

Automated Meter Infrastructure Expansion Project**Project Proponent**

Eastern Municipal Water District (EMWD)

Description of the Project

The Automated Meter Infrastructure (AMI) Expansion Project (Project) will continue implementation of EMWD's ongoing plan to convert their manual metering system to AMI Technology. EMWD's service area encompasses 542 square miles with approximately 143,000 water meters that are read every month. Nearly 83,000 of these are manually read meters, with the balance having been previously converted to AMI technology over the past several years. With AMI technology, water usage information from meters is transmitted electronically to EMWD's District Headquarters for customer billing purposes, allowing EMWD to detect unusual water usage readings early so that leaks and other water use efficiency problems can be identified and repaired. Additionally, by receiving the water usage data electronically, EMWD staff members do not need to drive to each meter to read the water usage data every month, creating additional energy and greenhouse gas (GHG) savings through reduced fuel consumption.

EMWD's goal is to deploy AMI technology to all customer-based water meters in their service area. For this Project, approximately 21,250¹ of the remaining 83,000 manual meters will be replaced with automated meters. The Project consists of installing automated meters and transmitters in the northwestern portion of EMWD's service area near Moreno Valley and Perris. The Project will also include the installation of 5 communication towers on EMWD property in the Murrieta, Mead Valley, and Moreno Valley areas that will transmit water usage data from the automated meters to EMWD Headquarters.

As a result of improved leak detection and response time, this Project will provide water savings within the Project area as well as reduce EMWD's energy usage and GHG emissions. AMI will provide customer water use data to EMWD staff on a timely basis, much earlier and more regularly than was previously done with manual readings. Water usage data will be collected multiple times per day (as opposed to once per month), allowing metering staff to better analyze water use relative to established baseline parameters. Unusual water use readings (e.g., continuous use over 2 days or more) will be flagged, and EMWD will notify customers of a potential leak, irrigation problem, or other water use efficiency issue. It is conservatively assumed that approximately 50% of the potential leakage water loss in the Project area will be reduced through early detection, customer notification, and follow-up action.

¹ It should be noted that EMWD will continue their strategy of water and energy efficiency by installing an additional 14,750 automated meters outside the scope of this grant application proposal.

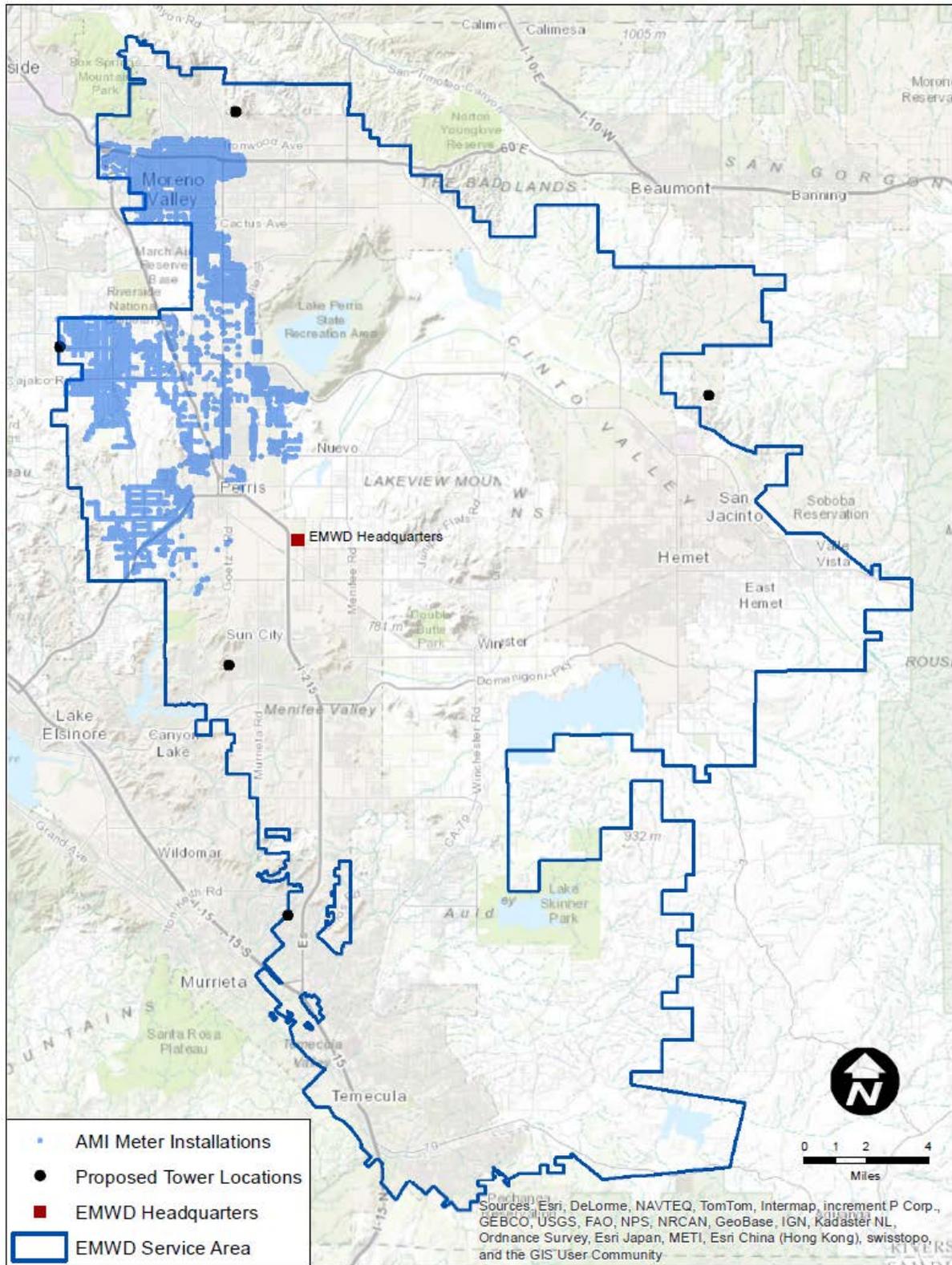
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Water savings from the Project will also produce energy savings and GHG reductions. With approximately 61% of EMWD's water supply coming from imported water sources, energy and GHG savings are significant. Additionally, by eliminating the need to have EMWD staff members drive to 21,250 water meters every month throughout the EMWD service area for manual readings, approximately 23,800 miles of travel and about 3,000 gallons of fuel consumption per year will be eliminated.

As EMWD's service area encompasses 14 cities and communities, as well as large areas of unincorporated Riverside County, this project will provide benefits to multiple jurisdictions and can be considered a regional project.

Future implementation of EMWD's AMI long-term plan will include incorporating the Meter Data Management System (MDMS) "customer portal" software to transmit water use data directly to customers. This software has already been purchased by EMWD, and it will be installed starting in 2015. The MDMS will increase the water savings associated with this Project by alerting customers to leaks even more efficiently than AMI alone; however, the incremental savings associated with the MDMS are not included in this Proposal.

System Map



Automated Meter Infrastructure Expansion Project**Work Plan**

The system map illustrates the locations of 21,250 manually read meters that will be replaced with automated meters as part of this Project. These meters are located in the northwestern portion of EMWD's service area, which is outlined in dark blue. The meters will transmit water usage data to the 5 communication towers represented on the map as black dots. These towers will then transmit data to the EMWD Headquarters shown on the map as a red square. The area of benefit will be the locations where the meters are replaced. Note that the communication towers are located such that they can service AMI meter installations in other parts of EMWD's service area as well.

Work Plan Tasks**Task 1: Direct Project Administration and Reporting**

Work to be completed under this task will be performed by the EMWD AMI Project Manager. The administration and reporting tasks will consist of coordinating with EMWD's budgeting personnel, preparing invoices and backup documentation, developing quarterly and final progress reports as required per the grant agreement, and resolving any other administrative issues that arise.

Deliverables:

- *Invoices*
- *Quarterly and final progress reports*

Task 2: Easement(s)

Easements are not required for the Project. All Tower installations will occur on EMWD property.

Task 3: Project Evaluation/Design/Engineering

All design and engineering of the AMI technology was performed previously in collaboration with the AMI supplier, Sensus. This work was performed at the beginning of EMWD's AMI program back in 2008. Therefore, work and costs associated with evaluation, design, and engineering are not included in the budget of this grant application.

Task 4: Environmental Documentation

The Project is categorically exempt from the provisions of CEQA. A Notice of Exemption will be filed with the County of Riverside by December 12, 2014.

Automated Meter Infrastructure Expansion Project*Deliverables:*

- *Notice of Exemption*

Task 5: Permitting

No permits are required for the Project.

Task 6: Proposal Monitoring Plan

EMWD will develop a proposal monitoring plan to monitor the expected water supply, energy, and GHG benefits provided by the Project.

Deliverables:

- *Proposal Monitoring Plan*

Task 7: Project Construction/Implementation

EMWD staff will begin replacing manual meters with automated meters in January 2015. A total of 21,250 meters will be replaced with automated meters and transmitters as part of this Project. Additionally, five Tower Gateway Base-station's (TGBs) or "communication towers" will be installed to allow communication between the new meters and EMWD Headquarters.

The following subtasks apply:

Subtask 7.1 Mobilization and Site Preparation:

This subtask includes mobilization of equipment to the Project site. This will occur at the tower installation locations.

Subtask 7.2 Project Construction:

Project construction will include the following components:

Meter Installation – EMWD staff will replace one manual meter with an automated meter and transmitter at each of 21,250 household meter reading locations targeted in the Moreno Valley and Perris areas in the northwest portion of EMWD's service area.

Tower Installation – Five communication towers will be installed on EMWD property through the project area to transmit water usage data from the automated meters to EMWD's District

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Headquarters. The tower installations will involve setting foundations, assembly of approximately 40ft-50ft towers, installation of network switches and closures, racking systems, cooling units, electrical power, and other related appurtenances. This work will be performed by a combination of EMWD staff and a contractor. The contractor will be responsible for installing the Transceiver Long Range Radio Base Station (TGB Radio) at each of the 5 sites.

Subtask 7.3 Performance Testing and Demobilization:

After completion of the tower construction, startup testing and finalization of each installation will be performed. This includes verifying the connection between the tower and the automated meters in the surrounding area and between the towers and EMWD Headquarters.

Deliverables:

- *Project completion email and form*
- *Site photos at tower locations*