Citywide Water Meter Replacement Project – Phase 3-5

WaterSMART Water and Energy Efficiency Grants for FY 2023
R23AS00008 – Funding Group III

July 20, 2022

Prepared For:
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Section 1: Technical Proposal

A. Executive Summary

Applicant Name: City of Redlands, Municipal Utilities and Engineering Department

Date: July 20, 2022

City: City of Redlands

County: San Bernardino

State: California

Applicant Category: Category A – The City of Redlands is a local authority located in the Western United States

Project Length of Time: 3-years: July 2023 – July 2026

Estimated Completion Date: July 2026

Located on a Federal facility: No

Project Summary:

The City of Redlands (City), located in Southern California at the base of the San Bernardino Mountains, is responsible for providing high quality water to more than 78,000 local residents. The City's Municipal Utilities and Engineering Department is committed to identifying and implementing ways to use water more efficiently. The Project, located within the City's water service area, consists of the implementation of Phases 3-5 of the Citywide Water Meter Replacement Project (the "Project"). The Project will replace or upgrade approximately 14,946 existing non-AMI meters with AMI-compatible "smart meters" and will also replace existing water meter box lids with meter box lids that include a Meter Interface Unit (MIU) to transmit data to mobile or fixed data receivers, which will identify system leaks and notify City staff of those leaks. Additionally, hourly consumption data (for up to 96 days), can be accessed to provide customers with granular water use data. Anticipated annual water savings from the Project is 986 acre-feet per year (AFY), with an associated energy savings of 21,989,722 Kilowatt-hours (kWh) and reduction in greenhouse gas emissions by an estimated 15,584 metric tons of CO^2 annually. The City has completed all of the preliminary work and is currently contracted with Ferguson Enterprises, LLC to complete the Project. Ferguson Enterprises, LLC was selected through a competitive bidding process. The Project goals are:

- Implement best management practices to increase conservation of local surface and groundwater; and
- Improve water consumption data collection to accurately quantify water use trends for targeted water management actions.

B. Project Location

The City of Redlands (San Bernardino County), California has provided water services to the community since 1910. As a retail public urban water supplier with over 23,200 municipal water service connections, the service area encompasses 22 square miles within the City limits and 7 square miles outside the City's boundaries. Located approximately 60 miles east of Los Angeles and 45 miles west of Palm Springs, the arid Redlands climate attributes to the City's water consumption. The project's approximate latitude is 34°08'N and longitude is 117°17'W.

Project Phases 1 and 2 has replaced/is replacing water meters within 29-meter reading routes. Project Phases 3-5 will replace water meters within the remaining 47-meter reading routes. The Project replaces both residential and commercial water meters served by the City's potable and non-potable water systems. Seven of the fifteen Phase 3 routes are located within two of the City's HUD designated Qualified Census Tracts (QCTs)[1] – the City's most disadvantaged communities (see Figure 1 below). The City's meter routes for Phases 3-5 of the project are shown in Figures 2-3.

Figure 1. City of Redlands HUD Designated Qualified Census Tracts (QCTs)

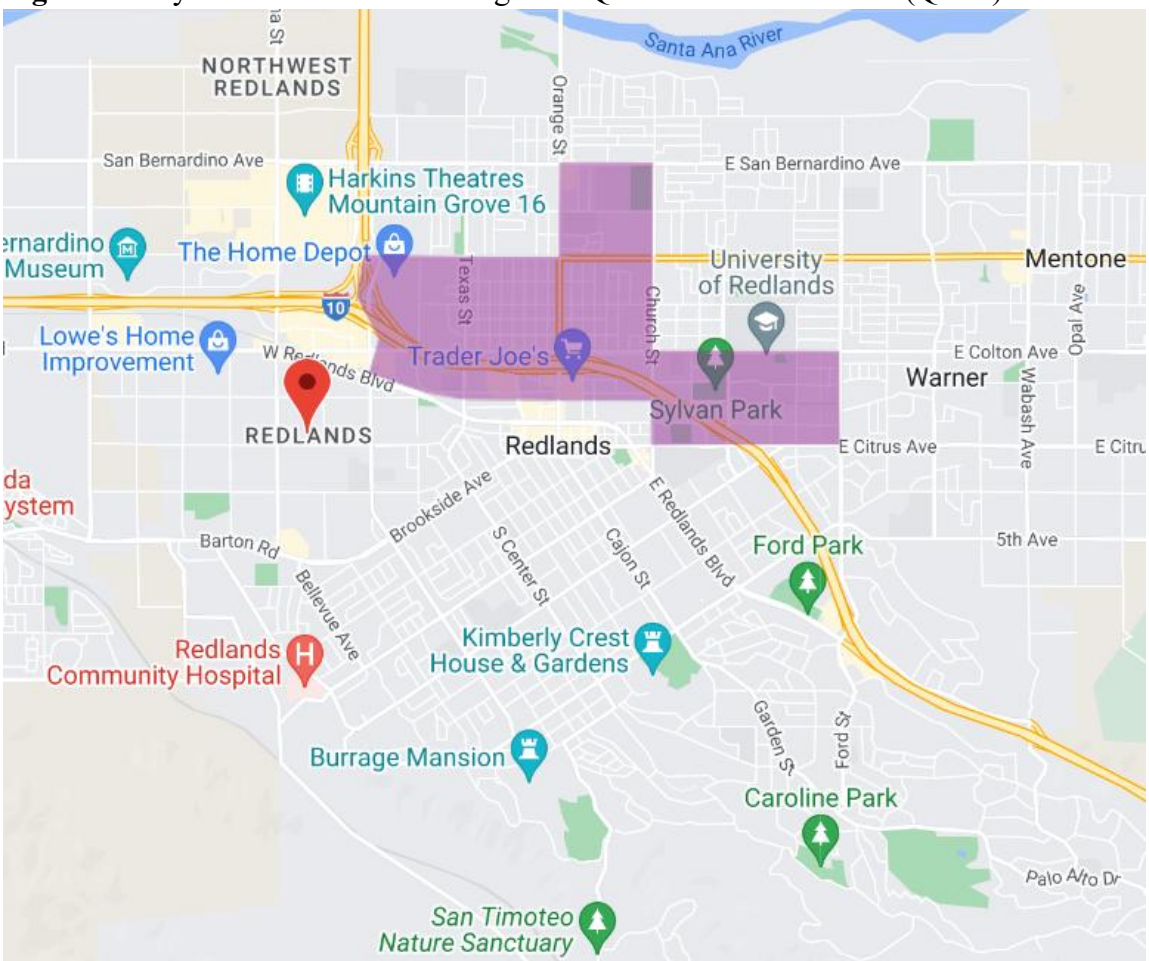


Figure 2. Phase 3 – City of Redlands Service Area & AMI Installation Areas

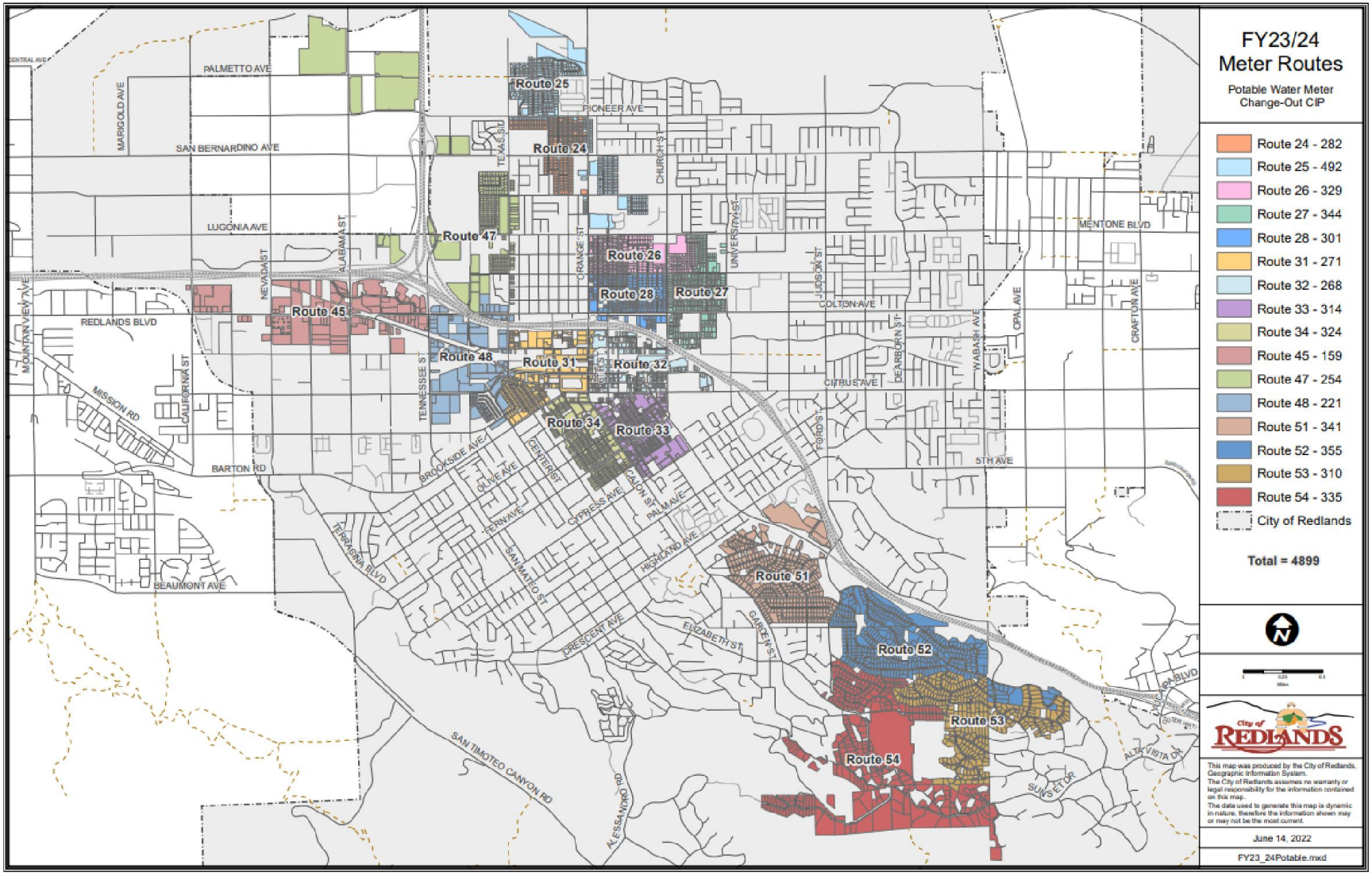


Figure 3. Phase 4 – City of Redlands Service Area & AMI Installation Areas

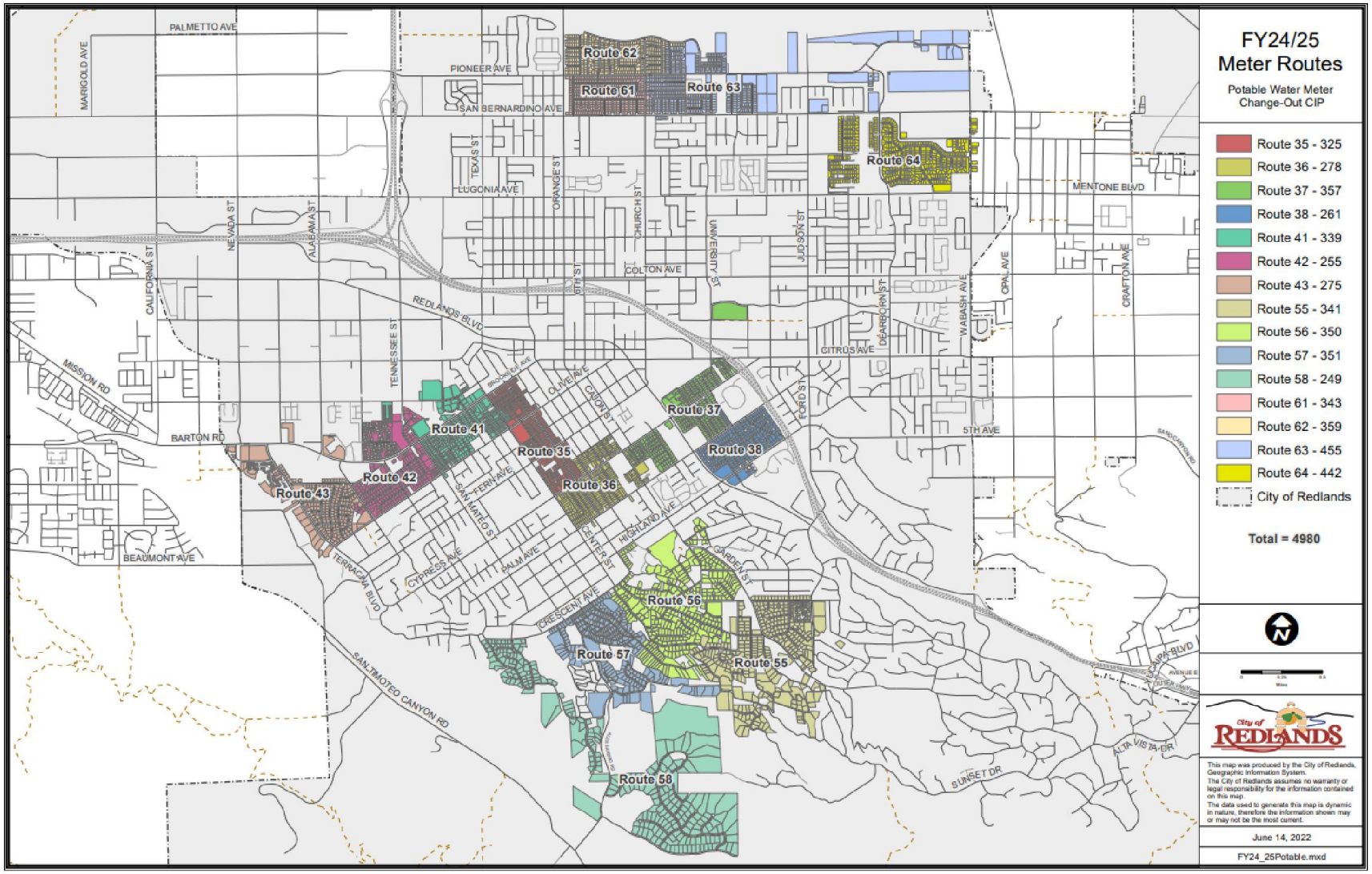
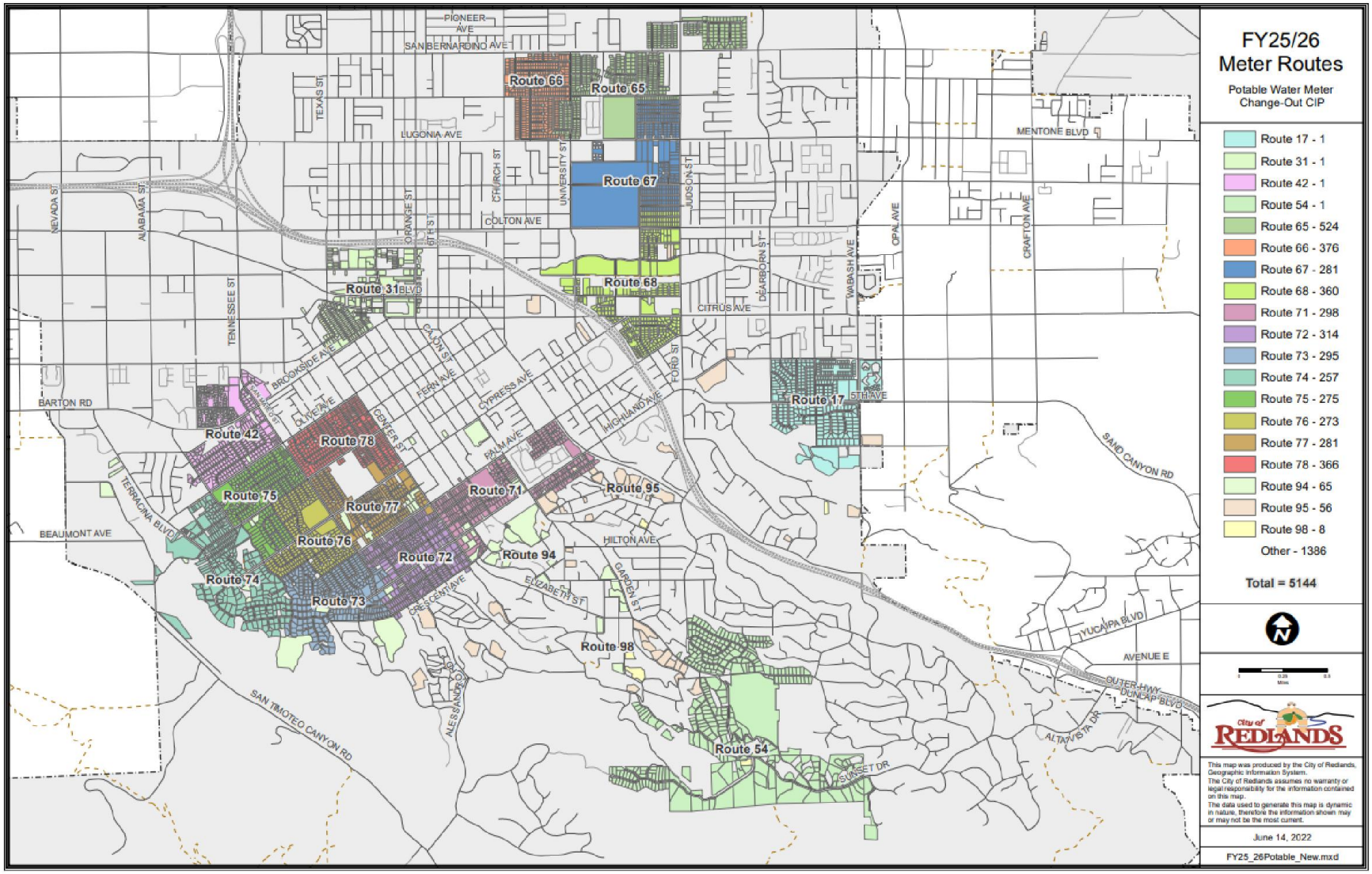


Figure 4. Phase 5 – City of Redlands Service Area & AMI Installation Areas



C. Technical Project Description

Planning and Design: In 2019, the City of Redlands' Municipal Utilities and Engineering Department (MUED) conducted a water meter accuracy test by recording the water meter readings as a measured volume of water was passed through each. More than 1,000 water meters, or approximately five percent (5%) of the total number of water meters within the Redlands water service area were tested. The test confirmed that, on average, the water meters are only eighty percent (80%) accurate and do not measure twenty percent (20%) of water used by customers. In addition, the City's most recent Water Meter Accuracy study revealed that inefficient water meters are resulting in approximately 67.86 gallons of water loss per connection per day. Many of the 14,946 manually read meters included within the project are well past their anticipated service lives. Some of these water meters are more than 45-years old.

Presently, MUED performs manual water meter readings within 47 routes, which requires at least 3 staffed service trucks in addition to personnel necessary to address customer concerns and hardware malfunctions. Project Phases 1 and 2 installed 8,472 AMI capable meters and water meter box lids with Meter Interface Units (MIU).

In 2019, the City selected Neptune Technology Group (Neptune) water meters for standard use within the City's water service area. This selection was made based on proven performance, reliability, cost, and accuracy throughout their fifteen (15) year anticipated service life. Ferguson Enterprises, LLC (Ferguson) is the sole distributor of Neptune products in California. In accordance with the City's purchasing policy, a sole source annual purchase order was issued to Ferguson for the Project. Each year, the Ferguson contract is extended to include additional Project phases.

Implementation: The scope of work for the Project includes replacing or retrofitting 14,946 existing inefficient end-user water meters with AMI-compatible smart meters that will accurately measure water consumed. In addition, existing water meter box lids will be replaced with lids that include a Meter Interface Unit (MIU) that will transmit data to mobile or fixed data receivers, identify system leaks, and will notify City staff of those leaks. The Project includes five (5) phases. Ferguson completed the first Project phase in June 2022 and is currently completing the second phase. The City will use the grant award to fund the final three (3) Project phases.

The Project will replace 9,070 and retrofit 5,876 inefficient meters during Phases 3-5 of the Project. The breakdown of meter details below does not include installation costs.

Meter Replacements:

Meter Size	Meter Type	Quantity	Meter Unit Cost	Lid Unit Cost
0.625”	T10 R900I Procoder	63	$205.26	$52.90
0.75”	T10 R900I Procoder	2456	$229.14	$52.90
1”	T10 R900I Procoder	5360	$294.90	$52.90
1.5”	T10 R900I Procoder	495	$503.55	$115.00
2”	T10 R900I Procoder	683	$646.50	$115.00
3”	Turbine R900I Procoder CF	3	$690.26	N/A
3”	TRU/FLO Compound R900I	4	$2,383.74	N/A
4”	Turbine R900I Procoder CF	1	$1,007.11	N/A
4”	TRU/FLO Compound R900I	5	$3,016.84	N/A
Total Meters Replaced:		**9,070**		

Meter Retrofits:

Meter Size	Meter Type	Quantity	Meter Unit Cost	Lid Unit Cost
0.625”	T10 R900I Procoder	55	$160.00	$52.90
0.75”	T10 R900I Procoder	2065	$160.00	$52.90
1”	T10 R900I Procoder	3416	$160.00	$52.90
1.5”	T10 R900I Procoder	166	$160.00	$115.55
2”	T10 R900I Procoder	174	$160.00	$115.55
Total Meters Retrofitted:		**5,876**		

At the completion of Phase 5, 100% of the City’s meters will be upgraded to smart meters connected to the AMI system. This full transition will facilitate the wireless transmission of water use data and allow customers to access information about their hourly consumption for up to 96 days with real time consumption data integrated into the web based “WaterSmart” customer engagement portal to track daily water usage. The WaterSmart portal also grants customers access to view and compare their own usage to that of similar households or neighborhoods to encourage water use efficiency.

D. Evaluation Criteria

Evaluation Criterion A – Quantifiable Water Savings

The Project is a continuation of a municipal metering project that began in 2021 after conducting meter accuracy testing[2] and a water loss audit[3] that confirmed significant water loss that can be mitigated by upgrading existing inefficient water meters to AMI smart meters. Phases 3-5 will replace or retrofit 14,946 non-AMI meters.

Describe the amount of estimated water savings.

Phases 3-5 of the Project will result in an estimated water savings of **986 AFY** from water loss confirmed by the City's most recent Water Loss Validation Audit[3]. Additional potential water savings of 5% may also be realized from customers who are informed about their water consumption with accuracy and in real time. One study published in the *Journal of the Association of Environmental and Resource Economists* in 2015[4] found that households using technology such as the WaterSMART Customer Engagement Portal for social comparisons of water consumption 5% less water. In addition, an estimated 5.6% water savings would result from early detection and repair of leaking or broken valves or pipes.

Describe current losses

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 extracts groundwater through fifteen (15) wells located within the Bunker Hill Groundwater Basin, which is a sub-basin of the San Bernardino Basin Area (SBBA). As such, water is typically lost in two ways:

1. As a result of delayed leak detection, water that will be conserved is currently either soaking into the ground or wasting into drains feeding into the wastewater system. The measured loss according to the City's most recent Water Loss Validation Audit[3] reports a Real Loss of 59.20 gallons per connection per day and an Apparent Loss of 67.89 gallons per connection per day; and/or

2. As a result of inefficient metering, unmeasured water is delivered to customers, and is not reflected on bi-monthly water use statements. This is confirmed by a water meter accuracy test[2] performed in 2020 revealing that existing water meters do not measure twenty percent (20%) of water used by customers.

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?

Unmetered water consumed by customers is used for typical household practices or for outdoor irrigation.

The water losses resulting from delayed leakage detection, may result in water re-entering the groundwater table for future use, feeding into the wastewater system, or if leakage occurred on the ground surface, it is likely lost to evaporation as extreme heat plagues our region.

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?

Current water losses are not providing a known benefit. It is presumed that a minute amount of losses resulting from leakage are potentially seeping back into the groundwater table, but are most likely resulting in runoff into the wastewater system.

Describe the support/documentation of estimated water savings.

On September 27, 2021, the City conducted an annual Water Loss Validation Audit for Calendar Year 2020[3]. The audit documents an actual loss of 59.20 gallons per connection per day (.066 AFY). Using this data available from the audit, the City's estimated water savings is **986 AFY** (.066 AFY x 14,946) as a result of converting 14,946 inefficient meters to AMI smart meters. At a minimum, this translates into a reduced water consumption of **5.7%** (986 AFY/17,224 AFY). The table below provides a breakdown of how the estimated water savings is calculated using data from the Water Loss Validation Audit and the City's publicly posted average daily water consumption.

Additionally, in 2020 the City conducted a Water Meter Accuracy study through a third-party entity, Golden Meters Service, Inc. The study consisted of randomly selecting and testing more than 1,000 water meters of various sizes within the service area by recording the water meter readings as a measured volume of water was passed through the meter. This study revealed that, on average, the existing non-AMI water meters recorded water usage with only eighty percent (80%) accuracy – giving most of the meters tested a failing grade by not measuring twenty percent (20%) of water used by customers. For customers, this means that their consumption data reflected in their bi-monthly statement is inaccurate – resulting in inaccurately assessing their role in the City's collective effort to conserve water.

Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

Municipal Metering

How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

The estimated average annual water savings that will result from the conversion of 14,946 meters to AMI smart meters is reflected in the calculations shown in Table 1 below.

Table 1. Water Conservation Estimate

Phases 3-5 Estimates	Calculation	Value	Source
Total # of customer water meters in City		23,241 meters	City
Total # of AMI meters to be installed in Phases 3-5		14,946meters	City
AMI Meters replaced during Project Phases 3-5 as a % of total meters in the City	14,946 meters / 23,241 meters	64%	City
Average annual City water consumption		26,913 AFY	Water Conservation Report (May 2022)[6]
Total estimated AFY water supplied annually to Phase 3-5 AMI meters	64% x 26,913	17,224 AFY	
% Estimated water savings from immediate identification of system leaks, breaks, and water waste after AMI meter installation *	0.066 X 14,946 / 17,224	5.7%	0.066 reported from Water Loss Validation Audit[3]
% Estimated water savings from customer connection to the WaterSmart customer engagement portal[9]		5%	Journal of the association of Environmental and Resource Economists[4]

* Assuming equal rate of water savings per AMI meter installed

How have current system losses and/or the potential for reductions in water use by individual users been determined?

Approximately 20% of small meters and over 50% of large meters that were tested during the City's 2020 Annual Water Loss Validation Audit[4] account for the City's current system losses by individual users.

The potential for reductions in water use by individual users was determined based on the current per-customer loss amount reported in the audit and anticipates that AMI meter installation would increase accuracy to 98.5%-101.5% per Neptune Technology Group's product specifications[7]. This assumes that the majority of the current water loss due to leakage will be detected and addressed right away, resulting in conservation of the previous amount of water loss.

In addition, according to the *Journal of the association of Environmental and Resource Economists*[4] individual users may reduce their consumption on average by 5% as they receive accurate information about their water use by using the WaterSMART Customer Engagement Portal.

For installing end-user water service meters, e.g., for a residential or commercial building unit., refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.

The City of Redlands Retail Urban Water Management Plan[8] contained as part of the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan[9], provides information that is specific to the City's water use and plan for conservation. The Integrated Regional Water Management Plan (IRWMP) is one of the foundational documents formed by water management agencies within the Upper Santa Ana River (SAR) Watershed Region (Region) to meet regulatory requirements and aid in guiding effective regional and local decision-making.

According to data found in the Redlands Retail Urban Water Management Plan[8] for customer actual water use between 2016-2020, "approximately 94% of Redlands deliveries are potable water. Of potable deliveries, approximately 61% are to single family connections, followed by 14% to multi-family connections, 12% to commercial and institutional connections, with the balance going to landscape, irrigation, and other connections." The figure below, retrieved from the Retail Urban Water Management Plan[8] (page 13) depicts the City's historical water use demands in Acre Feet (AF) by customer class for years 2016-2020:

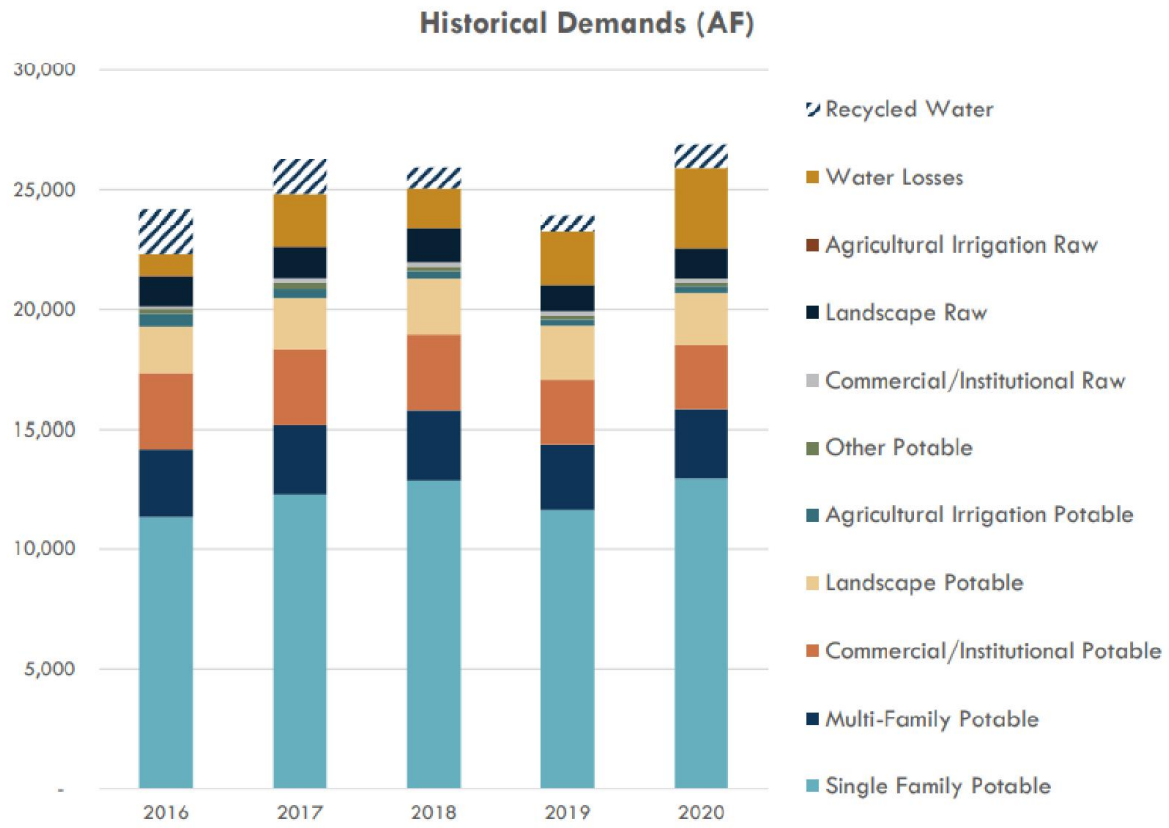


Figure 4-3: City of Redlands 2016-2020 Water Consumption by Customer Class

Notably, the amount of AF water losses reported in 2020 have more than tripled since the 2016 while single-family and multi-family water use has seen a steady increase over the reported timeframe. The plan attributes water losses to various sources:

1. "Leaks from water lines - Leakage from water pipes is a common occurrence in water systems. A significant number of leaks remain undetected over long periods of time as they are very small; however, these small leaks contribute to the overall water loss. Aging pipes typically have more leaks.
2. Water used for flushing and fire hydrant operations
3. Unauthorized uses or theft of water
4. Customer Meter Inaccuracies - Customer meters can under-represent actual consumption in the water system."

The potential for reducing current water use is embedded in the Project and will be a main outcome measured at the completion of the project. The City's use of technology for early leak detection coupled with empowering customers with knowledge of their true daily usage data in real time through the WaterSMART customer engagement portal. Water losses due to meter

inaccuracies will also be addressed through the implementation of the AMI meter exchange. An estimated 20% under-representation of current customer usage is confirmed by the results of the City's Water Meter Accuracy Test[2] performed in 2020. Through more accurate water meter readings, it is anticipated that customers will inherently reduce water consumption as their actual usage is reflected in their billing.

What types (manufacturer and model) of devices will be installed and what quantity of each?

As previously mentioned, the City has elected to standardize water meters using Neptune Technology Group (Neptune) products and has begun installing these types of meters in designated routes during Phases 1 and 2 of the Project. For Phases 3-5, the manufacturer, model, size and quantities of each device are reflected in the following table:

Meter Size	Manufacturer	Meter Type	Quantity
0.625"	Neptune Technology	T10 R900I Procoder	118
0.75"	Neptune Technology	T10 R900I Procoder	4,521
1"	Neptune Technology	T10 R900I Procoder	8,776
1.5"	Neptune Technology	T10 R900I Procoder	661
2"	Neptune Technology	T10 R900I Procoder	857
3"	Neptune Technology	Turbine R900I Procoder CF	3
3"	Neptune Technology	TRU/FLO Compound R900I	4
4"	Neptune Technology	Turbine R900I Procoder CF	1
4"	Neptune Technology	TRU/FLO Compound R900I	5
Total Quantity of Meters:			14,946

How will actual water savings be verified upon completion of the project?

Actual water savings as a result of this project will be verified by a pre- vs. post-project comparison of the Water Loss Validation Audit that is completed annually. Through this year over year comparison, the City will have data on verified water savings as each phase of the project is completed. The Audit reports real and apparent losses recorded as gallons per day per customer that can be compared annually to verify actual water savings. In addition, monthly water conservation reports are produced for the City's Urban Water Supplier Monitoring Report that can be compared monthly with reports produced pre-project completion.

Water savings will also be verified by the volume of leaks detected by the AMI technology system that otherwise would have resulted in a significant water loss. This information collected will be helpful in estimating water savings from early leak detection compared to the City's traditional leak detection procedures prior to the installation of AMI early detection technology.

Evaluation Criterion B – Renewable Energy

Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery.

The Project will not implement renewable energy projects related to water management and delivery.

Subcriterion No. 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).

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.

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

The installation of AMI compatible meters will result in less gas emissions due to reduced miles driven each day to read water meters. The City's current service area is approximately 29 square miles where technicians currently meet customer water meter service needs by driving four (4) vehicles for 6-8 hours per day each. This project will eliminate 30-hours of continuous gas emissions per day. The improved technology will allow city technicians to meter, detect and notify customers of leaks without the need to drive to each meter, significantly reducing driving to address service calls. Using a calculation tool from U.S. Environmental Protection Agency[10] (U.S. EPA), it is estimated that by reducing vehicle usage for traditional metering, **18.6** metric tons of CO^2 will be reduced per year. In addition, the Water Meter Replacement Project is expected to reduce local pumping as water is conserved. The U.S. EPA Greenhouse Gas Equivalencies Calculator[11] aids in our calculation of a **15,584** Metric Ton decrease in annual CO^2 emissions from **21,989,722** kWh that would typically be required to pump 986 AFY of water.

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?

Currently, local groundwater is pumped from wells in Redlands and local area jurisdiction of Mentone, consisting of 15 Active Production Wells and 35 Active Production Boosters that pump directly into the system or into reservoirs. The project will result in reduced pumping and energy savings by decreasing water consumption by an estimated 986 AFY. Pump Energy Efficiency Tests conducted in early 2022[12] provide the basis for the energy savings calculation and confirm that combined, the Active Production Well Pumps and Boosters require approximately **22,302 kWh per Acre Foot** pumped. By reducing consumption by **986 AFY**, less pumping will also be required and will amount to an energy savings of **21,989,772 kWh** per

year**.** These kWh savings translate to a **15,584** Metric Ton decrease in CO^2 emissions from reduced pumping.

The calculation of this energy savings' estimate and pump requirement details retrieved from the Pump Energy Efficiency Tests[12] are listed below:

22,302 kWh per Acre Foot (combined Active Production Well Pumps and Boosters)

x 986 AFY estimated water savings

21,989,772 kWh saved per year

Current Pumping Requirements and Pumps currently being used:

Active Production Well Pump #	Size: in Horsepower (HP)	kWh per Acre Foot	kWh year	Acre-Feet per Year
13147	350 HP	719	177,097	246
29996	300 HP	903	31,162	34
14216	400 HP	724	1,470,213	2,030
15392	200 HP	482	198,285	411
33706	30 HP	475	111,668	235
29887	25 HP	311	151,409	487
13148	200 HP	647	414,940	641
6925	25 HP	359	176,185	490
7525	300 HP	706	573,544	812
34581	350 HP	424	1,058,928	2,499
33972	350 HP	385	1,027,308	2,669
4268	300 HP	701	1,290,204	1,841
29892	250 HP	768	1,141,548	1,486
15616	300 HP	738	734,460	995
29864	250 HP	781	85,992	110
Totals for Active Production Well Pumps		**9,123**	**8,642,943**	**14,986**

Active Production Booster Pump #	Size: in Horsepower (HP)	kWh per Acre Foot	kWh year	Acre-Feet per Year
29901	125 HP	368	18,264	49
15093	125 HP	389	41,484	106
33953	50 HP	402	39,240	97
29900	150 HP	624	164,856	264
15062	100 HP	135	336	2
15063	100 HP	182	2,628	14
15078	50 HP	604	41,868	69
15079	50 HP	479	130,332	272
6924	100 HP	235	14,328	61
15091	100 HP	238	141,432	594
33962	100 HP	226	1,548	6
15036	40 HP	387	48,072	124
15037	40 HP	413	51,228	124
27806	100 HP	348	234,348	672
15026	150 HP	357	104,568	292
15025	200 HP	403	6,408	15
15071	100 HP	304	65,052	213
15070	200 HP	499	108,588	217
29880	75 HP	370	15,240	41
29881	150 HP	256	154,200	602
29882	200 HP	254	28,020	110
29884	200 HP	79	154,728	195
29885	200 HP	862	168,372	195
29883	150 HP	898	272,316	303
41927	75 HP	256	374,700	1,465
29931	100 HP	444	78,936	177
29930	150 HP	295	20,088	68
29928	200 HP	876	41,412	47
15031	100 HP	608	49,596	81
33966	250 HP	351	313,236	892
33964	250 HP	544	190,512	350
33965	250 HP	493	754,092	1,529
Totals for Active Booster Production Pump:		**13,179**	**3,830,028**	**9,246**

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 above energy savings estimate originates from the point of diversion.

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

Yes. Pump Energy Efficiency Tests conducted in early 2022 were used as the data source for pumping energy calculations and does include energy required to treat the water.

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

The project will result in significantly reduced vehicle miles driven. Currently, four (4) vehicles are driven for a combined 30-hours per day to read meters and make service calls to the 29-square mile service area. According to the U.S. Environmental Protection Agency[10], greenhouse gas emissions from a typical passenger vehicle are "about 404 grams of CO_2 per mile." Using the EPA's Greenhouse Gas Equivalencies Calculator[11] we determine that these four vehicles emit approximately **18.6** Metric Tons of Carbon Dioxide in one year.

These greenhouse gas emissions will be nearly eliminated as a result of installing smart AMI technology to provide more efficient services to customers remotely. After the project has been fully implemented, travel to meter sites will be limited to repair calls or to address customer concerns that may only be resolved via a site visit.

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).

The Project does not include renewable energy components.

Evaluation Criterion C – Sustainability Benefits

Enhancing Drought Resiliency

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

According to Drought.gov[13], the City is experiencing Severe Drought conditions and going on its 4th driest year to date over the past 128 years. As a participant in the collected effort of the region's water conservation efforts, the project seeks to improve the ecological resiliency to climate change. The quantifiable water savings realized from the conversion of inefficient meters to AMI meters is anticipated to result in reduced water consumption from customers as actual water use is reported and reflected on their usage bill, in addition to significant water saved from

early detection of leaks. The decreased local demand as a partner in the regional collective conservation effort will improve ecological resiliency to climate change as not only the City, but the region as a whole work together towards efficiently managing water resources during ongoing drought events. "On March 28, 2022, California Governor Gavin Newsom directed the State Water Board to consider adopting an emergency regulation for urban water conservation. On May 24, 2022, the Board adopted an emergency regulation and on June 10, 2022, the emergency regulation went into effect"[5]. This statewide emergency water conservation regulation imposes actionable steps towards water use reduction. Any unmetered amount of water consumed by customers creates an untrue measurement of actions taken towards conservation, thereby hindering the region's water saving efforts.

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).

The water conserved as a result of this project, will remain in the local groundwater system thereby adding to the long-term sustainability of local supply during periods of drought. In addition to pumping water from 15 local wells, a portion of the City's water supply is also sourced from the Bunker Hill Groundwater Basin, Santa Ana River, and Mill Creek through surface water treatment. Water conserved from the implementation of the AMI Project would reduce the need to draw that saved amount from these water sources and aim towards maintaining water levels for future use by others.

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).

Through partnerships, the City has access to water from the California State Water Project to use as a water source of last resort in the event that extreme circumstances cause the currently used water supply to extinguish. The California State Water Project has identified a species of Smelt fish within their water system that is protected. This project will reduce the amount of water consumed, extending the use of the current water supply and limiting the potential occurrence of the City drawing resources from the California State Water Project. The implementation of this project will indirectly benefit the state protected Smelt fish by means of limiting and accurately monitoring our consumption before an extreme water crisis prompts the City to tap into State Water supply.

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

The reduced vehicle emissions as a direct result of implementing advanced AMI technology to read meters and address customer concerns that will now be available virtually, will contribute towards improving air quality by lessening greenhouse gasses that worsen the climate change trajectory.

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?

Yes, the implementation of AMI technology will result in more efficient management of the water supply due to the accessibility of real time water use data, the ability to detect leaks and initiate action to stop waste from those leaks through software, and accurate water consumption readings will contribute to greater efficiency of the water supply.

Projects that are intended to improve streamflows or aquatic habit, and that are requesting $500,000 or more in Federal funding, must include information about plans to monitor the benefits of the project. Please describe the plan to monitor improved streamflows or aquatic habit benefits over a five-year period once the project has been completed. Provide detail on the steps to be taken to carry out the plan.

This Project is not intended to directly improve streamflows or aquatic habits.

Addressing a specific water and/or energy sustainability concern(s). *Will the project address a specific sustainability concern? Please address the following:*

Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.

The City of Redlands, located in San Bernardino County, is experiencing severe drought conditions and going on its 4th driest year to date over the past 128 years. The climate is arid and hot with typical temperatures exceeding or close to 100 degrees Fahrenheit beginning as early as late spring and lasting through early fall. Fire season is year-round due to the extremely dry conditions and worsened in the summer and fall.

Climate coupled by severe drought and wildfires, are the greatest influencers impacting water sustainability and increasing demand. Implementing projects where a significant water savings will be realized such as the Water Meter Replacement project, will benefit the region in becoming resilient against drought-induced shortages.

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.

Currently, our region is experiencing water shortages due to drought and climate change. Reliance on fossil fuels adds to the pollution in the area, impacting climate change and adding to demand in water resources. This impacts the energy sustainability of Redlands because as water demands increase during high temperature months, more pumping is required using electricity driven by fossil fuels - contributing to water shortages due to drought brought on by pollution and climate change.

Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?

The project will not entirely address the concern stated above, but it will lend a start towards breaking the cycle. As less water is consumed or lost, less pumping will be required. This will conserve energy that would have been used in the pumping process and will keep water resources in reserve to help alleviate the shortage. In addition, by nearly eliminating the need for manual water metering, less greenhouse gasses will be available to contribute to climate change and pollution.

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 implementation of the project will contribute to the sustainability of the current water supply by conserving more groundwater for future use. This will also offset groundwater pumping and reduce the need for groundwater recharge. The purpose of the Meter Replacement Project is to conserve water resources by identifying and addressing waste and encouraging consumers to use less.

Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

The intended use of the conserved water is to increase availability for future use by reducing water loss from leakage and encouraging decreased consumer use. The conserved water will remain in the ground and will not require a mechanism.

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

By implementing the Meter Replacement Project, it is anticipated that approximately **986 AFY** of water will be conserved with the intention to increase water available for future use by that amount.

Other project benefits. *Please provide a detailed explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:*

Combating the Climate Crisis: E.O. 14008: "Tackling the Climate Crisis at Home and Abroad", focuses on increasing resilience to climate change and supporting climate resilient development. Please describe how the project will address climate change, including:

Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

The City's existing method of meter reading is not only inefficient, requiring countless hours of personnel time and travel resources, it is also working in opposition of the climate crisis fight. The Project will reduce vehicle emissions that would typically be produced from traditional meter reading by replacing existing meters with AMI technology created to allow meters to be read remotely from a central location. The use of this communications network in place of driving will reduce the amount of carbon dioxide contributing to the climate crisis by more than 18 metric tons of CO^2 emissions each year. In addition, water saved from early leak detection and reduced customer usage because of accurate metering and usage billing, will lead to less energy to be used to pump water from groundwater sources.

Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

The estimated water savings as a result of implementing this project is approximately 986 AFY. The Project will strengthen water supply sustainability by reducing the amount of water consumed to be kept in reserve to help increase resilience to climate change.

Will the proposed project establish and utilize a renewable energy source?

The Project does not include renewable energy components.

Will the project result in lower greenhouse gas emissions?

Presently, the City performs manual meter readings for all 76 routes within the service area requiring 4 service trucks to go out each day to each of the over 23,000 metered locations. This not only includes manually reading the water meters, but also fielding customer concerns and check on possible meter malfunctions. The AMI technology will virtually eliminate the greenhouse gas emissions of these four vehicles that are driven for 6-8 hours daily. According to the Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator[11] four vehicles on the road emits approximately **18.6 Metric Tons** of Carbon Dioxide in one year. Using this source, we would assume that greenhouse gas emissions would be reduced by at least this calculated amount.

Disadvantaged or Underserved Communities: *E.O. 14008 and E.O. 13985 support environmental and economic justice by investing in underserved and disadvantaged communities and addressing the climate-related impacts to these communities, including impacts to public health, safety, and economic opportunities. Please describe how the project supports these Executive Orders, including:*

Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include but are not limited to: public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.

Yes, according to the Disadvantaged Communities (DAC) Mapping Tool[14], three disadvantaged community census tracts are within the City of Redlands affected project area. These census tracts consisting of 4,812 households, have a median household income of $42,996.

Early detection of leaks will benefit these customers since repairs can be made sooner and consumption decreased, thus reducing their water bill. In addition, the water savings resulting from this project will support the reliability of future water supplies and minimize water rate increases that may be necessary should future water shortages require this action. Avoiding water rate increases will certainly benefit all customers but will have the most meaningful impact on economically disadvantaged communities.

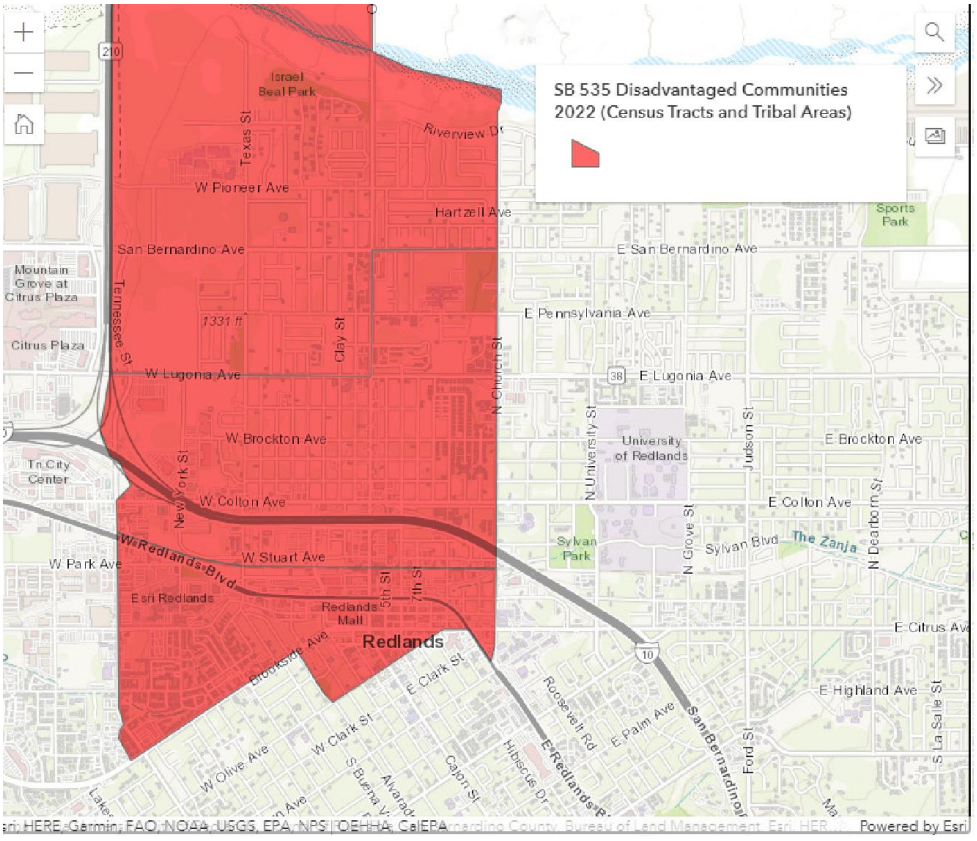
If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.

According to the U.S. Census[15], the statewide annual median household income for California is $78,672. Utilizing the DAC Mapping Tool[14] mentioned above, three disadvantaged census tracts with a median household income of $42,996 have been identified within the Project area.

Likewise, the CalEnviroScreen[16] tool from the California Environmental Protection Agency (CalEPA) provides the map below outlining the City's disadvantaged communities. This map is consistent with the Project maps provided in the *Project Location* section of this application. Notably, disadvantaged communities located in a large section of Phase 3 and portions of Phases 4 and 5 will be affected by this project.

The CalEnviroScreen was designed to help the CalEPA to identify disadvantaged communities as required by Senate Bill 535. CalEPA's designation of disadvantaged communities are based on geographic, socioeconomic, public health, and environmental hazard criteria.

CalEPA SB 535 Disadvantaged Communities[13]



If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

The Project will serve the City's underserved community that will be affected during each Phase of this project and benefit from its results upon completion. The underserved community in Redlands share a geographic area of North Redlands with two of its census tracts designated by HUD as Qualified Census Tracts (QCT)[1]. Communities receive this designation when at least 50% of households have incomes that are less than 60% of the Area Median Gross Income (AGMI) or have a poverty rate of 25% or more. The HUD recognized QCTs are eligible to receive a State and local Low-Income Housing Tax Credit (LIHTC) – the most important resource for the creation of affordable housing nationwide. LIHTC is focused on issuing tax credits for the acquisition, rehabilitation, or new construction of rental housing for use by lower-income households. The two QCTs that meet this designation are within the Project area that will benefit households as a direct result of this Project. All households within the service area will have an opportunity to participate in the City-wide effort to conserve water resources and be proactive ahead of severe water shortage that may otherwise result in rate increases for all communities within the service area.

Tribal Benefits: *The Department of the Interior is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. The President's memorandum "Tribal Consultation and Strengthening Nation-to-Nation Relationships" asserts the importance of honoring the Federal government's commitments to Tribal Nations. Please address the following, if applicable:*

Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

The Project will not directly serve or benefit a Tribe, however, indirectly a local federally recognized tribe, the San Manuel Indian Tribe, will benefit from the Project's realized water conservation. As previously mentioned, the City receives a portion of its water supply from the Bunker Hill Groundwater basin. The water supply from this basin directly affects the San Manuel Tribe. By means of the Project's water savings, less water resources are required to be drawn from the Bunker Hill Groundwater basin thereby supporting increased water supply sustainability for the Tribe. The Project will not provide renewable energy for an Indian Tribe.

Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities?

The Project will indirectly support tribal resilience to climate change and drought by taking action against water wasting and implementing water conserving metering technology. As water wasting is identified through leaks and addressed, or as consumer use is reduced, less water is pumped from underground leaving more in the Bunker Hill Groundwater basin. As a result, this Project will contribute to climate change and drought impacts through conservation.

Other Benefits: *Will the project address water and/or energy sustainability in other ways not described above? For example:*

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

Yes, by conserving the water in the groundwater basin and reducing reliance on State Project Water, additional State Project Water will be available for use by other communities.

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

Yes, by conserving water in the groundwater basin by reducing the amount of pumping due to early leak detection, this water will be available for multiple sectors now and in the future for agriculture, municipal and industrial, environmental, recreation, or other uses. This Project also benefits all agencies, communities, or agriculture that rely on State Project Water throughout the state by reducing the demand for State Project Water.

Will the project benefit a larger initiative to address sustainability?

The project will benefit a larger initiative by reducing the amount of groundwater pumped from the Bunker Hill Basin which will address the California Department of Water Resources Sustainable Groundwater Management Act (SGMA) that requires local Groundwater Sustainability Agencies (GSAs) in high and medium-priority basins, to develop and implement Groundwater Sustainability Plans (GSPs) to enable groundwater basins to reach long-term sustainability. By enabling the City of Redlands water customers to have early leak detection as well as curb their water consumption habits with up-to-date knowledge of water usage, this Project will reduce water demand since water will remain in the groundwater basin addressing and achieving the goal of groundwater sustainability.

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

Historically, there have been tension and litigation over water in the basin requiring resolution through the court system. The Urban Water Management Plan brought together local Cities, Water Districts, and other water purveyors to develop a plan that would achieve long term

sustainability and equity. This project will support the Urban Water Management Plan as well as the Groundwater Sustainability Act goals by reducing the demand for groundwater extraction, which helps achieve sustainability by keeping water in the Bunker Hill Basin, thereby preventing a future water-related crisis or conflict.

Evaluation Criterion D – Complementing On-Farm Irrigation Improvements

Not Applicable

Evaluation Criterion E – Planning and Implementation

Subcriterion E.1 – Project Planning

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study? *Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate. Provide the following information regarding project planning:*

Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

The City of Redlands uses multiple planning documents to monitor water supply and water loss. These documents guide strategies for water conservation and serve as supportive tools for the Project. These documents including the following:

1. *2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan - https://www.cityofredlands.org/utilities-0*
2. *City of Redlands Water Shortage Contingency Plan - https://www.cityofredlands.org/utilities-0*
3. 2020 Integrated Regional Urban Water Management Plan - *https://www.cityofredlands.org/sites/main/files/file-attachments/part_1-_regional_context.pdf?1622162746*
4. *City of Redlands Water Conservation Plan –*
    a. *https://codelibrary.amlegal.com/codes/redlandsca/latest/redlands_ca/0-0-0-9779*
    b. *https://codelibrary.amlegal.com/codes/redlandsca/latest/overview*
    c. *https://codelibrary.amlegal.com/codes/redlandsca/latest/redlands_ca/0-0-0-9779*

Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

This project conforms to and meets the goals of the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan by giving the City's water customers the information needed to make informed decisions on water conservation efforts. It would grant these customers the ability to be notified when leaks occur so they can make repairs in a timely manner. It also helps influence water use habits by giving customers usage history data so that adjustments may be made to their water usage patterns.

This Project will help the reginal water community realize the water resource goals of the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan to continue to support thriving communities. These goals are vital for the protection and efficient use enhancement of natural resources. The purpose of these goals is to support water supply reliability over the next 25 years to be able to withstand uncertainties, including a 30-year drought.

Using Water Wisely, the Region's water suppliers prioritize conservation and efficient use of water. This project will enable the City and the City's customers to achieve this goal by alerting them of real-time leaks so repairs can be made in a timely manner. It also contributes to changing the habits of water users when they can closely monitor their water usage patterns.

If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes)

2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan addressed a strategy specifically to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes by recharging the Bunker Hill Basin in wet years from the California State Water Project and using the wells drawing water from the basin in dry years or times of drought to meet demands. This Project will aid in these efforts by reducing the total demand for the water by early leak detection and repair of the leaks. It will also help by giving the City water use customers the informational data needed to make more educated decisions on water conservation.

Subcriterion E.2 – Readiness to proceed

Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section D.2.2.2. Application Content. This section should focus on a summary of the major tasks to be accomplished as part of the project.

Phases 3-5 of the Potable Water Meter change out implementation include the following major tasks to complete the project

a. Extend contract award by project year (per Phase) to previously identified sole source subcontractor, Ferguson Enterprises, Inc., for Water Meter Installations
b. Begin water meter change out implementation of meter routes designated by each phase
c. At the same time, implement the integration of Neptune 360 Advanced Software on Hosted Server
d. City and Ferguson will work with Systems & Software, Inc. (S&S) to integrate with AMI system. (S&S responsible for Water Meter Billing Work Order)
e. Training of The City Staff on Neptune 360 Advanced Software

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

No permits will be required since this project lies entirely in the City's jurisdiction.

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

Engineering and design work has been performed for the Project. On June 21, 2022, the City has entered into an agreement with Ferguson to install and implement automated metering infrastructure. The scope of services includes the furnishing and commissioning of AMI Gateway Data Collectors, expanding the City's Neptune AMR system to include AMI technology in addition to the deployment of all hardware and systems, integrations, testing, training, support services (during deployment), and maintenance of the AMI network infrastructure (data collectors, aka "Gateways"). Ferguson Waterworks will provide the following equipment and services to the City:

- AMI System which includes the supply of: Gateway Data Collectors, AMI network infrastructure, Neptune 360 head-end software; installation, commissioning, and testing of the AMI network infrastructure and system; training; and ongoing support and maintenance of the Neptune 360 software.
- Installation services for Gateway Data Collectors and associated equipment such as Uninterrupted Power Supply.
- Ferguson will provide integration and testing of all components for a fully functional AMI system that operates within required performance parameters.

AMI Fixed Network Design Services: Ferguson will conduct a comprehensive site survey and be responsible for a proper Fixed Network design to ensure sufficient coverage for each Endpoint Radio ("Endpoint"). Also, Ferguson will work with the City to ensure Fixed Network infrastructure is properly sized, installed, and configured to their expectations.

In addition, the City and Ferguson will work together with and Systems & Software, Inc. (S&S) to integrate with AMI system. S&S is responsible for upgrading the water meter billing system components to interact with the new wireless connection units to receive and develop the billing information for each linked account.

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

The City's process procedure requires approval of the project and subcontractors by the City Council. This process has already taken place and approval has been obtained to proceed with the project and for the single source subcontractor agreement. Contract award extension approvals from the City Council will be obtained annually in anticipation of the beginning of each phase.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation Regional or Area Office?

Estimated AMI Implementation Plan			
Phase	**Milestone Description**	**Start**	**Finish**
Phase 3: July 1, 2023 to June 30, 2024	Extension approval of subcontractor agreement	June 2023	June 2023
	Meter Replacement – construction/installation 33% of total project completed (4,889 meters)	July 1, 2023	June 30, 2024
	Integration of Neptune 360 Advanced Software on Hosted Server	December 21, 2022	April 20, 2023
	Integration of AMI System with water meter billing	May 22, 2023	June 3, 2023
	Train City staff on Neptune 360 Advanced Software	May 22, 2023	June 3, 2023

Phase 4: July 1, 2024 to June 30, 2025	Extension approval of subcontractor agreement	June 2024	June 2025
	Meter Replacement – construction/installation 66% of total project completed (4,903 meters)	July 1, 2024	June 30, 2025
	Integration of Neptune 360 Advanced Software on Hosted Server	Completed in early phase.	Completed in early phase.
	Integration of AMI System with water meter billing	Completed in early phase.	Completed in early phase.
	Train City staff on Neptune 360 Advanced Software	Completed in early phase.	Completed in early phase.
Phase 5: July 1, 2025 to June 30, 2026	Extension approval of subcontractor agreement	June 2025	June 2026
	Meter Replacement – construction/installation 100% of total project completed (4,388 meters)	July 1, 2025	June 30, 2026
	Integration of Neptune 360 Advanced Software on Hosted Server	Completed in early phase.	Completed in early phase.
	Integration of AMI System with water meter billing	Completed in early phase.	Completed in early phase.
	Train City staff on Neptune 360 Advanced Software	Completed in early phase.	Completed in early phase.

This project is exempt from environmental review pursuant to Section 15061(b)(3) of the State's guidelines implementing the California Environmental Quality Act.

Evaluation Criterion F – Collaboration

Please describe how the project promotes and encourages collaboration. Consider the following:

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 San Bernardino Valley Water Conservation District provided a letter of support for the City of Redlands Municipal Utilities and Engineering Department's proposal to the Bureau of Reclamation's WaterSmart: Water and Energy Efficiency Grant for the Water meter Replacement Project. For 90 years, the District has been dedicated to ensuring the recharge of the Bunker Hill Groundwater Basin in an environmentally and economically responsible way and strives to improve the supply and quality of groundwater. They support the WaterSmart project which aligns with the District's goals and objectives through conserving water sources and thereby improving the resilience of our local water supply. As partners with the City of Redlands in many efforts, they appreciate the City's work to upgrade end user potable and non-potable water service meters with new, efficient meters that allow for automatic early leak detection, resulting in measurable water savings.

If funded, the WaterSmart project will support the on-going conservation by the District and our partners across the San Bernardino Valley by leveraging available technology to move the needle on addressing our regions' current water crisis.

The San Bernardino Valley Municipal Water District provided a letter of support for the City of Redlands Municipal Utilities and Engineering Department's proposal to the Bureau of Reclamation's WaterSmart: Water and Energy Efficiency Grant for the Water meter Replacement Project. As a stakeholder in the City's water conservation efforts, the San Bernardino Valley Municipal Water District truly believes that accurately measuring water consumption and detecting leaks early to reducing water loss are a key step towards conserving and using water more efficiently. Should the City of Redlands be awarded the grant, this project will highly complement current community-wide initiatives geared towards water conservation. A prioritized focus of the San Bernardino Valley Municipal Water District is to plan a long-range water supply for the San Bernardino Valley. The Water Replacement Project will result in reduced short and long-term water supply waste thereby preserving limited resources with quantifiable water savings and water efficiency.

Ferguson Waterworks who the City of Redlands is in contract with for supply and installation of Neptune water meters for the Advanced Metering Infrastructure (AMI) project. They have provided a letter of support for the City of Redlands Municipal Utilities and Engineering Department's proposal to the Bureau of Reclamation's WaterSmart: Water and Energy

Efficiency Grant for the Water Meter Replacement Project. As a result, this project will help customers monitor their daily water usage while providing the tools needed to empower the efficient use of limited water resources in the Redlands' service area.

As one of the nation's largest waterworks companies, Ferguson is dedicated to providing quality products and innovative solutions across the water industry. The City of Redlands has selected water meters from Neptune Technology Group (Neptune) based on performance, reliability, and cost. As the sole distributor of Neptune products in California, Ferguson stands by Neptune water meters for their reliability and accuracy throughout their service life.

The City of Redlands' Water Meter Replacement Project is in direct alignment with the WaterSmart Water and Energy Efficiency Grant Program's goal of sustaining and managing the Nation's water resources for the future.

The City contacted the Chamber of Commerce, residential and commercial customers, to let them know that the City has partnered with Ferguson Waterworks to replace the water meters. Benefits for the City's customers include:

- Utilize newer technology for reading water meters
- Displays read in billing units of CCF
- Detects real time water usage
- Over 60 days of water usage data can be retrieved.

The Chamber of Commerce and customers of the City have demonstrated their collaboration/support of the project by working with the City of Redlands and Ferguson in scheduling the water meter changeout to the newer AMI meters.

What is the significance of the collaboration/support?

The significance of the collaboration/support with/of San Bernardino Valley Water Conservation District is that it helps build a stronger bond and working relationship between the City of Redlands and San Bernardino Valley Water Conservation District, with each striving to achieve the same goal. As a stakeholder in the City's water conservation efforts, the San Bernardino Valley Water Conservation District truly believes that accurately measuring water consumption and detecting leaks early to reducing water loss are key steps towards conserving and using water more efficiently. As partners with the City of Redlands in many efforts, they appreciate the City's work to upgrade end user potable and non-potable water service meters with new, efficient meters that allow for automatic early leak detection, resulting in measurable water savings.

The significance of the collaboration/support of San Bernardino Valley Municipal Water District is that it will continue to build our strong working relationship not only with this project but with other mutually beneficial projects. As a stakeholder in the City's water conservation efforts, the San Bernardino Valley Municipal Water District truly believes that accurately measuring water

consumption and detecting leaks early to reducing water loss are key steps towards conserving and using water more efficiently. This project will complement current community-wide water conservation. A prioritized focus of the San Bernardino Valley Municipal Water District is to plan for long-range water supply for the San Bernardino Valley. The Project will result in reduced short and long-term water supply waste thereby preserving limited resources with quantifiable water savings through water efficiency.

The significance of the collaboration/support of Ferguson Waterworks is that our continued relationship will only get stronger as they complete the project in an efficient and timely manner and stand behind their product for years to come. As a result, this project will help customers monitor daily water usage and sustain dwindling water resources within the region.

The significance of the collaboration/support of the Chamber of Commerce and customers of the City will help the project proceed smoothly with the full support of the community.

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

Yes, this project will increase the possibility/likelihood of future water conservation improvements by other water users. Accurately measuring water consumption and detecting leaks early to reducing water loss are key steps towards conserving and using water more efficiently. The results of the City of Redlands water conservation improvements will be shared with other agencies the City regularly meets with and partners with on other projects such as the 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan, Groundwater Sustainability Agency, and the Groundwater Council. This will encourage them to implement similar projects to help the area in our efforts to conserve our limited water resources.

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Per Reclamation's application guidelines in Section D.2.2.10. Letters of Support, all statements of support from relevant stakeholders are included in **Appendix 1.**

Evaluation Criterion G – Additional Non-Federal Funding

$$\frac{\text{Non-Federal Funding}}{\text{Total Project Cost}} = \frac{\$4,191,494}{\$6,913,994} = 60.62\%$$

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?

The City of Redlands does not have a water service, repayment, or operations and maintenance contract with Reclamation. However, the City of Redlands does currently hold rights and is authorized to receive water through the California State Water Project, which draws water from the same facilities as Reclamation. This is managed and operated by San Bernardino Valley Municipal Water District who sees that the water is delivered to the City of Redlands when requested by the city.

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 City of Redlands receives water through the State Water Project from the San Bernardino Valley Municipal Water District. The California State Water Project shares facilities with Reclamation such as dams and conveyance systems.

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

Yes, the proposed work will benefit a Reclamation project area or activity by reducing the City's reliance on resources from the California State Water Project. The California State Water Project includes some common water sources for both the City of Redlands and Reclamation. The proposed work will benefit a Reclamation project area through those reduced demands of water consumption that result in savings which will inherently decrease water consumed from the California State Water Project.

Is the applicant a Tribe?

The applicant, the City of Redlands, is not a Tribe.

E. Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).

Measuring Devices: A.2.a. Municipal Metering

For projects that install or replace existing municipal end-user water service meters, the applicant should consider the following:

Whether the project includes new meters where none existed previously or replaces existing meters

The project includes new meters to replace existing meters.

The scope of work for the Project includes replacing or retrofitting 14,946 existing inefficient end-user water meters with AMI-compatible smart meters that will accurately measure water consumed. In addition, existing water meter box lids will also be replaced with those that include a Meter Interface Unit (MIU) that will transmit data to mobile or fixed data receivers, identify system leaks, and will notify City staff of those leaks. The City will use the grant award to fund a portion of the agreement with Ferguson Enterprises, LLC for the purchase and installation of AMI technology equipped meters of various sizes and MIU meter box lids in addition to a portion of the cost to install AMI technology. The meter replacement and retrofits for the project will be approached in phases defined by Fiscal Year (FY).

The Project will replace 8,319 and retrofit 5,861 inefficient meters during Phases 3-5 of the project.

Whether the project includes individual water user meters, main line meters, or both

The Project only includes individual water user meters. However, even though we did not include main line meters as part of this proposal, the City's production meters, pump stations meters, and main line meters are tested and calibrated annually. They are also already tied to the City's Supervisory Control and Data Acquisition System (SCADA), giving staff real-time continuous information for rate of flow and total volume through the water meter. This accurate measurement allows for demand assessments, customer billing, diagnostic testing, locating and quantifying leakage, and other management needs.

If the project replaces existing individual water user meters with new meters, whether new technologies (e.g., automatic meter reading [AMI] meters) will be employed

Project Phases 3-5 replaces or retrofits approximately 14,946 existing individual water user meters with new Advanced Meter Infrastructure (AMI) Meters. The Project will also replace existing inefficient water meter box lids with meter box lids that include a Meter Interface Unit (MIU) that will transmit data to mobile or fixed data receivers, will identify system leaks, and will notify City staff of those leaks.

Include a description of both pre- and post-project rate structuring.

The City of Redlands pre- and post-project rate structuring will remain the same where water meters are read every-other month. At the completion of the AMI project, the City may consider converting to monthly billing. At such time a Prop 218 Rate analysis would have to be performed and a new rate structuring created.

The City of Redlands water meters are read on a bi-monthly basis and the Water and Wastewater Service Rate Schedule is set up on a three-tier system as follows:

Water Usage Rates

Building Water Usage & Rates	
First 16 units	$1.46/100 cubic feet
17 – 27 units	$1.78/100 cubic feet
Over 27 units	$2.69/100 cubic feet
Non-Building Water Usage & Rates	
First 27 units	$1.78/100 cubic feet
Over 27 units	$2.69/100 cubic feet
1 unit = 100 cubic feet or 748 gallons	

Water Service Charges

Meter Size & Charge:	
5/8” Meter	$32.10
¾” Meter	$43.17
1” Meter	$64.67
1 ½” Meter	$116.79
2” Meter	$172.83
3” Meter	$299.23
4” Meter	$462.10
6” Meter	$853.02
8” Meter	$1,256.97
10” Meter	$2,977.00
12” Meter	$3,915.20

Fire Protection or Fire Hydrant Water Usage	
All units	$2.69/100 cubic feet

Meter Size & Charges	
2” Meter	$10.19
3” Meter	$18.10
4” Meter	$31.75
6” Meter	$80.73
8” Meter	$165.72
10” Meter	$292.32
12” Meter	$468.46

Non-Potable Water Usage Rate

$.99/100 cubic feet

Conversion Customer Water Usage

$.64/100 cubic feet

Non-Potable Water Service Charges

Meter Size & Charges	
¾” Meter	$13.81
1” Meter	$20.65
1 ½” Meter	$37.29
2” Meter	$55.16
3” Meter	$95.50
4” Meter	$147.45
6” Meter	$272.16
8” Meter	$401.04

The following information about municipal end-user water service meters and replacement may be helpful in estimating the water conservation that will be realized upon completion of the proposed project and to verify this amount post-project:

Municipal water delivery meters are typically installed for each water user as well as at strategic locations within the distribution system to measure production, supply, and/or storage. Accurate measurement allows for demand assessments, customer billing, diagnostic testing, locating and quantifying leakage, and other management needs.

Significant water savings can be achieved when meters are installed where none existed previously. In the case of individual water user metering, most customers use significantly less water when billed at a usage rate; and especially so when a tiered rate is applied (i.e., higher rates for higher use). Replacing existing meters can also result in water savings when new technologies are employed.

The City of Redlands completes and submits a comprehensive Water Loss Audit annually to State (DWR as required of urban retail water suppliers per SB 555.). Audits are completed on American Water Works Association (AWWA) developed software program. The regulatory due dates for submission to DWR each year is October 1 (Calendar Year Audits). SB 555 requires the State to develop water loss performance standards to be built around data collected from annual audits to focus on reducing real and apparent water losses. The intent of the water loss audit is to track water losses associated with urban retail water supplier systems and identify areas for water efficiency improvements in order to minimize losses. The audit methodology:

- Accurately capture water system data
    - Water Supplied (Own sources, imported, exported)
    - Authorized consumption (All connections – metered and unmetered)
    - System Data (Length of mains, # of connections, system pressures)
    - Cost data (Total cost of supplying the water to customers+
- Provides a financial performance indicator
    - Costs of "Real" and "Apparent" water losses

This annual Water Loss Audit will provide us with a tool to help us measure the results and verify the benefits achieved of the new technology is having the intended results. The Billing Department will also be able to do a comparison of water customers billing data to show usage history. As the system is implemented it will have the capability to alert City staff and customers of leaks or higher than normal usage. City staff will also be able to run reports that show trends in usage that will show the water savings from replacing existing meters and implementing new technology.

Quantifying savings associated with meter installation and/or replacement requires analysis of pre- and post-installation measurements from existing meters at strategic locations within the system. If installing meters will result in conserved water, please provide support for this determination (e.g., studies, previous projects, etc.). A logical scheme should be developed that compares pre- and post-installation flow quantities and that accounts for leakage and other considerations. The site-specific water savings verification plan should be as detailed as possible and clearly state all assumptions and the relative level of accuracy expected. In addition, please provide details underlying any assumptions being made in support of water savings estimates (e.g., residential users will reduce use once a more advanced billing structure is imposed).

The City of Redlands completes State mandated Water Conservation Reports that show production and consumption volumes each month. These monthly reports will give the City more up-to-date verification of the water savings resulted from replacing existing meters and implementing new technology.

Quantifiable water savings will be verified by a pre- vs. post-project comparison of the Water Loss Validation Audit that is completed annually. Through this year over year comparison, the City will have data on verified water savings as each phase of the project is completed. The Audit reports real and apparent losses recorded as gallons per day per customer that can be compared annually to verify actual water savings.

Water savings will also be verified by the volume of leaks detected by the AMI technology system that otherwise would have resulted in a significant water loss. As previously mentioned, according to the Neptune Technology Group's product specifications[7] AMI meter installations would increase accuracy to 98.5%-101.5% and its smart technology would allow for immediate action to remedy detected leaks. This information collected will be helpful in estimating water savings from early leak detection compared to the City's traditional leak detection procedures prior to the installation of AMI early detection technology.

Section 2: Project Budget

Standard Form 424 Budget Information

The Standard Form 424 Budget Information document is included with the submission of the City of Redlands completed Mandatory Federal Forms

A. Funding Plan and Letters of Commitment

No third-party or Federal funding sources have been received as of the date of this application and the City does not currently have any pending funding requests for this project outside of this application. The non-reclamation funds have been approved for this project by City Council as memorialized within the resolution.

Table 1. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. City of Redlands	$4,191,494.00
2. N/A	
3. N/A	
Non-Federal Subtotal	$4,191,494.00
REQUESTED RECLAMATION FUNDING	$2,722,500

B. Budget Proposal

Table 2. Total Project Cost Table

SOURCE	Quantity	AMOUNT
Costs to be reimbursed with the requested Federal Funding		
Contractual/construction		
• Meters,& Box Lids	7,473	$1,850,734.22
• Strainers	2	$2,095.18
• Taxes		$162,122.57
• Installation Services	7,473	$649,073.74
• Project Management	3 years	$43,708.09
• Material & Labor Bond	3 phases	$14,766.20
Total Requested Federal Funding		**$2,722,500.00**
Costs to be paid by the applicant		
Contractual/construction		
• Meters & Box Lids	7,473	$2,849,344.81
• Strainers	2	$3,225.68
• Taxes		$249,599.92
• Installation Services	7,473	$999,297.94
• Project Management	3 years	$67,291.89
• Material & Labor Bond	3 phases	$22,733.76
Total Costs to be Paid by the Applicant		**4,191,494.00**
Value of third-party contributions		$0
Total Project Cost		**$6,913,994.00**

C. Budget Narrative

Personnel
The Project is not requesting funds for personnel costs.

Fringe Benefits
The Project is not requesting funds for fringe benefits.

Travel
The Project is not requesting funds for travel.

Equipment
The Project is not requesting funds for equipment.

Supplies
The Project is not requesting funds for materials and supplies.

Contractual
The requested budget is to support contractual services that include construction and implementation costs for the Project. In 2019, the City standardized water meters throughout the City, electing to use water meters from Neptune Technology Group (Neptune) based on performance, reliability, cost and accuracy throughout their fifteen (15) year anticipated service life. Ferguson Enterprises, LLC (Ferguson) is the sole distributor of Neptune products in California. In accordance with the City's purchasing policy, a sole source annual purchase order was requested to be issued to Ferguson for completion of previous phases and will be requested on an annual basis for each of Phases 3-5. In 2020 the City awarded Ferguson Enterprises, LLC a project implementation contract for one year, with the option to extend by four additional one-year terms for the City's five-phase project.

The scope of work under the anticipated contract for Project Phases 3-5 includes replacing 9,070 and retrofitting 5,8761 existing inefficient end-user water meters with AMI-compatible smart meters and meter box lids to include a Meter Interface Unit (MIU) that will serve as the brain to transmit data to mobile or fixed data receivers. The City will use the grant award to fund a portion of the agreement extension with Ferguson Enterprises, LLC for the purchase and installation of various AMI technology equipped meters and MIU meter box lids. The details pertaining to the description of estimated costs to be included within the anticipated contract with Ferguson Enterprises is discussed further under the Construction section of this budget narrative as directed in the Budget Narrative Guidance included with the NOFO.

Construction

- **Construction Materials**

The estimated cost for construction materials is based on an estimate provided by Ferguson for the purpose of replacing or retrofitting a total of 14,946 existing non-efficient meters through Phases 3-5 of the Project

Meter Replacements:

Meter Size	Meter Type	Quantity	Meter Unit Cost	Lid Unit Cost	Total Material Costs
0.625”	T10 R900I Procoder	63	$205.26	$52.90	$16,264.08
0.75”	T10 R900I Procoder	2456	$229.14	$52.90	$692,690.24
1”	T10 R900I Procoder	5,360	$294.90	$52.90	$1,864,208.00
1.5”	T10 R900I Procoder	495	$503.55	$115.00	$306,182.25
2”	T10 R900I Procoder	683	$646.50	$115.00	$520,104.50
3”	Turbine R900I Procoder CF	3	$690.26	N/A	$2,070.78
3”	TRU/FLO Compound R900I	4	$2,383.74	N/A	$9,534.96
4”	Turbine R900I Procoder CF	1	$1,007.11	N/A	$1,007.11
4”	TRU/FLO Compound R900I	5	$3,016.84	N/A	$15,084.20
Total Meters Replaced:		**9,070**			**$3,427,146.12**

Meter Retrofits:

Meter Size	Meter Type	Quantity	Meter Unit Cost	Lid Unit Cost	Total Material Costs
0.625”	T10 R900I Procoder	55	$160.00	$52.90	$11,709.50
0.75”	T10 R900I Procoder	2,065	$160.00	$52.90	$439,638.50
1”	T10 R900I Procoder	3,416	$160.00	$52.90	$727,266.40
1.5”	T10 R900I Procoder	166	$160.00	$115.00	$45,650
2”	T10 R900I Procoder	174	$160.00	$115.00	$47,850.00
Total Meters Retrofitted:		**5,876**			**$1,272,114.40**

- **Contractual Services**

Contractual services with Ferguson for Phases 3-5 will include implementing the water meter change-out by replacing 9,070 and retrofitting 5,876 Potable Water as follows:

- **Phase 3** – Routes: 24, 25, 26, 27, 28, 31, 32, 33, 34, 45, 47, 48, 51, 52, 53, 54
  - ***Replacing 2,721 meters; Retrofitting 2,168 meters***
- **Phase 4** – Routes: 35, 36, 37, 38, 41, 42, 43, 55, 56, 57, 58, 61, 62, 63, 64
  - ***Replacing 2,852 meters; Retrofitting 2,051 meters***
- **Phase 5** – Routes: 65, 66, 67, 68, 71, 72, 73, 74, 75, 76, 77, 78,94, 95,98
  - ***Replacing 3,497meters: Retrofitting 1,657 meters***

Based on an estimate provided by Ferguson, the estimated cost for all three Phases is $6,913,995.00. This includes materials noted above, installation costs, integration of Neptune 360 Advanced Software, and training of City staff on software use. As previously mentioned, Ferguson is the sole distributor of Neptune products in California and noncompetitive procurement due to single Source per 2 CFR §200.320.

The following estimates are provided by Ferguson for materials and installation costs:

Meter Size	Quanity	Type	Cost of meter	Cost for Meters	Cost of Strainer	Cost of Strainers	Lid	Cost	Cost for Lids	Installation Costs	Total Installation C	Total Cost
0.625-inch	17	T10 R900I Procoder	$ 205.26	$ 3,489.42	$ -	$ -	DFW	$ 52.90	$ 899.30	$ 97.00	$ 1,649.00	$ 6,037.72
0.75-inch	1127	T10 R900I Procoder	$ 229.14	$ 258,240.78	$ -	$ -	DFW	$ 52.90	$ 59,618.30	$ 97.00	$ 109,319.00	$ 427,178.08
1.0-inch	1514	T10 R900I Procoder	$ 294.90	$ 446,478.60	$ -	$ -	DFW	$ 52.90	$ 80,090.60	$ 97.00	$ 146,858.00	$ 673,427.20
1.5-inch	18	T10 R900I Procoder	$ 503.55	$ 9,063.90	$ -	$ -	DFW	$ 115.55	$ 2,079.90	$ 415.00	$ 7,470.00	$ 18,613.80
2.0-inch	47	T10 R900I Procoder	$ 646.50	$ 30,385.50	$ -	$ -	DFW	$ 115.55	$ 5,430.85	$ 415.00	$ 19,505.00	$ 55,321.35
3.0-inch	0	Turbine R900I Procoder CF		$ -	$ 375.00	$ -	Bore hole	$ -	$ -		$ -	$ -
3.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ 375.00	$ -	Bore hole	$ -	$ -		$ -	$ -
4.0-inch	0	Turbine R900I ProCoder CF		$ -	$ 449.31	$ -	Bore hole	$ -	$ -		$ -	$ -
4.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ 449.31	$ -	Bore hole	$ -	$ -		$ -	$ -
6.0-inch	0	Turbine R900I Procoder CF		$ -	$ 765.51	$ -	Bore hole	$ -	$ -		$ -	$ -
6.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ 765.51	$ -	Bore hole	$ -	$ -		$ -	$ -
8.0-inch	0	Turbine R900I Procoder CF		$ -	$ 1,739.10	$ -	Bore hole	$ -	$ -		$ -	$ -
6x8-inch	0	TRU/FLO COMPOUND R900I		$ -	$ 1,739.10	$ -	Bore hole	$ -	$ -		$ -	$ -
4.0-inch	0	4 PROTECTUS SS R900I P/C W/20' ANT		$ -	$ 1,739.10	$ -					$ -	$ -
6.0 - inch	0	6 PROTECTUS SS R900I P/C W/20' ANT		$ -	$ 1,739.10	$ -					$ -	$ -
8.0-inch	0	8 PROTECTUS SS R900I P/C W/20' ANT		$ -	$ 1,739.10	$ -	Bore hole	$ -	$ -		$ -	$ -
10-Inch	0	10 PROTECTUS SS R900I P/C W/20' ANT		$ -	$ 2,594.37	$ -	Bore hole	$ -	$ -		$ -	$ -
12-inch	0	Mag Meter		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
	2723			$ 747,658.20		$ -			$ 148,118.95		$ 284,801.00	**$ 1,180,578.15**

			Retrofit Cost	Total Retro Cost	$ -	$ -	Lid	Cost	Cost for Lids	Installation	Total Installation	Total Cost
0.625-inch	0	T10 R900I Procoder	$ 160.00	$ -	$ -	$ -	DFW	$ 52.90	$ -	$ 64.50	$ -	$ -
0.75-inch	778	T10 R900I Procoder	$ 160.00	$ 124,480.00	$ -	$ -	DFW	$ 52.90	$ 41,156.20	$ 64.50	$ 50,181.00	$ 215,817.20
1.0-inch	872	T10 R900I Procoder	$ 160.00	$ 139,520.00	$ -	$ -	DFW	$ 52.90	$ 46,128.80	$ 64.50	$ 56,244.00	$ 241,892.80
1.5-inch	13	T10 R900I Procoder	$ 160.00	$ 2,080.00	$ -	$ -	DFW	$ 115.55	$ 1,502.15	$ 89.50	$ 1,163.50	$ 4,745.65
2.0-inch	24	T10 R900I Procoder	$ 160.00	$ 3,840.00	$ -	$ -	DFW	$ 115.55	$ 2,773.20	$ 89.50	$ 2,148.00	$ 8,761.20
3.0-inch	0	Turbine R900I Procoder CF		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
3.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
4.0-inch	0	Turbine R900I ProCoder CF		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
4.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
6.0-inch	0	Turbine R900I Procoder CF		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
6.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
8.0-inch	0	Turbine R900I Procoder CF		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
8.0-inch	0	TRU/FLO COMPOUND R900I		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
8.0-inch	0	8 PROTECTUS SS R900I		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
10-Inch	0	10 PROTECTUS SS R900I		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
12-inch	0	Mag Meter		$ -	$ -	$ -	Bore hole	$ -	$ -		$ -	$ -
	1687											**$ 471,216.85**
	4410			$ 269,920.00					$ 91,560.35		$ 109,736.50	
												$ 1,651,795.00

FY22	**$ 1,815,000.00**
FY23	**$ 1,815,000.00**
FY24	**$ 1,815,000.00**
FY25	**$ 1,815,000.00**
FY26	**$ 1,815,000.00**

Material Subtotal	$ 1,257,257.50
Labor Subtotal	$ 394,537.50
Tax (8.75%)	$ 110,010.03
Project Management	$ 37,000.00
Material & Labor Bond	$ 12,500.00
Total	**$ 1,811,305.03**

NOTE: Fire Service meters use the following per size:

4" FS	1" T10
6" FS	1 1/2" T10
8" FS	2" T10
10" FS	2" T10

*Lid installation will be billed on a separate line item on Ferguson PayAp

Other Direct Costs
The Project is not requesting funds for other direct costs

Indirect Costs
The Project is not requesting funds for indirect costs

Section 3: Environmental and Cultural Resources Compliance

This project is exempt from environmental review pursuant to Section 15061(b)(3) of the State's guidelines implementing the California Environmental Quality Act.

Section 4: Required Permits or Approvals

No permits are required because the project is within the City's jurisdiction.

Section 5: Letters of Support

Per the Bureau's application guidelines in Section D.2.2.10. Letters of Support, all letters from interested stakeholders supporting the Project are included in **Appendix 1**.

Section 6: Official Resolution

RESOLUTION NO. 8354

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF REDLANDS, CALIFORNIA AUTHORIZING APPLICATION TO AND PARTICIPATION IN THE WATERSMART: WATER AND ENERGY EFFICIENCY GRANT

WHEREAS, City of Redlands Municipal Utilities and Engineering Department ("MUED") provides potable water to over 75,000 customers consisting of businesses and residents of the City of Redlands and some surrounding unincorporated communities. A majority of MUED customers are billed for water use via traditional mechanical meters that must be read manually and have no additional capabilities; and

WHEREAS, MUED has begun implementing an Advanced Meter Infrastructure ("AMI") deployment project. The proposed AMI Project involves the replacement of existing manual-read meters with new smart meters that communicate via single radio frequency technology and enable MUED to implement technological enhancements such as automated meter reads, usage notifications and identify system leaks; and

WHEREAS, the U.S. Department of the Interior ("Department") has issued a Notice of Funding Opportunity dated May 2, 2022 (NOFO), for the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2023. The Department has issued the NOFO for WaterSMART grant funds under the authority of Section 9504(a) of the Secure Water Act, Subtitle F of Title IX of the Omnibus Public Land Management Act of 2009, Public Law (P.L.) 111-11 (42 United States Code [U.S.C.] 10364); and

WHEREAS, through WaterSMART (Sustain and Manage America's Resources for Tomorrow), the Bureau of Reclamation ("Reclamation") leverages Federal and non-Federal funding to work cooperatively with States, Tribes, and Local entities as they plan for and implement actions to increase water supply sustainability. WaterSMART funding allocations are subject to the terms and conditions of the NOFO, the Application, and all other legal requirements of the WaterSMART Program; and

WHEREAS, phases 3-5 of the MUED AMI Project is eligible for funding at a 50 percent cost share up to $5,000,000 in grant funds; and

WHEREAS, approval for application is required from the City of Redlands governing body; and

WHEREAS, City of Redlands MUED ("Applicant") intends to apply and participate in the WaterSMART program and enter into an agreement with the Bureau of Reclamation if approved for "Phases 3-5" of an Advanced Meter Infrastructure Deployment Project in an amount not to exceed $2,722,500 (50% of the total project cost for Phases 3-5).

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Redlands as follows:

Section 1. The above recitals are true and correct and are incorporated herein by this reference.

Section 2. The City of Redlands hereby authorizes and directs the Mayor of the City of Redlands, or his designee, to sign and submit an application to the Department in response to the NOFO, and to apply for WaterSMART grant funds for the AMI Project up to the amount of $2,722,500.00.

Section 3. If the application is approved, the Mayor, or his designee, is designated to provide the assurances, certifications, and commitments required for the grant application, including executing a financial assistance or similar agreement with the Bureau of Reclamation within established deadlines and any amendments or changes thereto.

Section 4. The Mayor, or his designee, is designated to represent the City in carrying out the responsibilities under the grant agreement, including certifying disbursement requests on behalf of the City and compliance with applicable state and federal laws.

Section 5. If a grant award is made by the Bureau of Reclamation, the City commits to providing up to $2,722,500 in matching funds for the AMI Project plus any remaining balance noted in the funding plan.

Section 6. The City Council finds this Resolution is not subject to the California Environmental Quality Act ("CEQA") in that the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty, as in this case, that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

Section 7. Applicant acknowledges and agrees that it shall be subject to the terms and conditions specified in the Agreement, and that the NOFO and Application will be incorporated in the Agreement by reference and made a part thereof. Any and all activities, expenditures, information, and timelines represented in the Application are enforceable through the Agreement. Funds are to be used for the allowable expenditures and activities identified in the Agreement.

Section 8. Effective Date. This Resolution shall become effective immediately

ADOPTED, SIGNED AND APPROVED this 5th day of July, 2022.

Paul T. Barich, Mayor

ATTEST:

Jeanne Donaldson, City Clerk

I, Jeanne Donaldson, City Clerk of the City of Redlands hereby certify that the foregoing resolution was duly adopted by the City Council at a regular meeting thereof held on the 5th day of July, 2022 by the following vote:

AYES:	Councilmembers Tejeda, Davis, Guzman-Lowery, Gallagher; Mayor Barich
NOES:	None
ABSENT:	None
ABSTAIN:	None

Jeanne Donaldson, City Clerk

Section 7: Conflict of Interest Disclosure

As of the time of submission of this application, the City of Redlands has no actual or potential conflicts of interest related to the Project. The procurement of supplies, equipment, construction, and services associated with this project application are done so in accordance with the conflict of interest provisions in 2 CFR §200.318

In the event that the City of Redlands becomes aware or suspects that an actual or potential conflict of interest arises during the life of the award – including those that have been reported by sub recipients, the Financial Assistance Officer will be notified in writing.

The City of Redlands has internal control procedures in place to identify, disclose, and mitigate or eliminate identified conflicts of interest. The City's full Standards of Conduct and Conflict of Interest Policy for Federal Awards are published on the City's website and can be found by visiting the following link:

https://www.cityofredlands.org/sites/main/files/file-attachments/2.2.3_-_grant_procurement_and_adminisration.pdf?1553187886

Section 8: Uniform Audit Reporting Statement

The City of Redlands (EIN: 95-6000766) was required to submit a Single Audit report for fiscal year 21-22 and is available through the Federal Audit Clearinghouse website.

Section 9: Certification Regarding Lobbying

The signed Certification Regarding Lobbying document is included with the submission of the City of Redlands completed Mandatory Federal Forms

Section 10: Unique Entity Identifier and System for Award Management

REDLANDS, CITY OF ● Active Registration

Unique Entity ID:
VCE6UFMK6PL5

CAGE/NCAGE:
53G38

Purpose of Registration:
Federal Assistance Awards

Physical Address:
35 CAJON ST
REDLANDS , CA 92373-4746 USA

Expiration Date
Feb 15, 2023

References

1. HUD User: Office of Policy Development and Research. (2022, June). Qualified Census Tract Table Generator. https://www.huduser.gov/portal/qct/screen2.html

2. City of Redlands. Water Meter Accuracy Test

3. City of Redlands. M.E. Simpson Co., Inc. (2021). Calendar year 2020 Water Loss Validation Audit

4. Brent, D. A., Cook, J. H., & Olsen, S. (2015). Social Comparisons, Household Water Use, and Participation in Utility Conservation Programs: Evidence from Three Randomized Trials. *Journal of the Association of Environmental and Resource Economists*, *2*(4), 597–627. https://doi.org/10.1086/683427

5. Water Conservation Emergency Regulations (2022, June) https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/regs/emergency_regulation.html

6. City of Redlands. (2022, May). Water Conservation Report: Urban Water Supplier Monitoring Report

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Appendix 1: Letters of Support

San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408
phone: 909.387.9200
fax: 909.387.9247
www.sbvmwd.com

June 6, 2022

Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

Re: Municipal Utilities and Engineering Department
City of Redlands
WaterSMART Grants: Water and Energy Efficiency
Grants Application for Fiscal Year 2023

To whom it may concern,

It is with great pleasure that I write this letter of support for the WaterSMART Water and Energy Efficiency grant application being submitted by the City of Redlands to implement phase 3-5 of the Water Meter Replacement Project. As a stakeholder in the City's water conservation efforts, the San Bernardino Valley Municipal Water District truly believes that accurately measuring water consumption and detecting leaks early to reducing water loss are a key step towards conserving and using water more efficiently.

It is my understanding that the proposed phase 3-5 of the project will replace approximately 2,600 under-performing potable water meters with selected water meters from Neptune Technology Group that will accurately measure water consumption and identify system leaks and transmit that data to City staff. The project has already replaced all of the non-potable water meters within the service area during its first phase.

Should the City of Redlands be awarded the grant, this project will highly complement current community-wide initiatives geared towards water conservation. A prioritized focus of the San Bernardino Valley Municipal Water District is to plan a long-range water supply for the San Bernardino Valley. The Water Meter Replacement Project will result in reduced short and long-term water supply waste thereby preserving limited resources with quantifiable water savings and water efficiency.

Sincerely,

Robert M. Tincher, P.E., M.S.
Chief Water Resources Officer/Deputy General Manager
San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, CA 92408
909.226.2812

Board of Directors and Officers

JUNE HAYES	GIL BOTELLO	SUSAN LONGVILLE	T. MILFORD HARRISON	PAUL R. KIELHOLD	HEATHER P. DYER
Division 1	Division 2	Division 3	Division 4	Division 5	CEO/General Manager

06/28/2022

Bureau of Reclamation
Financial Assistance Operations Section
Attn: Mr. Josh German
P.O. Box 25007, MS 84-27133
Denver, CO 80225

Re: Letter of Support for the City of Redlands WaterSMART Grants: Water and Energy Efficiency Grant Application for the Water Meter Replacement Project

Dear Mr. German,

On behalf of Ferguson Waterworks, I am pleased to express full support for and commitment to the City of Redlands Municipal Utilities and Engineering Department's application to the Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Program funding to install an Advanced Metering Infrastructure (AMI) Project. If approved, the requested funding will enable the City of Redlands to complete Phase 3-5 of an Advanced Metering and Infrastructure (AMI) system. As a result, this project will help customers monitor their daily water usage while providing the tools needed to empower the efficient use of limited water resources in the Redlands service area.

As one of the nation's largest waterworks companies, Ferguson is dedicated to providing quality products and innovative solutions across the water industry. For Phase 1 and 2 of the Project, the City of Redlands has selected water meters from Neptune Technology Group (Neptune) based on performance, reliability, and cost. As the sole distributor of Neptune products in California, Ferguson stands by Neptune water meters for their reliability and accuracy throughout their service life.

The City of Redland's Water Meter Replacement Project is in direct alignment with the WaterSmart Water and Energy Efficiency Grant Program's goal of sustaining and managing the Nation's water resources for the future.

Thank you for your consideration of this request. Should you have any questions, do not hesitate to contact me at 949-690-4649.

Sincerely,

Michael Balla

Ferguson Enterprises, LLC
11909 Tech Center Court
Poway, CA 92064

FERGUSON

San Bernardino Valley Water Conservation District
Helping Nature Store Our Water

Bureau of Reclamation
Financial Assistance Operations Section
Attn: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, CO 80225

June 08, 2022

Re: Letter of Support for the City of Redlands WaterSMART Grants: Water and Energy Efficiency Grant Application for the Water Meter Replacement Project

Dear Bureau of Reclamation,

The San Bernardino Valley Water Conservation District is pleased to express its support for the City of Redlands Municipal Utilities and Engineering Department's proposal to the Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grant for their Water Meter Replacement Project. For 90 years, the District has been dedicated to ensuring the recharge of the Bunker Hill Groundwater Basin in an environmentally and economically responsible way and strives to improve the supply and quality of groundwater. We support the proposed WaterSMART project which aligns with the District's goals and objectives through conserving water sources and thereby improving the resilience of our local water supply. As partners with the City of Redlands in many efforts, we appreciate their work to upgrade end user potable and non-potable water service meters with new, efficient meters that allow for automated early leak detection, resulting in measurable water savings.

If funded, the WaterSMART project will support the on-going conservation efforts by the District and our partners across the San Bernardino Valley by leveraging available technology to move the needle on addressing our region's current water crisis.

Sincerely,

Betsy Miller, General Manager
San Bernardino Valley Water Conservation District

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