RECLAMATION
Managing Water in the West

Environmental Assessment

East Bay Municipal Utility District Advanced Metering Infrastructure and Water Conservation Improvements Project

U.S. Department of the Interior
Bureau of Reclamation

April 2017

Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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1 Introduction

1.1 Background

This Environmental Assessment (EA) examines the potential direct, indirect, and cumulative effects to the environment associated with the U.S. Bureau of Reclamation (Reclamation) providing a WaterSMART: Water and Energy Efficiency Grant to the East Bay Municipal Utility District (EBMUD) for their Advanced Metering Infrastructure Project (AMI Project). The project would take place within the boundaries of the EBMUD service area (Figure 1). EBMUD provides water service to approximately 1.4 million customers and wastewater service to 685,000 customers located in the East Bay region of the San Francisco Bay, as well as, areas in Alameda and Contra Costa Counties.

1.2 Need for the Proposal

EBMUD has water rights for the delivery of up to 325 million gallons per day from the Mokelumne River, subject to availability. Under normal water years, water supply from the Mokelumne River is sufficient to meet the needs of EBMUD users. However, in times of drought, water supply reliability is diminished. EBMUD's water supply is anticipated to be reduced during a drought due to increase in demands on the Mokelumne River from other counties that hold senior water rights. EBMUD needs to take measures to better conserve and reduce their water consumption. To achieve this, EBMUD would install advanced metering infrastructure (AMI) to remotely read water meters, detect leaks, and collect system pressure data. The information collected from AMI equipment would allow EBMUD to identify water conservation opportunities. Figure 2 identifies EBMUD's largest water customers that are potential participants to have AMI equipment installed.

2 Proposed Action

This EA/IS considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not award grant funds to EBMUD for the installation of AMI equipment. EBMUD would need to raise additional money from other public or private sources to continue with the project as described. However, if funding cannot be secured, AMI equipment would not

be installed and EBMUD would not be able to make water conservation improvements.

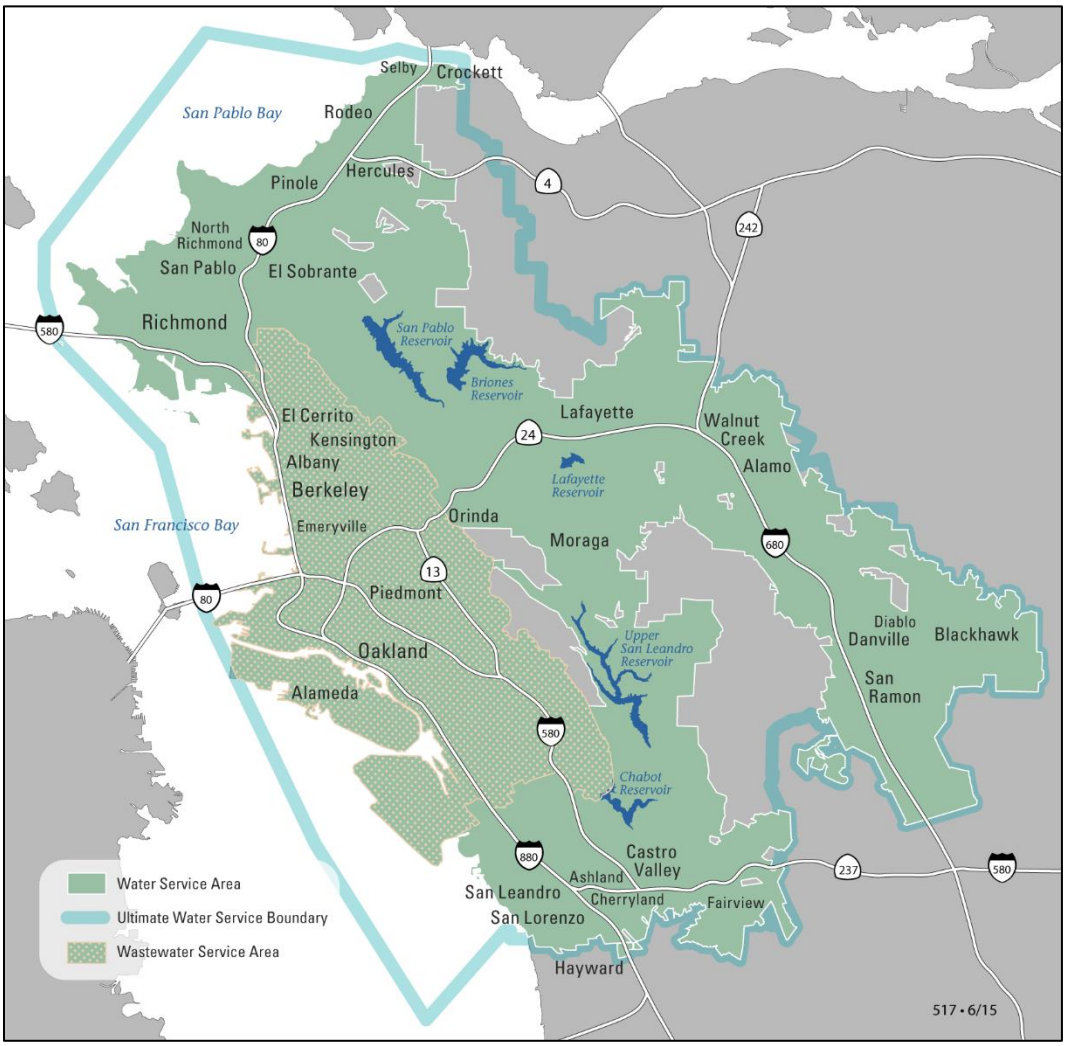


Figure 1 EBMUD service area

2.2 Proposed Action

Under the Proposed Action, Reclamation would provide $1 million from a WaterSMART Grant to EBMUD that would cover 22% of the installation of AMI equipment. EBMUD would provide the remaining funds to complete the project.

Access and Staging. Due to the scope and nature of work involved, no staging is required. Access to the industrial, commercial, and residential sites would be along existing road ways. Vehicles would be parked on existing paved areas close to the work site.

Advanced Metering Infrastructure. Approximately 3,000 meters, and 100 acoustic leak detection sensors and pressure sensors would be retrofitted so they

can be integrated into EBMUD's existing AMI system. In addition, one collector would be added to the AMI system to transmit meter data. EBMUD's staff would install meters and sensors in areas covered by their existing network. Installation of the AMI equipment involves removing the cover of the water meter box and removing the existing meter. The new meter and sensors would be installed using hand tools. The new equipment will be tested before placing the water meter cover back on. The retrofits will be completed in less than a day at each location. An example of the meter is shown in Figure 3. Residential, commercial, and industrial customers could receive retrofits.

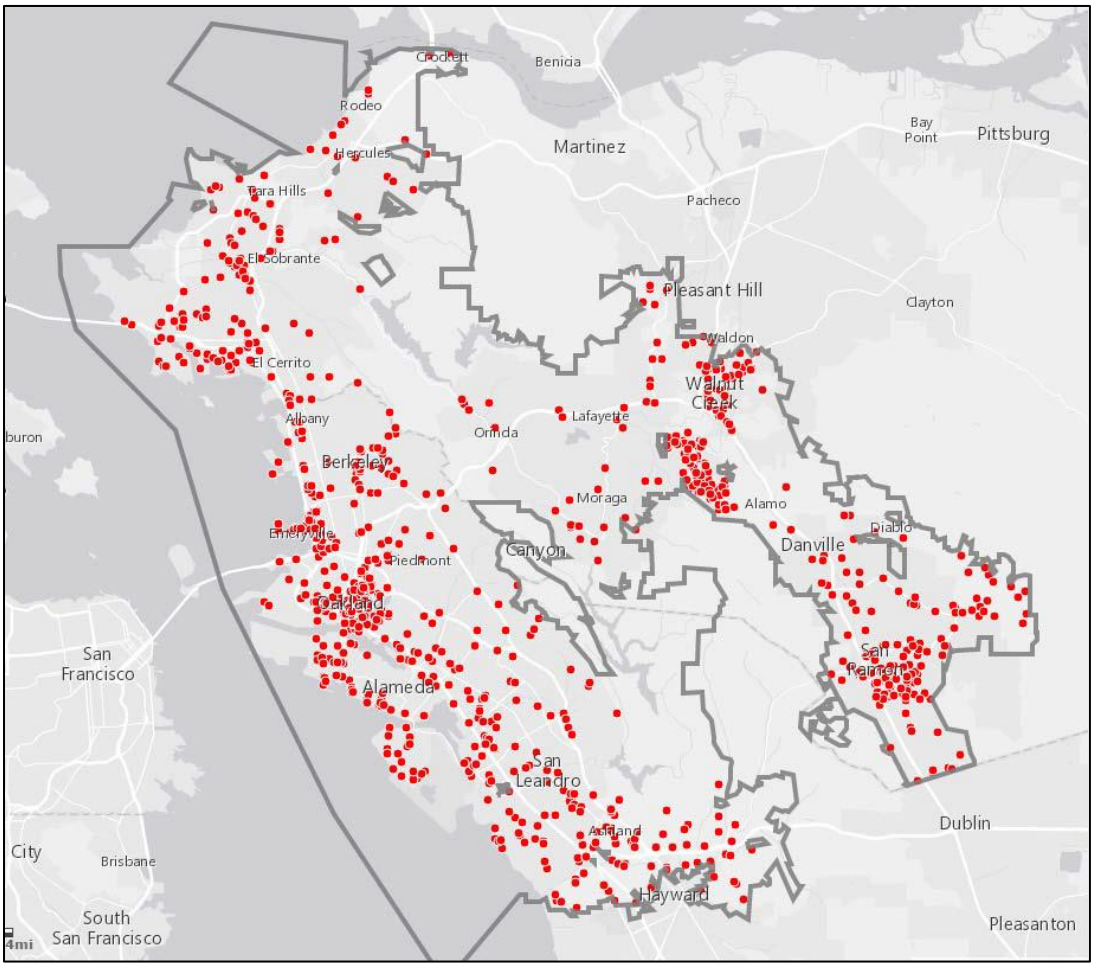


Figure 2 Location of East Bay MUD's largest water users

As part of the project, one collector would be placed in the district's service area. A specific location of the collect has not been determined but its location will be limited to EBMUD property and it will be placed at the highest possible vantage point to obtain maximum performance. Examples of locations include tops of buildings, tanks, or other radio towers. No ground disturbing activities are associated with the placement of the collector. Placement of the collector is anticipated to take less than one day. An example of a collection is shown in Figure 4. The collectors are powered by a 12-volt battery and the battery is recharged by a small solar panel.


Figure 3 Example of installed meter and leak detection


Figure 4 Example of a collector

Demobilization and Clean Up. Once the installation of the equipment is completed, the contractor would remove all tools and material from the project area. In addition, all work areas would be swept and cleaned of work-related debris and rubbish. The work areas would be left in a neat and presentable condition.

Construction Schedule. Installation of equipment are anticipated to begin in spring 2017 and completed in 36 months. Work hours would be limited to 7 a.m. to 7 p.m. 6 days a week.

3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environmental resources and the environmental consequences that could result from the Proposed Action and the No Action Alternatives.

3.3 Resources Not Analyzed in Detail

Impacts to the following resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below:

3.1.1 Air Quality

The project is located in the San Francisco Bay Area Air Basin (air basin) which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The air basin is in non-attainment status for ozone and particulate matter ($PM_{2.5)}$ under both the California and Federal standards, and also is in non-attainment under the California standard for particulate matter (PM_{10}). The air basin is in attainment for all other listed air pollutants under both the California and Federal standards (Bay Area Air Quality Management District 2008). The air district has set their thresholds of significance under the California Environmental Quality Act (CEQA) as 10 tons per year for ozone precursors (which is the same as general conformity thresholds for extreme non-attainment areas) and 10 tons per year for $PM_{2.5}$ (federal general conformity threshold for $PM_{2.5}$ is 100 tons per year). Installation of 3,000 meters and 100 leak detections and pressure sensors is anticipated to be completed within a three-year timeframe. Installation of a single meter is anticipated to take less than one day. Employee trips to the water meters occur normally as a part of meter-reading and maintenance practices. Installation of the AMI equipment would occur during a regularly scheduled meter reading, and would not generate additional vehicle trips and emissions. The activity size is well below the activity levels for small actions screened by the air district for CEQA significance (BAAQMD, 2011) and emissions that fall below federal general conformity thresholds.

3.1.2 Cultural Resources

Reclamation has determined the proposed undertaking to award WaterSMART Water and Energy Efficiency Grant funding to EBMUD to install AMI equipment for residential, commercial, and industrial customers within the EBMUD service area has no potential to cause effects to historic properties pursuant to the Section 106 implementing regulations at 36 CFR Part 800.3(a)(1) (Appendix A). Reclamation has no further obligations under the National Historic Preservation Act (NHPA) Section 106 regulations codified at 36 CFR Part 800.3(a)(1). If the project activities change or circumstances are altered after this review, there may be additional Section 106 review responsibilities up to and including consultation with the California State Historic Preservation Officer. Any additional site-

specific development of the concession areas will require Section 106 review and will be considered a new action.

3.1.3 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. The Lytton Rancheria tribal office is located within the EBMUD service area. Given the nature of the proposed action, there will be no effect on ITAs (Appendix B).

3.1.4 Indian Sacred Sites

Executive Order 13007 (May 24, 1996) requires that federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and avoids adversely affecting the physical integrity of such sacred sites. The Proposed Action would not be located on Federal lands and therefore would not affect access to or use of Indian sacred sites.

3.1.5 Environmental Justice

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. Reclamation has not identified adverse human health or environmental effects on any population as a result of implementing the Proposed Action. Therefore, implementing the Proposed Action would not have a significant or disproportionately negative impact on low-income or minority individuals.

3.1.6 Biological Resources

A list of federally listed threatened and endangered species and critical habitat was obtained from the U.S. Fish and Wildlife Service on December 16, 2016, from iPaC, a USFWS website. In addition, a search of the California Natural Diversity Database (CNDDB) was conducted for listed species occurrence documented in EBMUD service area. Twenty five federally list plants and animals have the potential to occur within EBMUD boundaries. In addition, critical habitat for Alameda whipsnake (*Masticophis Lateralis euryxanthus*), California red legged-frog (*Rana draytonii*), Contra Costa goldfields (*Lasthenia Conjugens*), and Santa Cruz tarplant (*Holocarpha Macradenia*) occurs within EBMUD boundaries.

Installation of the AMI equipment would occur at various urbanized locations in the East Bay. Retrofits are not expected to be within open space habitats where listed species may occur. Approximately eight meters are located within one mile of California red legged-frog and Alameda whipsnake documented CNDDB occurrences. Employee trips to the water meters occur normally as a part of meter-reading and maintenance practices. Installation of the meters and sensors would occur during a regularly scheduled meter reading, and would not generate additional vehicle trips. Retrofits would be completed during day light hours and would take less than a day to complete. The collector would be placed in an

urbanized location on EBMUD property. Retrofits and placement of the collector would not affect listed species or their associated habitat (Appendix C).

3.2 Water Resources

In a normal water year, 90 percent of EBMUD's water supply is obtained from the Mokelumne River and 10 percent of the supply is obtained from local runoff within their service area. The demand in 2016 was estimated at 180 million gallons per day, which takes into consideration ongoing drought conditions, conservation efforts and 9 million gallons per day of water recycling. Water demand has been reduced due the drought, a 20 percent mandatory reduction in water use and ongoing recovery from the 2008- 2010 economic recession. EBMUD anticipates water demand to increase to 230 million gallons per day over the next twenty years.

EBMUD serves approximately 1.4 million customers in 20 incorporated cities and 15 unincorporated communities in Alameda and Contra Costa Counties (Figure 1). All customers are metered. Residential customers' meters are read bimonthly; commercial and most industrial customers' meters are read monthly. Residential use accounts for nearly 69 percent of the water consumed, followed by 23 percent of the water is consumed by commercial, industrial, and institutional accounts, and 8 percent of the water is to dedicated irrigation accounts.

EBMUD has developed a web interface where customers with AMI equipment can log onto a website to view their water consumption. This website provides yearly, monthly, daily and hourly consumption data which can be used to identify water conservation opportunities such as plumbing leaks, excessive or poorly timed irrigation, and opportunities for plumbing retrofits. These systems have helped EBMUD work with customers to save considerable amounts of water and energy and significantly reduce water waste.

No Action
Under the no action alternative, Reclamation would not award grant funding to EBMUD for the installation of AMI equipment. As a result, EBMUD would continue to provide water to users but there would not be an improvement in water conservation. Customers would continue to wait until the next billing cycle to see any abnormal increases in usage.

Proposed Action
Under the proposed action, Reclamation would award $1 million from a WaterSMART Grant to EBMUD to install AMI equipment. The participating customers will have access to review their water consumption on-line and receive recommended daily and monthly landscape water budgets from EBMUD. In addition, leaks will be detected immediately and customers would be notified that there is an issue. The current water meters do not accurately measure low flows, such as those from slow leaks.

High water use customers who have expressed a desire to conserve water will be targeted to have the AMI equipment installed. EBMUD anticipates a direct savings of at least 540 million gallons annually or a total of up to 1,680 acre-feet per year. This estimate is based on a 10 percent reduction in water usage of participants.

3.3 Cumulative Impacts

According to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

No individual adverse effect was identified when evaluating the proposed action that would incrementally contribute to any cumulative effect on resources comprising the human environment.

4 Consultation and Coordination

4.1 Agencies and Groups Consulted

Reclamation has consulted with the following entities regarding the Proposed Action:

- Richard Harris, East Bay Municipal Utility District

5 References

Metropolitan Transportation Commission – Association of Bay Area Governments. (2012). *Bay Area Census*. Retrieved September 2, 2016, from http://www.bayareacensus.ca.gov/cities/AmericanCanyon.htm

Bay Area Air Quality Management District. (2011). *California Environmental Quality Act Air Quality Guidelines*. Retrieved September 2, 2016, from http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_May%202011_5_3_11.ashx

USFWS. (2016). IPaC Trust Resource Report. https://ecos.fws.gov/ipac/. Accessed December 16, 2016.

East Bay Municipal Utility District. (2015). *Water Conservation Division Water Conservation through Automatic Meter Reading Evaluation Report*.

Appendix A: NHPA, Section 106 Compliance

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 16-CCAO-182

Project Name: WaterSMART Grant: East Bay Municipal Utility District (EBMUD) Advanced Metering Infrastructure

NEPA Document: EA

NEPA Contact: Jamie Lefevre, Natural Resources Specialist

MP-153 Cultural Resources Reviewer: John Fogerty, Archaeologist John Fogerty

Date: February 7, 2017

Reclamation proposes to award WaterSMART Water and Energy Efficiency Grant funding to the East Bay Municipal Utility District (EBMUD) to install Advanced Metering Infrastructure (AMI) equipment for residential, commercial, and industrial customers within the EBMUD service area, which provides water service to approximately 1.4 million customers and wastewater service to 685,000 customers located in the East Bay region of the San Francisco Bay area, within portions of Alameda and Contra Costa Counties, California. AMI will allow EBMUD to read water meters, leak detection devices, and other sensors in real time, facilitating improved water loss control, improve consumption information to consumers through customized reports and mobile and web based applications, enable real time notification of potential pipeline leaks, assist in identifying water conservation opportunities, cumulatively providing immediate and long term water and energy savings.

Approximately 3,000 meters and 100 acoustic leak detection sensors and pressure sensors would be retrofitted so they can be integrated into EBMUD's existing AMI system. Installation of the AMI equipment involves removing the cover of existing water meter boxes, and replacing the meter and sensors with upgraded AMI equipment.

Reclamation determined that the proposed action is the type of undertaking that does not have the potential to cause effects on historic properties, should such properties be present, pursuant to 36 CFR § 800.3(a)(1). As such, Reclamation has no further obligations under 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA).

This document conveys the completion of the cultural resources review and NHPA Section 106 process for this undertaking. The proposed action would have no impacts on cultural resources. Please retain a copy of this document with the administrative record for the proposed action. Should the proposed action change, additional review under Section 106, possibly including consultation with the State Historic Preservation Officer, may be required.

Appendix B: ITA Concurrence

Indian Trust Assets
Request Form

**Please send your request to: Kevin Clancy

Date:

Requested by	Jamie LeFevre, x 5035
Fund	14XR0680A1
WBS	RY30180006FIDCA4E
Cost Center	2015200
Region # (if other than MP)	(NA)
Project Name	East Bay Municipal Utility District Advanced Metering Infrastructure and Water Conservation Improvements
CEC or EA Number	
Project Description	East Bay Municipal Utility District (EBMUD) will replace existing water meters with advanced metering infrastructure meters on existing service connections within their network. Installation of advanced metering infrastructure meters will be prioritized to EBMUD's higher water users (Figure 1).
***Project Location (Township, Range, Section, e.g., T12 R5E S10, or XY cords)**	EBMUD service area is located in the San Francisco East Bay (Figure 1) Lat: 37.81081, Long: -122.16392

*Please include map with request, if available.

ITA Determination:

The closest ITA to the proposed **East Bay Municipal Utility District Advanced Metering Infrastructure and Water Conservation Improvements** project is **Lytton** Rancheria which is **13** miles from the project area. (See attached image).

Based on the nature of the planned work it **does not** appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action **will not** have any impacts on ITAs.

K. Clancy	Kevin Clancy	12/15/2016
Signature	Printed name of approver	Date

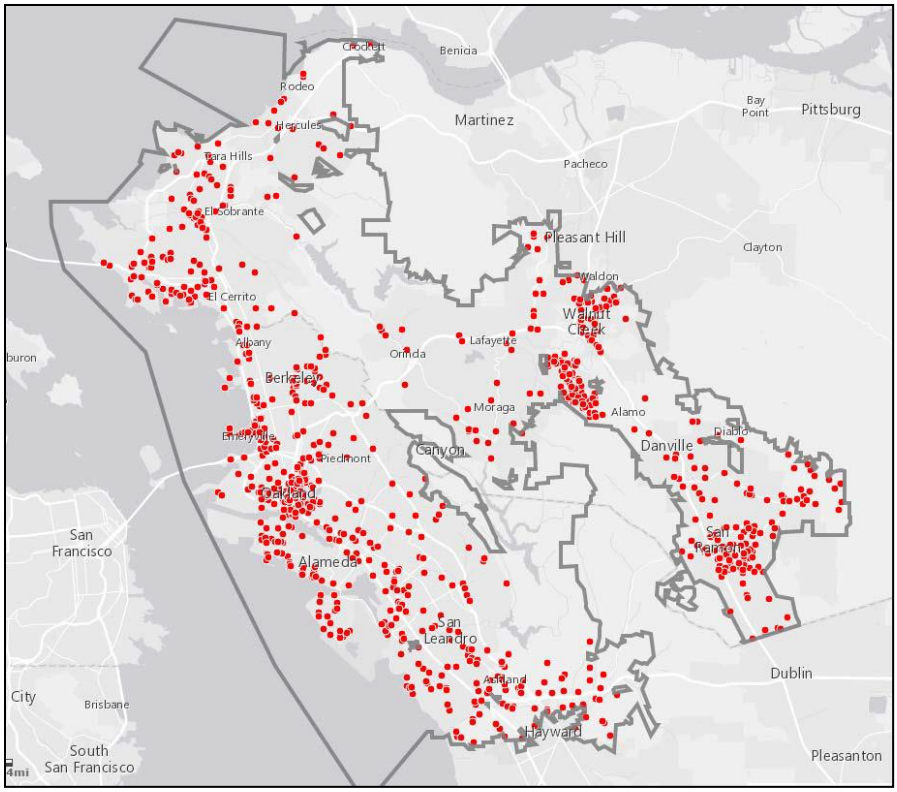
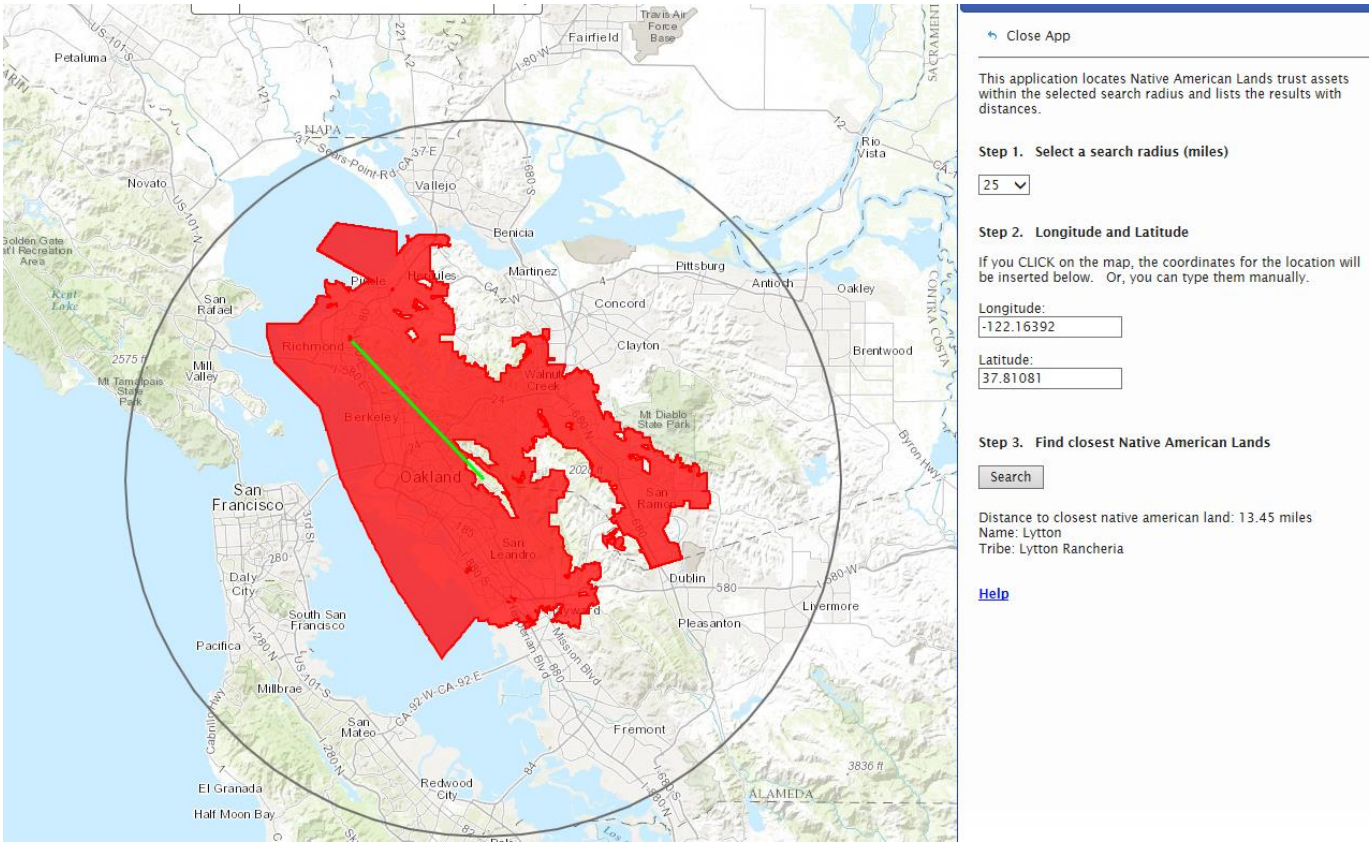


Figure 1. East Bay Mud Service Area (Red dots are East Bay MUD's largest water users)



Appendix C: Endangered Species Compliance

MP-152
ENV-7.00

MEMORANDUM

To: Russell W. Grimes, Chief, Environmental Compliance and Conservation Branch

From: Jamie LeFevre, Natural Resources Specialist

Subject: Endangered Species Act Section 7 no effect determination for East Bay Municipal Utility District Advanced Metering Infrastructure Project

The U.S. Bureau of Reclamation (Reclamation) proposes to provide East Bay Municipal Utility District (EBMUD) funding from the WaterSMART: Water and Energy Efficiency Grant for their Advanced Metering Infrastructure Project (AMI Project).
EBMUD would install advanced metering infrastructure (AMI) to remotely read water meters, detect leaks, and collect system pressure data. The information collected from AMI equipment would allow EBMUD to identify water conservation opportunities. Figure 1 identifies EBMUD's largest water customers that would be potential participants to have AMI equipment installed. Approximately 3,500 meters, and 100 acoustic leak detection sensors and pressure sensors would be retrofitted so they can be integrate into EBMUD's AMI system. Examples of the AMI equipment is shown in Figure 2. EBMUD's staff would install meters and sensors in areas covered by their existing network. Installation of the meters and sensors involves removing the cover of the box and removing the existing unit. The new meter and sensors would be installed using hand tools. The new equipment will be tested before placing the cover back on. The retrofits will be completed in less than a day at each location. The retrofits would occur in various urbanized locations around the East Bay.

In addition, one collector would be added to EBMUD's AMI system to transmit data. Specific location of the collect has not been determined but its location will be limited to EBMUD property and existing facilities. The collector will be placed at the highest possible vantage point to obtain maximum performance. Examples of locations include tops of buildings, tanks, or other radio towers. No ground disturbing activities are associated with the placement of a collector. Placement of the collector is anticipated to take less than one day. The collectors are powered by a 12-volt battery and the battery is recharged by a small solar panel.

A list of federally listed threatened and endangered species was obtained from the U.S. Fish and Wildlife Service on December 16, 2016 from IPAC, a USFWS website. In addition, a search of the California Natural Diversity Database (CNDDB) was conducted for listed species occurrence documented in EBMUD service area. Thirty six federally list plants and animals have the potential to occur within EBMUD boundaries. In addition, critical habitat for Alameda whipsnake (*Masticophis Lateralis euryxanthus*), California red legged-frog (*Rana draytonii*),

Contra Costa goldfields (*Lasthenia Conjugens*), and Santa Cruz tarplant (*Holocarpha Macradenia*) occurs within EBMUD boundaries (Figure 3).

Installation of the AMI equipment would occur at various urbanized locations in the East Bay. The majority of the retrofits would not be located within open space habitats where listed species could occur. However, approximately eight meters are located within one mile of California red legged-frog and Alameda whipsnake documented CNDDB occurrences or within Alameda whipsnake critical habitat. Employee trips to the water meters occur normally as a part of meter-reading and maintenance practices. Installation of the meters and sensors would occur during a regularly scheduled meter reading, and would not generate additional vehicle trips. Retrofits would be completed during day light hours, during dry weather conditions, and would take less than a day to complete.

Reclamation has determined that the meter retrofits and the placement of the collector would have no effect on the California red-legged frog, Alameda whipsnake, or Alameda whipsnake designated critical habitat. This determination is based on project implementation being conducted: 1) at existing facilities and developed areas; 2) during regularly scheduled maintenance visits; 3) during daylight hours; and 4) not during rain-events.