CITY OF STOCKTON

ADVANCED METER INFRASTRUCTURE AND METER REPLACEMENT, PHASE I

WaterSMART Grants:
Water and Energy Efficiency Grants
for Fiscal Year 2024 and Fiscal Year 2025
NOFO: R24AS00052

Thursday, February 22, 2024, 4:00 p.m. Mountain Daylight Time

Proposal Submitted to: Bureau of Reclamation Water Resources and Planning Office
Attn: Josh German, Christina Munoz
Via Grants.gov

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Executive Summary

Date: February 22, 2024

Applicant Name: City of Stockton

City, County, and State: Stockton, San Joaquin, California

Applicant Category: A

Funding Tier: III

Project Duration: 36 months

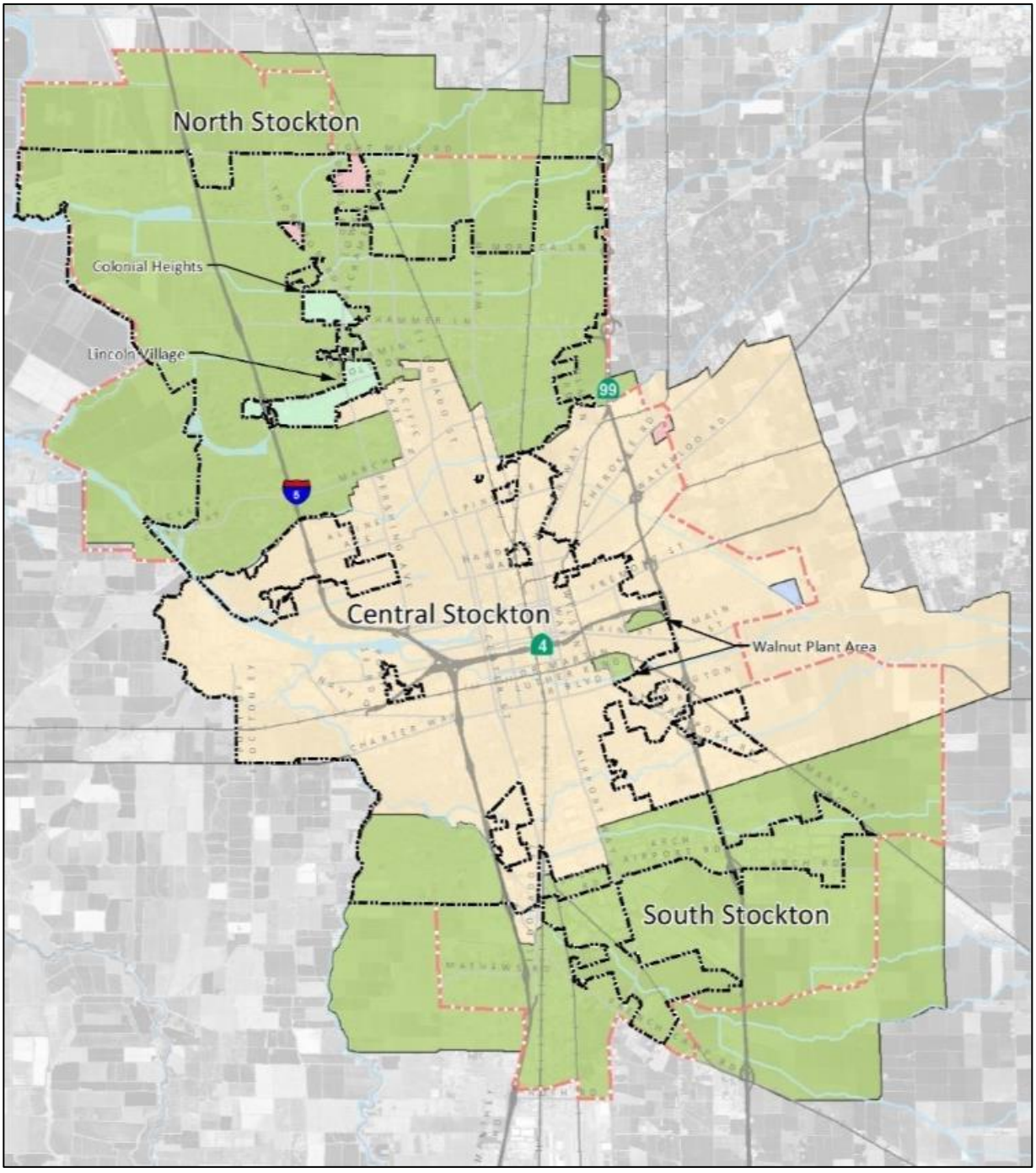
Project Summary:

The City of Stockton is requesting grant funding for the retrofit and replacement of 25,401 manual and touch read water meters with advanced meter infrastructure (AMI) at residential, commercial/institutional, and irrigation properties in order to support the efficient operation, management, and conservation of its water. In this first phase, approximately 6,500 meters will be replaced and another 18,900 will be retrofitted by adding Sensus FlexNet 520M SmartPoint radio transmitters. The project will save an estimated 1,003 acre-feet per year (AFY) of water, which will result in an estimated energy savings of 330,589 kilowatt-hours (kWh). The AMI project will improve water management with real-time data, early leak detection, and remotely read water meters. The project's contributions to water conservation, energy efficiency, and sustainability of -the San Joaquin River and Eastern San Joaquin Subbasin support Reclamation's Water and Energy Efficiency Grant Program priorities.

This project is not located on a Federal facility.

Project Location

Figure 1: Project Location Map



The project is located in the City of Stockton, a city in California's San Joaquin Valley located approximately 40 miles south of Sacramento. San Joaquin County is bounded by Sacramento County to the north, Stanislaus County to the south and east, Amador and Calaveras Counties to the northeast, and Contra Costa and Alameda Counties to the west. The City of Stockton can

be generally divided into three distinct water service areas:

- North Stockton: Served by the City of Stockton Municipal Utilities Department (COSMUD), with the exception of several small, developed areas ("islands") served by San Joaquin County,
- Central Stockton: Served by the California Water Service (Cal Water) **NOT INCLUDED IN THIS PROJECT SCOPE**
- South Stockton: Served by the COSMUD.

The proposed project location is in various locations throughout the COSMUD service areas of North and South Stockton.

Project Description

The City of Stockton is requesting grant funds for phase 1 of its meter replacement and advanced meter infrastructure (AMI) project to support the efficient operation, management, and conservation of its water. The City's water supply portfolio consists of a conjunctive use system, including surface water from the San Joaquin River, surface water from the Stockton East Water District conveyed from the New Melones (Stanislaus River) and New Hogan (Calaveras River) Reservoirs, and pumped groundwater from City-owned and operated wells in the underlying Eastern San Joaquin Groundwater Subbasin. There are about 50,620 meters serving residential, commercial, and institutional, and irrigation customers. Residential, commercial, and industrial growth is projected in the service areas of northern and southern Stockton. Based on anticipated growth, water demand is expected to increase by approximately 39 percent by 2045, per the City of Stockton 2020 Urban Water Management Plan (UWMP).

The City's AMI project consists of the purchase and installation of meters, reading equipment, software, technical support, and data transmission and receiving systems. The City will replace its existing manual meter reading system(s) with automated, advanced metering infrastructure equipment and software, transitioning to a fully scalable AMI system that will improve water conservation and efficiency.

The City's meter reading staff consists of Water System Operators (WSO) and Water System Technicians (WST). Currently, the meter reading is divided into 103 read routes with multiple billing cycles generating bills throughout each month. The City currently has approximately 50,620 conventional water meters with sizes ranging from 5/8-inch to 12-inch as listed in Table 1 below. Of the City's existing meters, approximately 4,830 meters are manually read with the remainder being a touch read system. WEEG grant funds from USBR will provide 25,401 AMI meters that will provide the City with real-time data and leak detection capabilities.

Table 1 Advanced Metering Infrastructure: New Meters					
Meter Size, inches	Total Quantity to Replace	Residential	Industrial	Commercial & Institutional	Irrigation
¾	2,586	2,560	0	26	0
1	2,583	2,531	0	26	26
1½	329	129	0	118	82
2	794	151	0	373	270
3	94	10	0	60	24
4	72	8	0	46	18
6	26	5	0	18	3
8	5	0	0	5	0
10	2	0	0	2	0
12	2	0	0	2	0
Totals	**6,493**	**5,394**	**0**	**676**	**423**

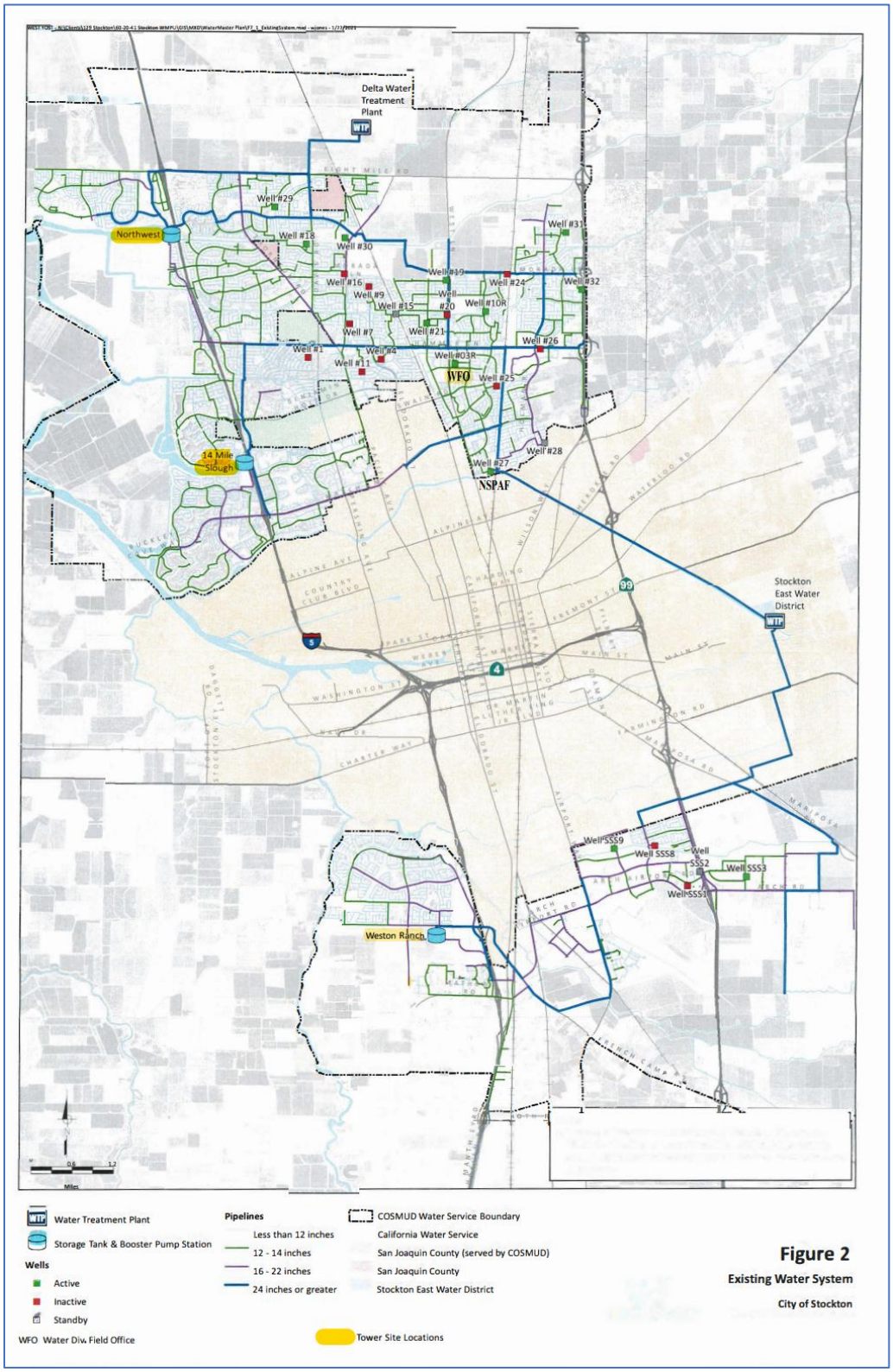
Table 2 Advanced Metering Infrastructure: Existing Meters to Retrofit					
Meter Size, inches	Total Quantity to Retrofit	Residential	Industrial	Commercial & Institutional	Irrigation
5/8 - 1	18,860	18,482	0	189	189
1½ – 2	26	8	0	11	7
3	17	2	0	11	4
4	4	1	0	2	1
6	0	0	0	0	0
8	1	0	0	1	0
Totals	**18,908**	**18,493**	**0**	**214**	**201**

Currently, the consumption data from existing meters is entered/transmitted into a handheld unit. The department has eight such units, which upload data to a desktop computer as a .txt file (Flat File), which is then transferred to the City's HTE billing system. As part of the project, the City intends to move the utility billing to Tyler-Munis Software. Meters, with a few exceptions, are installed in concrete meter boxes which have concrete lids with touch read pads or cast iron read window. The meters are installed in-line with standard meter connections with no meter yoke.

The City's existing distribution system configuration is shown on **Figure 2.** The City has three storage tank (reservoir) sites and other facility locations that are suitable to place antennae and other AMI communication equipment. The locations are highlighted in yellow on **Figure 2.** The locations of these structures are shown below in Table 3.

Table 3: Communication Sites	
Name	Address
Weston Ranch Reservoir	738 French Camp Road
14 Mile Reservoir	5656 Feather River Drive
Northwest Reservoir	10004 Trinity Parkway
City of Stockton Water Division, Field Office (WFO)	7400 N West Lane

Figure 2: Tower Site Location Map



AMI Project Deliverables

The City has procured a contractor, selected through a public, competitive bidding process, to replace manual read meters, older touch read meters, meter reading equipment/hardware, and meter reading software. The contractor will also provide data transfer services from the meters to HTE or the Tyler Munis system. All meters shall be potable cold-water meters conforming to American Water Works Association (AWWA) standards for water meter accuracy. The contractor will notify the customer immediately prior to water shut off and install.

AMI Project Tasks:

Key tasks associated with implementation of the AMI project include:

1. Network Infrastructure, Setup and Configuration
2. Purchase and provision of water meters and equipment
3. FlexNet AMI Software Setup and Configuration
4. Water meter installation
5. Ongoing Software-as-a-Service (SaaS) Software Hosting and Support. SaaS provides a single source of secure, accurate data entry and access for all meter reading system types.

Project Responsibilities and Work Execution.

Project responsibilities and work execution will be divided between the contractor and the City, as follows:

Work Execution – City responsibilities:

1. Forklift provided at the Delta Water Treatment Plant (DWTP).
2. Isolation of large services as needed and requested at least 48 hours in advance by the contractor. Large services include water meters 3” and greater.
3. Disposal of dirt, debris, pipe, concrete and any other project waste.
4. System read routes and other similar information as needed.
5. Water system expertise/advice as needed.

Work Execution – Contractor responsibilities:

1. Light traffic control devices (i.e. safety cones) for meter exchanges.
2. Replacement/repair of any service line breaks that occur during installation and in accordance with Contractor’s standard warranty terms and conditions.
3. Ensuring metering equipment will fit in meter box.
4. Supplying water meters, SmartPoints, labor, vehicles and fuel, industry standard tools and equipment, washer, bolt kits, and gaskets. All other materials and/or labor not included within the contracted budget shall be quoted to the City as necessary, on occurrence, and subject to change order approval.
5. All project management and contractor QA/QC.
6. All regulation compliance.

Tasks that Support the Deliverables: System Requirements

The system will integrate with the City's current billing software HTE and Tyler Munis billing system.

1. Meter Functionality
    a. All meters will be potable cold-water meters conforming to AWWA standards for water meter accuracy.
    b. Meters will be free from defects in materials and workmanship for 10 years from the date of installation with any additional warranty period clearly identified. The Contractor will provide a minimum 10-year guarantee of AWWA new meter accuracy.
    c. All residential water meters will be magnetic-driven, positive displacement type measuring chamber that conforms to the provisions in standard specification C700 (latest revision), "Cold-Water Meters – Displacement Type" of the AWWA standards.
    d. All residential water meters will be certified as "lead free" as defined by NSF/ANSI 61, Annex G and Annex F and will be produced from an ISO 9001 manufacturing facility. Manufacturer will provide a copy of a letter from the NSF-on-NSF letterhead documenting compliance with NSF / ANSI 61, Annex G and Annex F test methodology.
    e. Meters will conform to the size, length, capacity, and be accompanied by a factory test tag certifying the accuracy at flows that are required as stated in the standard C700, "Cold- Water Meters – Displacement type" latest version of the AWWA standards.
    f. The meter main case will be brass or bronze. It will be cast from NSF/ANSI 61, Annex G and Annex F certified lead-free alloy. The serial number will be stamped on the main case with cast raised markings indicating size, model, direction of flow, and NSF 61 certification. All main case bolts will be constructed of 300 series non-magnetic stainless steel for corrosion resistance. The main case will be guaranteed free from manufacturing defects in workmanship and material for the life of the meter.
2. Registers
    a. The meter register will be an absolute solid-state encoder with a water-resistant sealed glass lens and polymer lid. Meter register will be direct mounted to the meter secured with a tamper-proof seal pin allowing field installation and replacement without removing meter from service. The register will provide high resolution digital/LCD and/or dial/odometer display transmitted through a fully integrated radio transmitter endpoint. The register display will have a visual leak detection indicator and calculated flow rate information to assist with in the field customer service. The register will be warranted against manufacturing or design defects for a period of ten years from the date of shipment.
    b. Meter register ID will be 8 digits to be compatible with current HTE Billing Software.

c. The register will store at least 45 days of consumption points in 60 seconds to 1-hour intervals. The end-point technology will measure the possibility of downstream leaks by using consumption thresholds. It will also set alerts for backflow/cross connection, high consumption, and very low/zero consumption.

3. Software
   a. The system will be compatible with Windows 10 and upgradable to future versions of Windows operating systems.
   b. The system will support migration of 12 months of historical meter data for the purpose of analyzing usage patterns.
   c. The system functions, reports, and data on the control computer will be securely accessible remotely by properly authorized persons.
   d. Software will be capable of importing and exporting data to HTE Billing Software and be migratable to Tyler-Munis Software at a future date. Contractor will integrate the AMI system with the City's current billing system. The contractor and City will ensure the integration is successful at least 30 days prior the first billing cycle. AMI software will be warranted for a minimum of 12 months.

Work Plan and Approach

Contractor responsibilities for the project include the following:

1. The contractor will provide comprehensive turn-key offerings, encompassing system planning and design, network deployment, meter installations, and life-cycle support.
2. The contractor will practice a standard operational philosophy and approach from project commencement through completion and acceptance, combining the benefits of best practices and local management. Leading into the City's project, the contractor will host a series of Planning and Solution Design workshops to better understand the City's current business processes and identify any immediate needs. The contractor will work closely with the City to establish a project plan, deliverables, communication plans, and project acceptance. During this time, the contractor will devise a deployment timeline conducive to product acquisition, network implementation and integrations, and meter exchange.
3. The contractor will be responsible for managing installation, integration, and commissioning of the City's FlexNet system.
4. The contractor will work closely with City of Stockton and their Computer Information System to facilitate the successful integration of the billing software with FlexNet and Sensus Analytics.
5. Concurrent with network implementation, water meter installations will be performed using a work-order management software to manage and track installations.
6. The contractor will provide instructor-led and one-on-one field training needed for optimal system operation. Throughout the initial project start-up, the

contractor will deliver on-site training courses for key personnel. Each training session will be relevant to the audience and will include necessary product documentation and handouts.

7. From ongoing training to lifecycle maintenance and troubleshooting, the contractor will continue to assist the City to overcome any hurdles to ensure the continued operational health of the network through the life of the system. The contractor will provide the City with comprehensive onsite and remote support to ensure that the City receives the best service, hardware, and software support – including firmware updates – for Sensus AMI products.

Approach to Existing Metering Product

The Sensus FlexNet AMI solution supports a broad range of industry-leading water meter solutions from Sensus, Badger, Neptune, Elster, and more. Based on this interoperability, the proposed FlexNet AMI solution can maximize the City's metering investments and keep a majority of their installed metering products in place; this includes the City's existing Sensus, OMNI, and Neptune water meters, assuming a Sensus-protocol touch coupler connection is in place.

The contractor's proposal reflects this approach by providing a mixture of meter replacements and retrofit services. A complete breakdown and understanding of the installation approach is reflected within the proposed project budget and is summarized in the previous meter Tables 1 and 2. Keeping all Sensus, OMNI, and Neptune metering products in place by adding a FlexNet 520M SmartPoint and replacing all other metering types provides a substantial overall cost savings for the City.

The contractor's agreement further details the standard installation procedures for replacing meters, installing AMI retrofit registers, and customer notifications on pages 7 and 8, see attachment 3.

Performance Measures

The City of Stockton Advanced Meter Infrastructure and Meter Replacement, Phase 1 is anticipated to allow for improved water management by the Municipal Utility Department and more conscientious use by the customers through the availability of current water use data through the customer portal. The following is a list of performance measures that will be used to track and monitor the effectiveness of the program. This information will be compared to historical data for evaluation purposes. The City has a baseline of historical water distribution and billing data to compare with current and future records once AMI has been installed and the customer portal has been put into place. The City will use these tools to analyze the improved water management performance anticipated as a result of this project.

1. Identifying and quantifying the unauthorized consumption of water each month.
2. Quantifying the water consumption by customer class each month.
3. Evaluating before and after water consumption data using at least six months of post project data.

Evaluation Criterion A—Quantifiable Water Savings

Sub-criterion A1.a: Estimated Water Savings

The proposed project plans to replace 6,493 meters that cannot be retrofitted with AMI radio transmitters. These meters range in size from ¾-inch to 12-inch diameter meters and are manually read. The new meters will include the Sensus 520M SmartPoint Radio transmitters and connect to the new FlexNet network.

The City plans to retrofit 18,908 existing meters with Sensus 520M SmartPoint Radio Transmitters. These meters are for residential, commercial, institutional, and irrigation customers. The meters and AMI system will be warrantied against defects and malfunctions for 10 years and are expected to have useful life beyond this period.

Table 4 shows 2022 water use by customer class and estimated annual water savings overall following meter retrofits. Average water savings for similar projects throughout California range from 6 percent to greater than 10 percent, as reported by multiple water utilities. The City estimates this project scope will achieve a water savings of approximately 7 percent.

Table 4: Water Use by Customer Class for This Project

Customer Class	Total Connections	# of Meter Retrofits	2022 Water Use (AF)	Percent of 2022 Total Water Use	2022 Water Use for Meter Retrofit (AFY)
Residential	48,175	23,887	18,757	50	9,379
Commercial & Institutional	1,520	890	4,737	59	2,794
Irrigation	925	624	3,218	67	2,156
TOTAL	**50,620**	**25,401**	**26,712**	**---**	**14,329**
ESTIMATED ANNUAL WATER SAVINGS (7 percent)					**1,003**

Sub-Criterion A1.b: Current losses

Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:

- **Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?**

The City's water system contains two service areas: North and South Stockton. They are connected to each other by the Stockton Aqueduct but do not currently comingle due to differences in pressure. There are 16 active or standby groundwater wells, three reservoirs, seven tanks, with pump stations located at each of the reservoir sites. The City's water distribution system consists of approximately 584 miles of distribution pipelines and transmission mains.

The City uses the American Water Works Association (AWWA) Water Audits and Loss Control Programs method to annually evaluate its distribution system losses. System losses are the difference between the actual volume of water treated and delivered into the distribution system and the actual metered consumption. Such apparent losses are always present in a water system due to pipe leaks, unauthorized connections or use, faulty meters, unmetered services such as fire protection and training, and system and street flushing (UWMP, pg. 4-6).

The water audit is an accounting exercise that tracks all sources and uses of water within a water system over a calendar year. In January 2019, the volume of water loss reported was 2,994 acre-feet (AF). Types of water loss calculated in the audit include unauthorized consumption, customer metering inaccuracies, and systemic data handling errors. Loss from metering inaccuracies in 2019 accounted for 394 AF of apparent water losses (UWMP Appendix E). Average annual water loss from 2016 through 2019 was approximately 9.6 percent of total water supply (UWMP pg. 9-6). Losses due to leaks and breaks, water system flushing, and other system losses that include City fire flow tests, commercial and residential construction usage, and equipment testing are described in the City's 2020 UWMP. Information specific to leaks and breaks is described below:

- Leaks and Breaks. All water meter leaks, service line, main break and manifold leaks are reported to the City by customers calling in or by a system generated work order. All leaks/breaks are documented in the City's Computerized Maintenance Management System (CMMS). Communication with the customer, along with the following information are also documented: date and time of reported leak, name of person responding to the call, type of leak, work done, customer side or City leak, and time to complete. All meter leaks and emergency breaks are repaired the same day they are reported. Non-emergency service line and main breaks are usually held until a 48-hour Underground Service Alert is completed. Total water loss from main and service line breaks are estimated by using the pipe size, duration of the leak, and volume of water leaking. Meter leak water losses are estimated based on the volume of water found and duration of the leak.

- **If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?**

Depending on the location, water loss from meters may infiltrate into the ground, become surface runoff, collect into storm drains, or be lost to the sewer or to onsite septic system in the event of steady, low flowing leaks (e.g. leaking customer fixtures).

Current losses associated with meters are unable to be accurately quantified and are estimated based on production data versus water revenues. It is suspected that current water losses associated with meter inaccuracies are being used by customers for a variety of purposes including, drinking water, outdoor watering, wasted via continuous running of faucets, and also

small leaks that may not register. However, these losses are not clearly quantified due to the lack of advanced metering infrastructure.

The City considers this water as wasted and lost water that is not returned to the system for use by others.

- **Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?**

The proposed AMI project is specifically focused on customer meters. Reduction of current losses associated with customer use are not considered a beneficial use of the project.

Sub-Criterion A1.c: Support/documentation of Estimated Water Savings

Multiple water utilities report water savings ranging from 5 to over 10 percent after implementing advanced metering technologies due to quicker leak detections leading to quicker repairs and behavior management. A key benefit of AMI is the ability for the utility to communicate water use more effectively to customers and customers' ability to also manage behaviors and water use through use of customer mobile applications and/or web-based tools. The City's project includes the use of a customer portal to facilitate these actions. The noted water savings is supported by a smart metering study published in the Journal of Cleaner Production and re-published on the Science Direct webpage. This range of water savings is further supported by a January 2022 report prepared for the American Water Works Association, *Increasing consumer benefits and engagement in AMI-based conservation programs.*

Evaluation Criterion B—Renewable Energy

Subcriterion B.1—Implementing Renewable Energy Projects Related to Water Management and Delivery

Renewable energy is not included in this project.

Subcriterion B.2—Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).

Energy efficiencies and a reduction in energy use will result from reduced pumping, treatment and distribution of water. The energy savings is based on the volume of water saved (estimated to be 1,003 AFY), multiplied by the energy intensity value shown in the table below.

The energy intensity shown in the table was calculated using the total volume of drinking water measured by the City's 2019 SCADA production data and average daily kilowatts per hour (kWh) usage data provided by Pacific Gas and Electric (PG&E), 15,544.58 kWh.

Table O-1B: Recommended Energy Reporting - Total Utility Approach				
Enter Start Date for Reporting Period	1/1/2019	Urban Water Supplier Operational Control		
End Date	12/31/2019			
Is upstream embedded in the values reported?	☐	Sum of All Water Management Processes	Non-Consequential Hydropower	
Water Volume Units Used	*AF*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*34,228*	*0*	*34,228*
Energy Consumed (kWh)		*11,280,428*	*0*	*11,280,428*
Energy Intensity (kWh/volume)		*329.6*	*0.0*	*329.6*

Quantity of Self-Generated Renewable Energy

117,926 kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Metered Data

Data Quality Narrative:

Monthly electrical energy data was provided for groundwater wells, reservoir pump stations, and water treatment at the DWTP.

Narrative:

The COSMUD water service area is supplied by surface water from the San Joaquin River, purchased water from SEWD and WID, and groundwater from City-owned wells. Refer to Section 6.2 for an in-depth explanation of each water supply source. The energy data provided summarized the monthly energy consumption for operating the DWTP, groundwater wells, and reservoir usage. Some solar power is produced at the DWTP.

Source: City of Stockton 2020 Urban Water Management Plan, 2022 update

- **If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.**

Water energy intensity is the total amount of energy, calculated on a whole-system basis, used to deliver water to customers for use. Energy intensity is the total amount of energy in kilowatt hour (kWh) expended on a per acre-foot basis to take water from the COSMUD sources to its points of delivery. The City estimates energy intensity to be 329.6 kWh/AF for its system. It is estimated that the AMI Replacement project will save 1,003 AFY of water. The energy intensity saved by conserving 1,003 AFY is 330,589 kWh per year.

- **How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.**

Significant energy use is required to divert, pump, treat, and distribute water. Conserving water will reduce energy use and greenhouse gas emissions. According to a 2021 analysis by the U.S. Environmental Protection Agency, electric power contributes to 25 percent of greenhouse gas emissions (U.S. Environmental Protection Agency, Sources of Greenhouse Gas Emissions). By conserving water, the project can decrease electrical use and thereby reduce emissions. Using EPA's Greenhouse Gas Equivalencies Calculator, 330,589 kilowatt-hours avoided from conserving 1,003 AFY of water is equivalent to a reduction of 234 metric tons of carbon dioxide.

- **If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used.**
- **How would the proposed project impact the current pumping requirements and energy usage?**

The City owns and operates the DWTP, under the City's in-direct potable reuse program, which is located in the northern region of the City, and associated facilities including an intake pumping station. located on the southern tip of Empire Tract on the San Joaquin River, and other conveyance infrastructure. The DWTP commenced operation in 2012 and has the capacity to treat up to 30 million gallons per day (MGD), or 33,600 AFY.

The City's water supply does include groundwater pumped from City-owned and operated wells in the underlying Eastern San Joaquin Groundwater Subbasin. Groundwater provides supplemental supply to meet increased demands primarily in the summer months or during dry years when surface water availability may be limited. Pump stations are located at each of the reservoir sites. The North Stockton area has a total and firm pumping capacity of 39,750 gpm (57.2 MGD) and 31,450 gpm (45.3 MGD), respectively. The South Stockton area has a total and firm pumping capacity of 12,000 gpm (17.3 MGD) and 9,000 gpm (13.0 MGD), respectively (2020 UWMP pg. 3-9).

The estimated water savings will decrease the amount of groundwater needing to be pumped, in turn reducing energy usage for pumping, treatment, and distribution. The energy intensity calculation includes energy consumption for operating the DWTP, groundwater wells, and reservoir usage.

- **Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.**

The energy intensity calculation does not include energy savings associated with points of diversion.

- **Does the calculation include any energy required to treat the water, if applicable?**

The energy intensity calculation includes electrical energy data for treatment.

- **Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.**

Conserving 1,003 AF of water will produce an energy efficiency savings of 330,589 kilowatt-hours. EPA's Greenhouse Gas Equivalencies Calculator estimates the 330,589 kilowatt-hours

avoided from conserving 1,003 AFY of water is equivalent to a reduction of 234 metric tons of carbon dioxide. 234 metric tons of carbon dioxide is equivalent to the greenhouse gas emissions from 600,595 miles driven by an average gasoline-powered passenger vehicle.

The City estimates a total of 36,000 miles are currently traveled to perform meter reading. This project will eliminate the need for driving throughout the City to perform the monthly meter readings, which will reduce greenhouse gas emissions by approximately 14 metric tons of carbon dioxide (EPA Greenhouse Gas Calculator).

- **Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).**

No new renewable energy components will be installed for this project.

Evaluation Criterion C— Other Project Benefits

Resilience and Sustainability Benefits. Will the project address a specific water and/or energy sustainability concern? Please address the following:

- **Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:**
- **Describe recent, existing, or potential drought or water scarcity conditions in the project area.**
- **Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?**
- **Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available).**

The following is in response to the preceding four questions.

The San Joaquin River Basin faces significant water management challenges and has been confronting rising demands for water from rapidly increasing populations, changes in land use, and growing urban, agricultural, and environmental demands (USBR 2021). Accelerating climate change has led to increasingly severe droughts, with the period from 2012 to 2015 the driest period in the recorded history of the Central Valley and estimated to be the driest in the last 1,200 years. Climate change has also heightened the intensity of atmospheric rivers, resulting in extreme periods of wet weather and flooding, which makes balancing of flood protection and water supply storage more challenging. Due to these factors, the USBR has identified threats to the basin as groundwater overdraft causing decreased water quality, land subsidence, saltwater intrusion, droughts, extreme wet weather, floods, and managing limited water supplies between urban and agricultural users while providing habitat to threatened or endangered species.

The Eastern San Joaquin Groundwater Subbasin was identified by the California Department of Water Resources (DWR) as being in a state of critical overdraft. The Subbasin's 2019 Groundwater Sustainability Plan (GSP) shows that groundwater elevations have declined since the 1950s. The DWR designation of critical overdraft means generally more water is taken out of the ground annually than is recharged, resulting in severe depletion of groundwater aquifers.

Groundwater is vital to San Joaquin County and supplied roughly 60 percent of the water used in the Eastern San Joaquin Subbasin in 2022, a drought year when there was a relatively small amount of surface water available. These groundwater withdrawals translated to a decrease in groundwater storage of 122,000 acre-feet, contributing to the long-term decline in water levels in parts of the basin. In some parts of the San Joaquin Valley, groundwater levels are reaching record lows due to ongoing groundwater use and the drought, with groundwater levels being up to 100 feet lower than previous records. Chronic lowering of groundwater levels may cause land subsidence, seawater intrusion, groundwater quality issues, and other undesirable effects in many parts of the state. Continued groundwater overpumping could also put nearby infrastructure, such as structures, roads and pipelines, at greater risk of costly damage. Worsening water quality issues as a result of the declining water levels were detected on the west side of the Subbasin, some of which affected City wells.

More recently, the 2020 and 2021 water years constituted the second-driest two-year period since records began in 1895, and the driest since the 1976–77 drought (Medellín-Azuara 2022). This drought had significant impacts on Central Valley agriculture. The unusually warm temperatures in 2021—nearly 3.5°F above the 20th-century average—are estimated to have created an additional 3–4 inches of evaporative demand, or about an 8 percent increase in crop water demands.

- **Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.**

Not applicable to this project.

- **Please describe how the project will directly address the concern(s) stated above.**
- **Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?**

Benefits of AMI technology includes real-time data collection and analysis, early leak detection technology, and decreased need for manual readings, all of which help improve efficiency, conservation, and water management. The AMI project objectives include:

1) Facilitate the most effective reading process possible utilizing AMI.
2) Maximize existing investments in meter reading technology.
3) Support water conservation monitoring and enforcement.
4) Transfer accurate meter readings to billing software.

AMI and SaaS can also be used to engage customers by sharing current information directly. AMI allows water meters to be read remotely and can collect meter reads at 15-minute intervals, providing near-real time data. Customers can access their online portal to view water usage at any time and monitor water usage habits, receive notifications detecting high usage and/or leaks, and receive water conservation tips. Customers can have information readily available, providing them with usage and billing data that may encourage water conserving habits.

SaaS provides a single source of secure, accurate data entry and access for all meter reading system types. SaaS can integrate meter data, event data, and alerts directly with existing systems or applications, such as work order systems, customer portals, billing systems, or hydraulic modeling applications. This arrangement provides a deeper understanding of information, while also managing, sharing, and securing data easily. It can be used to gather and analyze data from multiple sources to empower faster, informed decisions, enabling efficient water management.

- **Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.**

The conserved water will remain at its source in groundwater aquifers or upstream surface water reservoirs, increasing the availability of water supplies for future use. When it remains in the system, the conserved water can be used to meet demands later on, offsetting the current need to use surface supplies or pump additional groundwater to meet demand and account for water loss. As described previously in Criterion C, Resiliency and Sustainability Benefits, the San Joaquin River Basin faces significant water management challenges and has been confronting rising demands for water from rapidly increasing populations, changes in land use, and growing urban, agricultural, and environmental demands (USBR 2021). The Eastern San Joaquin Groundwater Subbasin was identified by the California Department of Water Resources (DWR) as being in a state of critical overdraft. To support water sustainability and reliability, the City's AMI project conserves water resources by identifying water loss, encouraging customers to use less, and lessening the need for additional demand.

- **Indicate the quantity of conserved water that will be used for the intended purpose(s).**

It is estimated that 1,003 acre-feet of water will be conserved annually by implementing the proposed Advanced Meter Infrastructure and Meter Replacement, Phase I project.

- **Will the project assist States and water users in complying with interstate compacts?**

The City of Stockton does not participate in any interstate compacts.

- **Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?**

As described above, the San Joaquin River Basin faces significant water management challenges and has been confronting rising demands for water from rapidly increasing populations, changes in land use, and growing urban, agricultural, and environmental demands. These uses compete for a water supply increasingly threatened by climate change and drought. Litigation regarding these limited water resources began in the 1980s, with the Natural Resources Defense County filing suit against USBR, seeking to restore Chinook salmon below Friant Dam on the San Joaquin River. The settlement led to the San Joaquin River Restoration Program,

which has resulted in mixed ecological success. A 2018 regulatory approach to the Basin's water-related crisis was the controversial State Water Resources Control Board flow and water quality standards for the river to benefit the environment (PPIC 2023). More recently, DWR identified the Eastern San Joaquin Groundwater Subbasin as being in a state of critical overdraft requiring increased regional water management actions. Accelerating climate change is leading to increasingly severe droughts, and even greater potential for conflicts with increased competition for lessening and less reliable resources. The water conservation provided by the project will protect a critical resource and align with regional collaborative efforts.

Ecological Benefits. Please provide information regarding how the project will provide ecosystem benefits, including the following:

- **Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).**

The City's AMI project consists of installing new and retrofitting existing meters with AMI technology in a service area that primarily consists of residential, commercial, and irrigation uses. While the implementation of the project will not directly impact special-status species, water conservation in general benefits species within the City's surface water source, the San Joaquin River. Water conservation can help maintain and protect surface water availability and allow available surface water to support instream flows for species.

The San Joaquin River originates in the Sierra Nevada mountain range, flowing through the San Joaquin Valley, and then proceeding to its confluence with the Sacramento River in the Sacramento-San Joaquin Delta (Delta). The Delta supports a number of freshwater fish as the waters are used as migration corridors and rearing areas for anadromous fish species and as spawning and rearing grounds for many estuarine species. Table 5 identifies the special-status fish species found within the Sacramento-San Joaquin Delta. The San Joaquin River Restoration Program is a multi-agency effort to sustain fish populations to the San Joaquin River, specifically the spring-run Chinook salmon.

To our knowledge none of these species are adversely affected by a Reclamation project.

Table 5: Special-Status Fish Species Found in the Sacramento/San Joaquin Delta			
Common Name	Scientific Name	Listing Status: Federal/State	
		Federal	State
Delta Smelt	*Hypomesus transpacificus*	FT	ST
Central Valley steelhead	*Oncorhynchus mykiss*	FT	--
Central Valley spring-run Chinook salmon	*Oncorhynchus tshawytscha*	FT	ST
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	FE	SE
Central Valley fall/late fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FP	CSC
Green sturgeon	*Acipenser medirostris*	FP	CSC
River lamprey	*Lampetra tridentate*	FSC	CSC
Sacramento splittail	*Pogonichthys macrolepidotus*	FSC	CSC
Longfin smelt	*Spirinchus thaleichthys*	FSC	CSC
City of Stockton. 2005. Stockton Delta Water Supply Project. Program Environmental Impact Report, State Clearinghouse No. 2003112060. Draft – Volume II. Sources: CNDDB, 2004; NOAA Fisheries, 2004; USFWS, 2004.			
[1] FE = Federal endangered, FT = Federal threatened; FP = Federal proposed; FSC = Federal species of concern			
[2] SE = State endangered; ST = state threatened; CSC = California species of special concern.			

- **Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels, recreational benefits, etc.).**

Yes, it is assumed that the AMI project will produce a water savings of approximately 7 percent, reducing the amount of water demanded by an estimated 1,003 AF annually and allowing water to remain in the San Joaquin River for a longer period of time. Reductions in water delivered from the San Joaquin River can collectively protect stream flows, particularly during dry periods or summer months when supplies may be limited. Through improved water management using the AMI technology, the City will have greater flexibility to shift operations between water sources (e.g. groundwater and surface water) to reduce impacts to water sources supporting efforts to improve river temperatures or groundwater levels.

- **Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?**

No, not applicable.

- **Please describe any other ecosystem benefits as a direct result of the project.**

The AMI project will enable efficient water use and conservation, which can help protect water supplies and flow levels that support the San Joaquin River ecosystem. Conserving water will reduce the amount withdrawn from the river and the remaining instream availability can help protect flow levels. Protecting adequate flow levels allow for fish migration, spawning, and rearing. Sufficient stream flow can also sustain temperature levels necessary for the health of endangered species. Maintaining river flows can also buffer against seasonal variability in hydrological conditions as well as the impacts of climate change, like drought and extreme temperatures. This is an indirect benefit of the proposed project and will not be monitored directly as a post project performance measure.

- **Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?**

Benefits of AMI technology includes real-time data collection and analysis, early leak detection technology, decreased need for manual readings, all of which help improve efficiency, conservation, and water management.

Stockton, like much of California, experienced record-breaking drought from 2012-2015 and more recently, the 2020 and 2021 water years constituted the second-driest two-year period since the 1890s. These unprecedented conditions led to statewide mandated water conservation, significant surface water supply reductions and curtailments, and legislation establishing new statewide water efficiency standards. AMI is extremely valuable to the City's water management for its capabilities to provide accurate and real-time data that can enable quick and efficient response to changing conditions, such as growth, demand and consumption patterns, water loss, and conservation. WEEG funds will enable the City to implement its AMI project to improve metering technology and allow for enhanced demand tracking, management, and water loss identification.

The AMI project will address climate change and increase resiliency in multiple ways. Providing more efficient water use and conservation will benefit both the immediate Stockton community and the larger region that shares a water supply impacted by increasingly severe and extended droughts. Additionally, the water usage data that the project will track and share with water users will provide crucial information to how their activities may use or conserve water and create more active participation in community drought resilience.

- **Does the project seek to improve ecological resiliency to climate change?**

The project will seek to improve ecological resiliency to climate change. The region has important ecological resources reliant on water supplies threatened by climate change, including the San Joaquin River, the Delta, and wetland habitats. The project's anticipated water conservation will reduce Stockton's water need, providing greater ecological resiliency for the environments that also rely on the same water resources.

- **Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?**

The project's water conservation will reduce the use of resources and pollution associated with treatment and transportation of water. The ability of AMI to identify water leaks quickly can also not only conserve water but also reduce dry weather urban runoff, which can transport pollutants such as trash, sediments or metals to nearly waterways, thereby reducing water pollution.

- **Does the proposed project include green or sustainable infrastructure to improve community climate resilience?**

No, not applicable.

Evaluation Criterion D— Disadvantaged Communities, Insular Areas, and Tribal Benefits

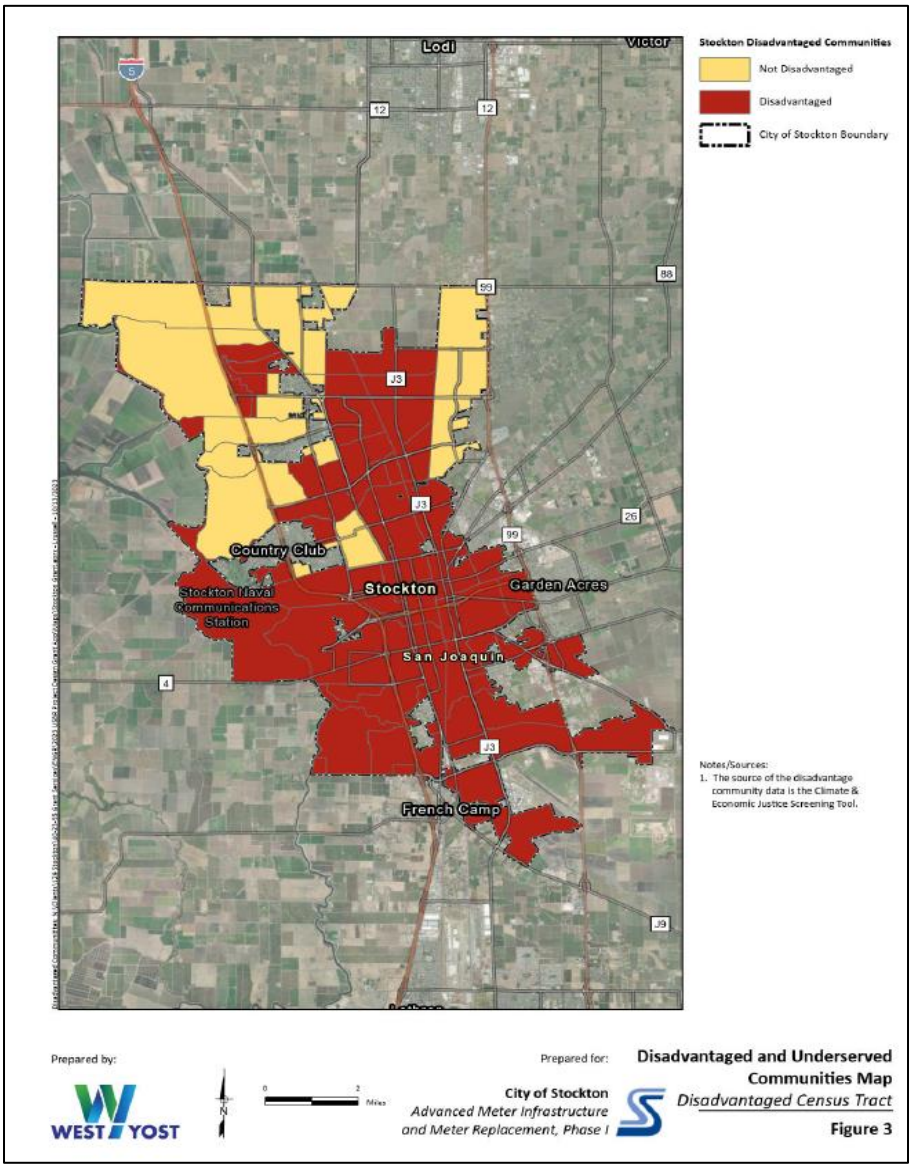
The effects of drought can also heighten existing socioeconomic inequalities. Communities of color and low-income people living in tribal, rural, and farming communities carry a disproportionate share of the drought's burden and are most vulnerable to the effects of climate change due to poor-quality housing and infrastructure, proximity to environmental hazards, and economic instability (Ortiz 2015). According to the Climate & Economic Justice Screening Tool, approximately 68 percent of the City area is considered disadvantaged and approximately 257,196 people are within a disadvantaged census tract.

Describe, in detail, how the proposed project supports a priority(ies) below.

Subcriterion D.1. Disadvantaged Communities

The Climate & Economic Justice Screening Tool identifies disadvantaged communities as both overburdened and underserved, meaning that a census tract is considered disadvantaged by the tool if it meets one category of burden (climate, water, energy, housing, etc.) and the associated socioeconomic threshold of at or above the 65th percentile for low income. According to the tool, approximately 68 percent of the City area is considered disadvantaged and approximately 257,196 people are within a disadvantaged census tract.

Figure 3 Disadvantaged Communities Map



Water and wastewater are a burden category. Underground storage tanks and releases as well as wastewater discharge contribute to a water burden. Approximately 18 percent of the City of Stockton is impacted by both socioeconomic and water burdens. Another burden category is climate change. Considerations within the climate change category include expected agriculture loss rate, expected building loss rate, expected population loss rate, projected future flood risk, and projected future wildfire risk. Approximately 28 percent of the City of Stockton experiences the burdens of climate change and low income.

When disadvantaged communities are defined by Median Household Income, as with the California Department of Water Resources disadvantaged communities mapping tool, which identifies disadvantaged census tracts using the American Community Survey MHI data, then the entirety of the City is considered disadvantaged.

Will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?

The proposed AMI project will reduce demands on water supplies by saving an estimated 1,003 acre-feet annually, yielding a long-term water savings of 10,030 acre-feet over ten years and more than 20,000 acre-feet over the 20-year lifespan of the metering infrastructure.

Reducing the amount of water drawn from the groundwater benefits disadvantaged communities served by both COSMUD and other communities that rely on the groundwater. The Eastern San Joaquin groundwater subbasin serving an estimated 573,142 people has approximately 13,668 wells providing between 35 percent and 100 percent of a communities' water supply. This groundwater basin has been designated a critically overdrafted basin by the California Department of Water Resources. Continued overpumping could cause damages to critical infrastructure such as roads, structures, pipelines, and the economic viability of the communities served, of which 55 percent of the subbasin population is considered economically disadvantaged. Furthermore, the pumping of the groundwater in excess of recharge have contributed to an increase of salinity in the groundwater wells throughout the subbasin since the 1950s. Nitrate concentrations are a known water quality issue and is currently localized and not widespread. Nitrate concentration are a concern for the City of Stockton, and lowering groundwater levels increases the concentrations in the City's water supply requiring additional treatment at an additional cost that is considered when evaluated water rate increases.

Water scarcity and water quality impacts rural communities much greater than cities, as the rural areas of the subbasin rely on private wells for their water supplies. While the City's service area does not include private water well, there are adjacent areas within the subbasin that do rely on groundwater as their sole water source. The Groundwater Sustainability Authority (GSA) has identified the installation of water meters and use of advanced metering infrastructure as an important action to protect the groundwater supply from further declines. The City of Stockton is a water supplier capable of implementing such an action in support of the GSA's goal to protect the groundwater supply from future decline.

Subcriterion D.2. Tribal Benefits

There are no tribal communities served by the COSMUD.

Evaluation Criterion E— Complementing On-Farm Irrigation Improvements

Not applicable to this project.

Evaluation Criterion F— Readiness to Proceed

- **Identify and provide a summary description of the major tasks necessary to complete the project.**

Design and procurement have been completed, as noted in the schedule. The table below shows milestones for the proposed phase to complete the replacement of meters ranging in

size from ¾-inch to 12-inch diameter, serving residential, commercial, institutional, and irrigation customers.

Table 6: Estimated Project Schedule				
Phase	Task	Description	Start	Finish
Pre-Award	**Procurement and Vendor Selection**	CEQA Notice of Exemption	May 2024	May 2024
		Procurement and Vendor Selection	Completed December 2023	
		Contract Negotiation and Execution	December 2023	March 2024
Pre- and Post-award	**Customer Outreach**	Project webpage on City website, flyers, door hangers, community meetings, videos	July 2024	Project completion
Pre-Award	**Interface Development**	System testing and billing interface	May 2024	August 2024
Pre-Award	**Network Infrastructure, Setup, Configuration**	Base stations, communication backhaul	April 2024	October 2024
Post-Award	**NEPA**	USBR Environmental Review. Categorical Exclusion is likely	December 2024	January 2025
Post-Award	**Meter Replacement (year 1)**	Replace 2,259 meters that cannot be retrofitted with Sensus meters and AMI transmitters with 520M Single Port SmartPoint Radio Transmitters	January 2025	December 2025
Post-Award	**AMI Radio Transmitter installation (year 1)**	Install 520M Single Port SmartPoint Radio Transmitters for 6,208 existing meters which range in size from ¾" to 12"	January 2025	December 2025
Post-Award	**Meter Replacement (year 2)**	Replace 2,114 meters that cannot be retrofitted with Sensus meters and AMI transmitters with 520M Single Port SmartPoint Radio Transmitters	January 2026	December 2026

Table 6: Estimated Project Schedule				
Phase	Task	Description	Start	Finish
Post-Award	**AMI Radio Transmitter installation (year 2)**	Install 520M Single Port SmartPoint Radio Transmitters for 6,353 existing meters which range in size from ¾" to 2"	January 2026	December 2026
Post-Award	**Meter Replacement (year 3)**	Replace 2,120 meters that cannot be retrofitted with Sensus meters and AMI transmitters with 520M Single Port SmartPoint Radio Transmitters	January 2027	November 2027
Post-Award	**AMI Radio Transmitter installation (year 3)**	Install 520M Single Port SmartPoint Radio Transmitters 6,347 existing meters which range in size from ¾" to 2"	January 2027	November 2027

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

No permits are required to complete this project. An FCC permit is not required for the new radio frequency towers that will be used in the fixed network system because the towers will not be tall enough to require such a permit. Additionally, the contractor owns the dedicated radio frequency that is used by the AMI and use is included in the contractor's scope.

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

In 2013, the city contracted with HDR to complete the Feasibility Report and Cost-Benefit Analysis for the Implementation of Advanced Metering Infrastructure (AMI) for Water Metering. This study concluded the city's current method of manually reading meters is the most inefficient method, and the long-term cost difference between upgrading to a fixed network AMI system and continuing with the current system, the AMI system has a lower 20-year present value cost. The report provided important considerations for reviewing various technologies and compatibility with the city's existing meters and helped the city to budget for the implementation of AMI.

The report also highlights benefits not easily quantified including improved customer communication, enhanced billing system integration, and field staff safety.

The technology has improved allowing for meters of different brands to be retrofitted with a system standardized to work with multiple brands and not require the City to replace all meters with a single meter brand. This technological advancement was the impetus for the city to move forward with the conversion of all meters for all customer classes. The contractor was required to propose an AMI solution that is compatible with the city's existing meters to the extent possible and identify meters requiring replacement. Fewer than 10 percent of the city's meters will require replacement.

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

No new policies or administrative actions are required to implement this project.

- **Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.**

Anticipated Pre-award final design tasks will be completed in 2024 include:

- Obtain area site map from utility;
- Evaluate potential tower sites;
- Input collected data to Sensus System to get propagation model completed;
- Prepare AMI Base Station Terms document.
- Verify Network Propagation Analysis; Refine Project Plan;
- Meter Configuration Workshop;
- FieldLogic Configuration Workshop;
- Confirm Base station site preparation.

Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

The City plans to file a CEQA Notice of Exemption in May 2024. It is anticipated that the project qualifies for a categorical exclusion under NEPA.

The California-Great Basin Regional office was contacted via email on February 20, 2024 to inquire about the anticipated level of environmental review required for the proposed project. A response was not received from the regional office before the submittal of this application; however the City will coordinate with USBR to comply with NEPA.

Evaluation Criterion G—Collaboration

Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

The project is located within the City of Stockton's jurisdiction and is not a joint project with other suppliers. The project was identified in the City's 2020 UWMP (pg. 6-22) and the Eastern San Joaquin Groundwater Sustainability Plan (GSP) (pg. ES-16). To develop the UWMP that identified the AMI as a project, the City coordinated preparation with Cal Water, San Joaquin County, Stockton East Water District (SEWD), Woodbridge Irrigation District (WID), and Eastern San Joaquin Groundwater Authority (GWA). Further, the City actively encourages community participation in water management activities and specific water-related projects. The City's public participation program includes both active and passive means of obtaining input from the community, such as mailings, public meetings, and web-based communication. The City's website describes ongoing projects and posts announcements of planned rate increases to fund water production, operations, and maintenance costs. As part of development of this plan, the City allowed a public review period, following noticing and prior to adoption, to allow ample time for public comments to be developed and received. Public noticing, pursuant to Section 6066 of the

Government Code, was conducted prior to commencement of the public comment period. During the public comment period, the Draft UWMP was made available on the City's website.

The City of Stockton's Advanced Metering Infrastructure project is identified in the GSP's list of potential projects and management actions. The City is one of the 16 members of the Eastern San Joaquin Groundwater Authority that was formed in 2017 in response to the Sustainable Groundwater management Act. The AMI project is one the 23 identified projects recognized for its contributions to water conservation and sustainable groundwater levels. It was identified through a public process from 2019-2019. Projects were identified by the GSA through a multi-month process that involved the Eastern San Joaquin Groundwater Authority Board of Directors (ESJGWA Board), Advisory Committee, Workgroup, and the general public. This process included a public polling and feedback solicitation process at the Projects and Management Actions Workshop, held at the October 2018 ESJGWA Board meeting. This activity allowed ESJGWA Board members, GSA staff, and members of the public to participate in a real-time online polling activity through their smart-phone devices. Hard-copy paper surveys were provided for those without online access. Additionally, a template for project feedback and suggestion was created, posted online for the public, and hard copies distributed at Informational Open House events. Project information was provided by GSAs and compiled into a draft list. This list was discussed and presented during the October and November 2018 ESJGWA Board meetings, the October and November 2018 and January 2019 Advisory Committee meetings, and the November 2018 and January 2019 Workgroup meetings. Prioritization was based on: implementation feasibility; location in areas of greatest overdraft; cost-effectiveness; environmental benefits; benefits to Disadvantaged Communities (DACs) and/or Severely Disadvantaged Communities (SDACs); and project location in areas with suitable use water quality.

The GSP's stakeholder strategy incorporated monthly Groundwater Sustainability Workgroup (Workgroup) meetings, monthly Advisory Committee meetings, monthly ESJGWA Board meetings, approximately quarterly informational open house events, outreach presentations to community groups, and information distribution to property owners and residents in the Subbasin (GSP-ES2). The Workgroup was established to encourage active involvement from diverse social, cultural, and economic elements of the population in the Subbasin. The 23 Workgroup members represent large and small landowners and growers from different geographic locations in the Subbasin, long-time residents, representatives from non-governmental organizations, disadvantaged community policy advocates, and outreach coordinators. Spanish translation was provided at informational open house events, creating an opportunity for local Spanish-speaking individuals to engage in the GSP development process. Input from the Workgroup was presented to the ESJGWA Board and has also been incorporated into the GSP.

Public Outreach during Project Planning and Implementation

Outreach efforts include but are not limited to:

- Bill stuffers
- News releases
- Social media and webpage content
- Presentations at community meetings, including HOAs and City Council
- Door hangers in collaboration with the contractor
- Media that will be available on the District's website

- **What is the significance of the collaboration/support?**

The support for the project is significant because it demonstrates local and regional commitment to water conservation. AMI benefits customers because the data allows customers to better monitor their usage and conserve water. AMI also complements other City efforts and programs that promote water conservation, such as city-provided conservation kits and school programs.

The technology also equips the City to remotely and effectively monitor data to identify leaks, track consumption patterns, identify high water usage and communicate more effectively with customers. AMI contributes to City efforts to achieve water conservation goals that simultaneously benefit the sustainability of surface water and groundwater supplies in the region.

- **Will this project increase the possibility/likelihood of future water conservation improvements by other water users?**

Yes, successful implementation of the project will be shared with customers, stakeholders, and other agencies to demonstrate AMI's conservation effectiveness. Accurately tracking water consumption and early leak detection are important steps to conserving water. The project's progress and results will be shared to encourage similar projects and future water conservation improvements. The more agencies that implement similar projects the greater the benefit to water supply of the region.

- **Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?**

The City provides water service to North Stockton and South Stockton. In general, the North Stockton water service area is primarily residential. The South Stockton water service area is largely comprised of residential (on the west side), industrial and commercial land uses. AMI can benefit commercial and industrial customers by using the data to better manage and evaluate operations and identify opportunities to conserve water. Further AMI will improve the sustainability and reliability of surface water and groundwater sources, benefiting all sectors.

Evaluation Criterion H— Nexus to Reclamation

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider:

- **Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?**

Not applicable.

- **If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?**

Yes, the applicant receives Reclamation water through the Stockton East Water District (SEWD), who has a contract through Reclamation. Pursuant to a December 1983 contract with Reclamation, SEWD and Central San Joaquin Water Conservation District are entitled to up to 155,000 AF of water annually. SEWD is allocated up to 75,000 AFY. Water allocation amounts are based on the March-September water forecast and the February end of month storage in the New Melones Reservoir each year, to be used for municipal, industrial, or agricultural use. This water is subject to cutbacks based on the Reclamation's overall Central Valley Project operations.

- **Will the proposed work benefit a Reclamation project area or activity?**

Yes, the project will improve groundwater sustainability and increase water management flexibility with water storage for later use when potable water demand is high, or when existing surface water supplies are impacted due to drought and/or environmental regulation.

- **Is the applicant a Tribe?**

No, the applicant is a municipality.

Project Budget

Table 7: Summary of Non-Federal and Federal Funding Sources

Funding Sources	Funding Amount, dollars
Non-Federal Entities:	4,273,926
Non-Federal Subtotal	4,273,926
Requested Reclamation Funding	4,273,925

The Budget Detail and Budget Narrative spreadsheets have been uploaded separately in the Grants.gov application workspace.

Environmental and Cultural Resources Compliance

The City of Stockton meter replacement and advanced meter infrastructure Project, Phase I involves the removal of existing potable water meters with new magnetic resonation meters, AMI radios on new and existing meters, and the installation of network cellular towers at existing city owned facilities. The installation of new towers to be located at three existing ground water storage reservoirs (aka tanks) sites, and the water distribution office.

- **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.**

There are no anticipated impacts to the surrounding environment.

- **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?**

No, it is not anticipated that nay species would be affected by any activities associated with the proposed project.

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

No, there are no wetlands or other surface water inside the project boundaries that potentially fall under CWA jurisdiction as "waters of the United States".

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

Much of the water delivery system was originally constructed in 1970s, for purposes of constructing, operating, maintaining water, and drainage facilities within the City's service areas. Major construction and expansion of the delivery system continued in the 2012 through present day. Subsequent system expansions, repair, and rehabilitation project have been ongoing since the time of the original construction. COSMUD currently serves a population of approximately 184,400.

- **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.**

No, the project will not result in any modifications or effects to individual features of an irrigation system.

- **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 buildings, structures, or features listed or eligible for listing on the National Register of Historic Places will not be impacted by this project. All work will be completed on existing, water service laterals to replace and/or retrofit meters.

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

There are no known archaeological sites in the proposed project areas. The project areas are located in neighborhoods, commercial properties, and schools where significant ground disturbing activities have previously occurred to construct the homes and businesses and water distribution infrastructure.

Overlap or Duplication of Effort Statement

No other federal funds aside for this WaterSMART grant are being sought. The City has also not received any local or state grant funds.

There is no overlap between the proposed project and any other active or anticipated project in terms of activities or costs.

Conflict of Interest Disclosure Statement

The City of Stockton is not aware of any potential conflict of interest associated with this funding request or for the proposed project.

Letters of Support

No letters of support are included with this application. Regional support for the project from the member agencies that comprise the Eastern San Joaquin Groundwater Authority is discussed under Evaluation Criterion G – Collaboration.

Official Resolution

The resolution will be presented to the City of Stockton City Council in May 2024, authorizing the city manager to submit grant applications and execute an agreement with Reclamation for the implement of the proposed project. The resolution agrees to use the funds identified in this funding plan for the proposed project. The adopted resolution will be submitted to USBR under separate cover.

Unique Entity Identifier (UEI) and System for Award Management (SAM)

The Sam.gov Registration status is active with an expiration date of December 3, 2024. The city will continue to update and main an active registration status. The verification of the City's registration status is included in Attachment 2.

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