costly for the District. The AMI project will help the District mitigate these losses in a timely and efficient manner with 24 hour monitoring and alert capabilities. This will result in conservation of the region's most precious resource – water. This project is well aligned with the Bureau of Reclamations goal to manage, develop, and protect water and energy resources in an environmentally and economically sound manner.

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

This program will have water savings as well as embedded energy savings due to the reduction in water use that will lead to a reduction in energy required to pump groundwater for delivery to users.

By switching from standard volumetric meters that are outdated and do not have the capability of remote monitoring to Smart Meters with AMI radios that provide real-time, two way communication electronically to District staff, we will be able to mitigate water leaks and losses, and educate consumers on how to reduce water usage and help control water use during droughts.

Another benefit of installing the new smart meters is that these meters have the capability of detecting backflow. This will ensure that if there are any backflow situations, Staff will be alerted immediately to the problem and be able to address it before any water quality issues arise.

- Other benefits

- **Extent to which the proposed project improves overall water supply reliability**

This project will help improve overall water supply reliability due to increased water conservation. Using the AMI radio technology to monitor for leaks, the District expects to see a 10% reduction in overall water usage. This water savings will help ensure a reliable supply of water for the community.

- **The expected scope of positive impact from the proposed project will**

increase collaboration and information sharing among water managers in the region

This project will demonstrate how AMI technology greatly improves water management and conservation. As a result of this project we will be able to demonstrate to other water managers and agencies, how these devices and enhanced technology improve our ability to reduce water loss and leaks by allowing our staff to more quickly respond to them. The District will be able to collaborate with other agencies and water managers in the region and share the results from this project. A report with our findings regarding enhanced efficiencies and water savings will be submitted to Mojave Water Agency, the region's water wholesaler. The District will also submit a poster with our findings to the AWWA Water Smart Conference to allow us to share our results on a large scale. Other agencies will be able to learn from our project and see the benefits of this new technology and how it improves water management.

Water usage data will also be tracked. Usage will be compared to previous year's usage to monitor savings. We will regularly and continuously monitor the usage trends for all customers.

- **Any anticipated positive impacts/benefits to local sectors and economies (eg. Agriculture, environment, recreation, tourism)**

The reduction in water use could result in less groundwater pumping which will have a benefit to the environment. Reduced groundwater pumping will ensure ground water levels are not depleted, reduce the possibility of subsidence, and reduce the likelihood of deteriorated ground water quality.

Additional environmental benefits resulting from the AMI project will be achieved through the AMI Project through the elimination of meter readers taking vehicle trips to read meters monthly. This will help to reduce Greenhouse gas emissions, help promote clean air efforts, and reduce fuel consumption.

Evaluation Criterion C – Project Implementation:

In an effort to increase the efficiency of the District's water planning efforts, the District will be installing new AMI Smart Meters throughout the District. This Smart Meter installation program will effectively help us meet this goal.

If the District receives funding through the Bureau of Reclamation for this project, we will purchase 400 smart meters and radios to be installed within four (4) months of the award. This will also include the installation of the radio tower needed to transmit on real time reads to customer service staff.

The District will use GIS to locate the tract where the oldest meters are installed. Staff will go through and replace all of the meters and install AMI radios throughout this tract. Staff will install 50 meters in the first week and ensure that everything is working correctly and the radios are transmitting reads. If problems are found they will be fixed within the first week. Installation will continue until October 19th. Four staff members will install an estimated 4 meters per day. One staff member will Vector the meter boxes in the morning while the rest of the staff installs the bushings on the meters to be installed for that day. Staff will then go out to the field to install the meters. Two office staff members will be in the field to complete all of the paperwork.

Future phases of the meter rotation program will allow the District to continue replacing all of our AMR meters with the new Smart Meters and AMI radios.

Project Schedule:

Milestone	Planned Start Date	Planned Completion Date
Install radio tower and necessary hardware / software. Complete training.	July 2017	August 2017
Purchase 400 AMI Radios and Smart Meters	July 2017	August 2017
Install 50 Smart Meters and AMI Radios. Test software to ensure there are no issues. If no issues are found continue installation of meters as follows:	September 4, 2017	September 8, 2017
Install 64 meters and AMI Radios (4 meters per person x 4 staff x 4 days = 64)	September 11, 2017	September 14, 2017
Install 64 meters and AMI Radios (4 meters per person x 4 staff x 4 days = 64)	September 18, 2017	September 21, 2017
Install 64 meters and AMI Radios (4 meters per person x 4 staff x 4 days = 64)	September 25, 2017	September 28, 2017
Install 64 meters and AMI Radios (4 meters per person x 4 staff x 4 days = 64)	October 2, 2017	October 5, 2017
Install 64 meters and AMI Radios (4 meters per person x 4 staff x 4 days = 64)	October 9, 2017	October 13, 2017
Install 30 meters and AMI Radios	October 16, 2017	October 19, 2017

Permits that will be required:

None

Engineering or design work needed for proposed project:

None

New policies or administrative actions required to implement the project:

The Board approved the project at the April 20, 2017 Board meeting. There are no further administrative actions required to implement this project.

Nexus to Reclamation

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

The District's water supply is 100% groundwater, and does not currently receive water from Reclamation. However, if the District needed to purchase make up water from Mojave Water Agency, that water would come from State Water Project supply. The reduction in water use as a result of this project will help conservation efforts in alignment with State mandates and reduces the potential need to purchase State Water Project water.

- **Will the project help reclamation meet trust responsibilities to any tribe(s)?**

No

- **Does the applicant receive Reclamation project water?**

No, the Helendale CSD does not receive Reclamation project water. The District is

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

No, this project is not on Reclamation project lands and does not involve Reclamation facilities.

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

The project will be taking place in the alto sub basin. The reduced consumption as a result of installing new meters will mean less groundwater being pumped in the basin.

Environmental and Cultural Resource Compliance

The AMI project will simply replace old AMR meters with new AMI meters and radios in the same location. As a result the Helendale CSD does not anticipate environmental impacts associated with the proposed AMI project.

- 1. Will the project impact the surrounding environment (i.e., soil [dust], air, water [quality and quantity], animal habitat, etc.)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.**
No.
- 2. Are you aware of any species listed or proposed to be listed as a Federal endangered or threatened species, or designated Critical Habitat in the project area? If so, would they be affected by any activities associated with the proposed project?**
Not applicable.
- 3. Are there wetlands or other surface waters inside the project boundaries that potentially fall under Federal Clean Water Act jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the project may have.**
No.
- 4. When was the water delivery system constructed?**
The two main distribution wells were drilled in 1972. The water distribution system was constructed in the mid 1970's.
- 5. Will the proposed project result in any modification of or effects to individual features of an irrigation system (e.g., head gates, canals or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.**
No
- 6. Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.**
No.
- 7. Are there any known cultural resources sites in the proposed project area?**
No.
- 8. Will the project have a disproportionately high and adverse effect on low income or minority populations?**
No.
- 9. Will the proposed project limit access to ceremonial use of Indian sacred sites or result in other impacts on tribal lands.**
No.
- 10. 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

There will be no permits or approvals required to complete this project.



RESOLUTION NO. 2017 – 05

A RESOLUTION OF THE HELENDALE COMMUNITY SERVICES DISTRICT BOARD OF DIRECTORS, IN SUPPORT OF FILING AN APPLICATION WITH THE BUREAU OF RECLAMATION FOR A GRANT UNDER THE WATER SMART: SMALL-SCALE EFFICIENCY PROJECTS FOR FISCAL YEAR 2017

WHEREAS, the United States Bureau of Reclamation is currently soliciting proposals for grant funding assistance under their Water-Smart Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2017

WHEREAS, District Staff has prepared a grant application under the United States Bureau of Reclamation’s -Smart Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2017.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Helendale Community Services District as follows:

1. The District’s Board of Directors has reviewed and supports the submission of a grant application to the Bureau of Reclamation for the project;
2. The District’s General Manager is directed to submit the grant application and is authorized to enter into an agreement with the Bureau of Reclamation on behalf of the District for grant funding under the Bureau of Reclamation’s Water -Smart Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2017;
3. The District is capable of providing the amount of funding and in-kind contributions as specified in the application; and
4. The District will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

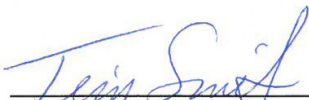
ADOPTED this 20th day of April, 2017 by the following vote:

AYES: 5


NOES: 0

ABSENT: 0

ABSTAIN: 0



Tim Smith, Vice President



Ron Clark, President

Funding Plan and letters of Commitment

Funding for the AMI Meter Replacement Program will come from the 2017-18 Fiscal Year Water Budget and Board Discretionary funds. The District will use \$25,000 that has been budgeted for meter maintenance and \$33,690 from the water budget for employee costs. The remaining \$15,800 will come out of the Board’s discretionary funds. The match requested from Bureau of Reclamation is \$75,000. The District has the necessary funding, and is ready to proceed with this project.

The funding for this project is available now.

There are no time constraints on the availability of the funds for this project.

There are no other contingencies associated with the funding of this project.

Funding Sources	Amount
Non Federal Entities	
1. Helendale CSD	\$75,000
Non Federal Subtotal	\$75,000
Other Federal Entities	
1. None	
Other Federal Entities Subtotal	\$0
Requested Reclamation Funding	\$75,000
Total Project Cost	\$150,000

The District does not have funding from any other sources for this project.

There will be no costs incurred before the anticipated Project start date that we will be seeking reimbursement for.

There will be no other funding from any Federal Sources for this Project

The District does not have any pending requests for funding.



Helendale Community Services District

26719 Vista Road, Ste. 3 - P.O. Box 359
Helendale, California 92342-0359
(760) 951-0006 Fax (760) 951-0046

Letter of Commitment

May 5, 2017

Dear Bureau of Reclamation:

The Helendale CSD seeks a grant of **\$75,000.00** from the Bureau of Reclamation Water Smart: Small Scale Water Efficiency Projects for Fiscal Year 2017 (Funding Opportunity # BOR-DO-17-F001) for support of our ***Helendale Community Services District* AMI Smart Meter Installation Program**. We believe this project is very much aligned with the Bureau of Reclamation's goals for promoting water use efficiency.

Funding for this program will come from the Water Fund and Board Discretionary Funds; the District has the matching funds of \$75,000 available and is ready to begin this project immediately. The funds requested will be used to purchase and install the Smart meters, AMI radio's and radio tower.

Helendale CSD is committed to fund 50% of the total project cost of \$150,000. Helendale CSD's funding commitment for this project is \$75,00 and is requesting Bureau of reclamation to match \$75,000 to our funding commitment.

Sincerely,

A handwritten signature in blue ink that reads "Kimberly Cox".

Kimberly Cox
General Manager

Helendale Community Services District
760-951-0006 kcox@helendalecsd.org

Budget Narrative

Salaries and Wages

Cheryl Vermette, Program Coordinator and Craig Carlson, Water Operations Manager will be the project managers. Salary and fringe benefits for the Operations Manager as well as the other staff that will be involved in the Meter Installation program are listed in the above chart. The estimated hours in the above chart indicate time for installation of meters and the radio tower only. The District is not seeking reimbursement for any administrative or reporting requirements related to this program; therefore costs for the Program Coordinator have not been included in the budget.

Fringe Benefits

The calculation for fringe benefits in the above chart includes costs for medical, dental, life insurance and CalPers Retirement paid by the District.

Travel

Not applicable, there will be no travel required for this project.

Equipment

The District will use two service trucks and one Vector truck to complete this project. The District owns this equipment; the costs on the chart listed above are the hourly rate costs for the equipment.

Materials and Supplies

Materials for this project include:

400 Smart meters and bushings at a cost of \$54,400

400 AMI Radios at a cost of \$26,400

1 Radio Tower at a cost of \$35,000

These prices were based on quotes from the manufacturer.

Contractual

There will be no work done by contractors for this project.

Environmental and Regulatory Compliance Cost

There will be no environmental or regulatory costs associated with this project.

Other Expenses

Not applicable

Indirect Costs

Not Applicable

Total Costs

The total cost of this project is \$150,000. The District's portion will be \$75,000. The amount requested from the Bureau of Reclamation Funding is \$75,000.

Unique Entity Identifier and System for Award Management

- (i) Helendale CSD is registered in the System for Award Management (SAM)
- (ii) Unique Entity Identifier: DUNS Number 027998746
- (iii) The District will maintain an active SAM registration with current information at all times during which it has an active Federal award or application under consideration by a Federal awarding agency.