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WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECTS APPLICATION

Funding Opportunity Announcement No. R24AS00059

SCADA MASTER PLAN – CONTROL SYSTEMS UPGRADE PHASE 2 FOR WATER SYSTEM EFFICIENCY

Western Municipal Water District
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TECHNICAL PROPOSAL

EXECUTIVE SUMMARY

DATE:	January 16, 2024
APPLICANT NAME:	Western Municipal Water District
CITY, COUNTY, STATE:	Riverside, Riverside County, California
APPLICANT CATEGORY:	Category A (Water delivery authority)
PROJECT TITLE:	SCADA Master Plan – Control Systems Upgrade Phase 2 for Water System Efficiency

The Western Municipal Water District, located in Riverside County, California, will complete the execution of SCADA component upgrades and system improvements for a cohesive, standardized, and optimized control system as part of an overall effort to improve the overall SCADA system, an identified need in the SCADA Master Plan developed for Western Water in 2018. This Project is the second phase of the SCADA systems upgrade that was identified, and it will involve the installation of SCADA control system upgrades at three potable pump stations. These control system upgrades will enhance reliability, accessibility, maintainability, and security to better monitor the water system with the goal of optimizing and increasing the overall reliability of Westerns water deliveries. A key benefit of this project is that the SCADA system will highlight real-time operational data, giving operators better management of water supplies and the ability to promptly identify leaks. It will also allow for local and remote operation of each pump station. As such, this Project contributes to the goals of this Small-Scale Water Efficiency Projects Notice of Funding Opportunity (NOFO) to implement small-scale water efficiency projects that have been prioritized through applicant-led planning efforts, which conserve and use water more efficiently, and which contribute to supply reliability in the western United States.

The project will begin in October 2024. The Project is anticipated to be completed within two years, by October 2026.

The Project will not be located on a Federal Facility.

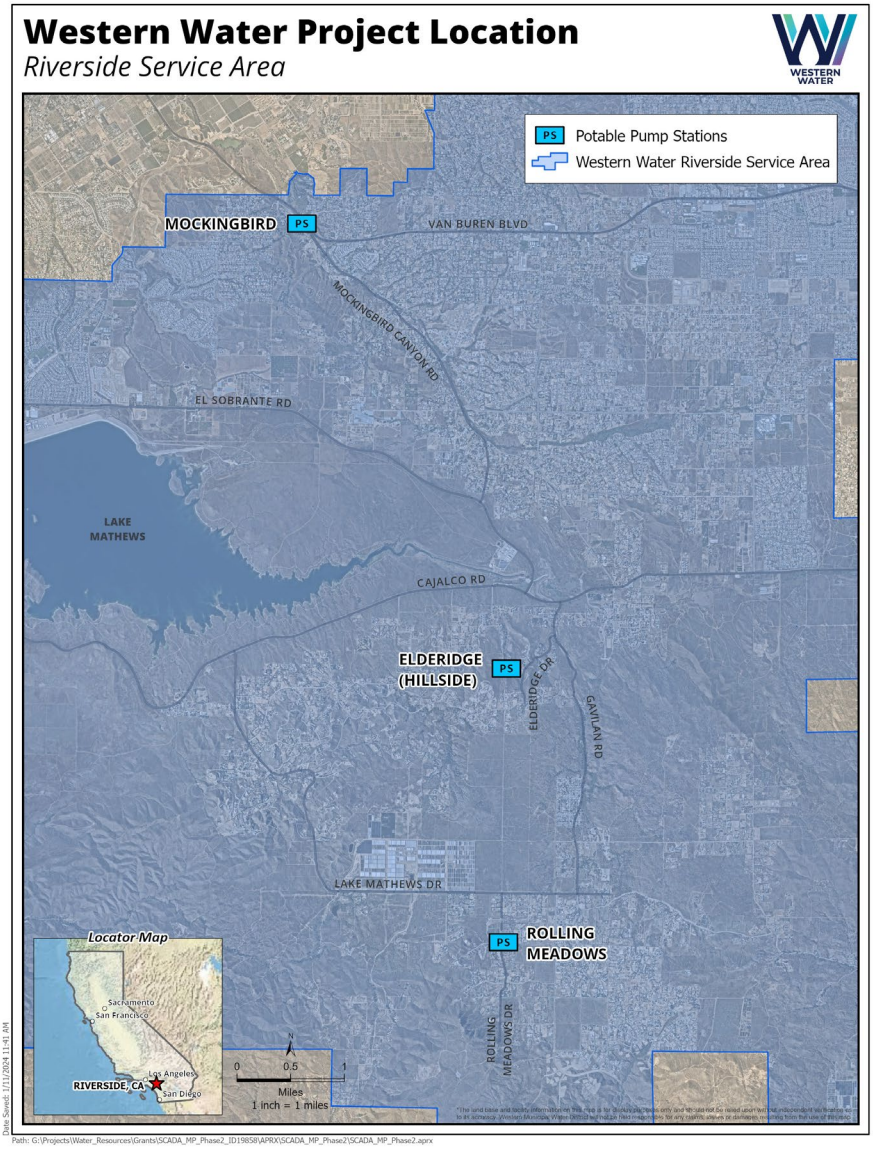
PROJECT LOCATION

Phase 2 of the Project will implement control system upgrades at four pump stations located in Riverside County, California.

- Mockingbird Pump Station (33.883069, -117.404459)
- Elderidge (Hillside) Pump Station (33.83661, -117.37302)
- Rolling Meadows Pump Station (33.786210, -117.3710301)

The locations of the pump stations are shown on Figure 1. Mockingbird Pump Station is located one to two miles south of the City of Riverside, between the City of Riverside and Lake Mathews. Elderidge (Hillside) Pump Station is located east of Lake Mathews and Rolling Meadows Pump Station is located near the southern area of Western Water's Riverside service area.

Figure 1. Project Location



TECHNICAL PROJECT DESCRIPTION

This project will involve the installation of updated Supervisory Control and Data Acquisition (SCADA) components at three potable water pump stations that provide service to approximately 30% of Western Water's Riverside Service area, or approximately 35,000 people. This project is a significant part of an overall SCADA expansion that was identified as a need in Western Water's SCADA Master Plan. The proposed installations at the three pump stations will embed the foundation of SCADA infrastructure into Western Water's potable water distribution system. The three key sites chosen for this Project are critical to Western Water's Riverside service area and require upgrades to meet industry and district standards.

The control system components at each site are experiencing failures and their outdated components are no longer supported by manufacturers and have connectivity issues with the new SCADA projects coming online. There are experienced SCADA reliability issues at these three sites. Western Water will commission, fabricate, and install these control system components. The upgrades will involve the procurement of a programmable logic controller (PLC) which will be used to control and monitor the processes taking place at each pump station. Sensors will be installed to collect data from various equipment within each station. Data will be transmitted through the PLC to a central computer for analysis and control. These upgrades will streamline the collection and transmission of data to plant operators. A SCADA server will be connected directly to the PLC via the District's telemetry system, which both collects and consolidates data. The data is structured using a man-machine interface (HMI) in a convenient format for the Operator in order to be able to take any decisions that would optimize the operation of the equipment. The PLC contains a microprocessor used for the automatization of processes. A PLC is provided with input/output sensors and relays. PLC is less expensive alter to old systems which used tens or hundreds of relays and timers. The PLC is programmed using the structured programming languages and elementary logic operations.

The designs for the control system upgrades have been completed by Western Water. The scope of work for this Project involves the replacement of aged components with new, up-to-date components. Installation of the PLC and required electrical upgrades will also take place at the three key sites. There is no ground disturbing work and site prep will occur on the existing pump station indoor facilities. The project includes purchasing the PLC and attaching the sensors and required electrical connections. No major equipment is required. No areas will be impacted by construction.

EVALUATION CRITERION A: PROJECT BENEFITS

Describe the expected benefits to the Category A Applicant's water supply and delivery systems and water customers.

The Project will expand Western Waters's ability to view pump station facilities throughout the Riverside service area. The new SCADA system will transmit data collected from the pump stations to one master location and allow constant monitoring for security and operations, and automatic actions in response to conditions within the system. The Project will be significant step towards filling gaps in the communications network and updating the existing Western Water SCADA system, benefiting Western Water's delivery systems.

An effective SCADA system is crucial for system optimization because it provides data and enables system control. The data collected from the SCADA system is used to identify inefficiencies, establish baseline energy and water flow at each facility, and measure progress and improvements over time. SCADA systems use sensors to collect data from various equipment and transmit it to a central computer for analysis and control. Data has also proven to be essential for water distribution systems when attempting to detect problems in the facility that could worsen efficiency, cause damage, or lead to equipment malfunctions. Data can be collected for this purpose by installing control systems in strategic placements. The data that's collected from these pump stations will be immediately sent to plant operators, who will be alerted to any water distribution issues, allowing them to be corrected before they worsen and require expensive repairs. With this data, it's possible to identify leaks much faster compared to operator's ability under the current SCADA system. By quickly identifying leaks, water customers will benefit through

lowered water bills because customers pay for water that is lost through unnoticed leaks. Unnoticed leaks can also cause damage to the surrounding community and pressure lost that could affect fire-flow protection. Wildfires are a common risk in Riverside County. The Federal Emergency Management Agency (FEMA)'s National Risk Index categorizes Riverside County with a very high risk (scoring 58.85), one of the 14 counties with that risk category across the 48 contiguous United States. When looking at hazard types for Riverside County, wildfire is rated very high, with a score of 100. Riverside County has on average 2.33 annual state declared emergencies related to wildfire. Not only does the project allow for maintaining pressure lost, in the event of a fire (a common occurrence in Riverside County), operators can safely monitor the pump stations and identify bottlenecks or problems that could inhibit response time.

SCADA monitoring functions allow real-time insights across filtration plants, pump stations, and entire distribution networks. Sensors and process controller devices (control relays) are attached to remote terminal units (RTU). Multiple remote terminal units at different sites transmit the data collected to a single master station which displays the information in a browser. Pump stations in urban and rural areas alike are widespread and numerous. Rather than staffing each pump station full-time, or relying on periodic inspections, water systems can monitor each pump from a single location. This delivers fine control over the entire network, improves routine operations and emergency response, and provides accurate and timely maintenance information.

Monitoring various metrics such as system pressures, flow rates, chemical dosing, and energy consumption allow storage reservoirs to operate under a deeper cycle, increasing system reliability and reducing energy consumption in pump stations. Pressure relief valves and flow meters interconnecting multiple pressure zones will be able to be monitored in real-time, helping to manage the pump on/off cycles and reservoir filling. This benefits system operations by reducing the amount of water pumped into higher pressure zones and falling back down into lower zones.

Will the project result in more efficient management of the water supply?
Yes, SCADA has one or many stations to communicate with concerned PLC's in a control room to provide better water distribution service for the entire connected network area using pumps and control panels. The dispatching unit user interfaces SCADA whereas the PLC's execute the direct control command of the technological process. Data processing is developed by the central unit station. Operating cost and water losses can be reduced by smart control water distribution automated system. Pump module using PLC serves as optimization tool by facilitating water theft, provides water demand statistical records and water leakage prevention is done using flow sensor facilitated with PLC. Previous studies have stated that SCADA systems allow for real-time water theft identification and around 75% of water loss can be saved ((PDF) Implementation of Automated Water Supply and Distribution using PLC and SCADA (researchgate.net)). In calendar year 2022, Western Water experienced approximately 900 acre-feet (AF) in non-revenue water in its Riverside System. If we assume a conservative 50% benefit for the implementation of SCADA system, that amount that SCADA could save is 450 AF. With the proposed project benefiting approximately 30% of the service area, the estimated savings from this project is conservatively 135 AFY. The community and customers pay for water that is lost. Reducing water loss, directly benefits the rates customers pay. In addition, in the State of California, each public water system is assigned a water loss target and could receive fines up to $1000-$5000 per day for noncompliance. Customers would experience these fines processed through their rate structure. By reducing water loss, it

helps Western Water achieve their water loss target. Overall, it's an efficient management of the water supply and is fiscally responsible project for the customers in the region (about 35,000 people benefiting).

Where any conserved water as a result of the project will go and how it will be used?
Western Water's Riverside service area receives a majority of its treated imported water from Metropolitan Water District and the Bay-Area Delta. The 135 AFY of water savings from the Project will result in this water remaining in the Bay-Area Delta, helping meet the State of California's objective to decrease reliance on the Bay-Area Delta. Reducing reliance on imported water through the implementation of the Project will in turn reduce demands and impacts on the Delta's ecosystem. The Sacramento–San Joaquin Delta and its watershed supply water to cities and farms across much of California; they also support commercial and recreational fisheries and provide vital habitat for many endangered native fishes and other aquatic species. During dry periods, most of the outflow from the Delta into San Francisco Bay is required to keep the Delta fresh enough for agricultural and urban uses (Policy Brief: Tracking Where Water Goes in a Changing Sacramento–San Joaquin Delta - Public Policy Institute of California (ppic.org)). To address declining ecosystem health, regulations have also been changing, leading to higher outflows and lower water exports to other regions. Being able to leave 135 AFY in the Bay-Area Delta, but not losing it through water loss, creates widespread public benefits in the form of agricultural uses, urban uses, compliance with regulations, and ecosystem health.

Are customers not currently getting their full water right at certain times of year?
No, at this time, customers can receive their full water right at all times of the year. However, during drought years where water supply is restricted (like in 2011-2012, 2015-2016, and 2020-2023), customers will be required to reduce water use or face fines and increases in the cost of water. Being able to show the region that Western Water is doing its part to save and maintain low water loss in the system through its SCADA upgrades and connectivity, will help customers during much more extreme drought scenarios, before having to restrict their water usage.

Does this project have the potential to prevent lawsuits or water calls?
Once Western Water implements its SCADA Phase 2 project, the new SCADA system will be able to identify leaks early on and implement controls to reduce them. This can reduce the need for costly upgrades and expansions due to population growth and increased demand. By reducing the amount of water lost, the recovered water can be sold to customers, generate revenue, and meet water demands. In some cases, this can even reduce the need to find additional sources. The entire community pays for water loss, so reducing the amount of water loss directly benefits the community thus increasing the potential to prevent any lawsuits related to the increased rate related to water loss.

What are the consequences of not making the improvement?
If this improvement to the SCADA system is not implemented, Western Water is not taking advantage of new technology to reduce the risk of a systemwide shutdown, leaks, or other problems. Systemwide shutdown and leaks puts customers at risk of unexpectedly losing their household potable water, including safe drinking water, for an unknown amount of time. System pressures can also decrease due to leaks, and this can negatively impact fire flow response time. The latest technology will help build a robust and repeatable process so that Western Water can continue operating safely and efficiently under abnormal conditions. Controllers need to be equipped to achieve situational awareness so that they can properly

identify, analyze, and react to abnormal operating conditions, such as leaks, water theft, and disaster response. If these pump stations are not upgraded to current industry standards, the system will remain outdated, susceptible to security risks, and a large likelihood of immediate failure.

Are customer water restrictions currently required?
At this time, customer water restrictions are not required. However, from 2020 – 2023, California experienced a significant multi-year drought on both the State Water Project and Colorado River systems. This drought led to millions of Californians on one day a week watering restriction and a statewide call for reductions up to 20%. Western Water is prepared for drought conditions like the one experienced from 2020-2023 to reoccur, this project will benefit the District's water management by conserving water and increasing our ability to meet water demands during drought periods.

Other significant concerns that support the need for the project.
This project will improve water operations with SCADA by improving processes, reducing costs, reducing downtime, integrating reporting, and providing remote control from anywhere at any time. Without this project, operators will have more difficulty and inaccuracies with tracking production and will be unable to launch preventative equipment maintenance. Without the Project, the SCADA system will be unable to provide data in real time, i.e. pump run times, power usage, power failures, flow data, etc. Without this essential data, operators cannot optimize operational efficiency and reduce overhead costs. Without this project, operators will not be able to identify inefficient processes and any equipment problems prior to a massive impact, causing negative financial impacts and potential damages. Without this project, Modern water managers and operators will not be able to remotely access the status of assets.

Additionally, the Project will also allow for the additional installation of SCADA pieces to expand the future District Metered Area project which Western Water has begun to implement, The District Metered Area project will add flow meters and connect customer meters to pump stations and reservoirs to better monitor water in and water out of the reservoirs for better water loss evaluation and ultimately better water efficiency.

Describe the broader benefits that are expected to occur as a result of the project. Will the project improve broader water supply reliability at sub-basin or basin scale?
Western Water relies on a combination of imported water and local groundwater. The Riverside-Arlington Sub-Basin is a critical source of local groundwater for Western Water. This project will reduce water loss and increase water use efficiency, improving water supply reliability at the sub-basin scale by providing Western Water with the opportunity to draw less water from the aquifer and from their imported water sources, such as the Bay Area Delta. Western Water receives treated imported water from Metropolitan Water District and the Bay-Area Delta. The 135 AFY of water savings from the Project will result in this water remaining in the Bay-Area Delta, helping meet the State of California's objective to decrease reliance on the Bay-Area Delta. Reducing reliance on imported water through the implementation of the Project will in turn reduce demands and impacts on the Delta's ecosystem. As discussed in Western's Urban Water Management Plan, reduced demands on the Delta mean reduced diversions from that sensitive ecosystem, thereby helping to contribute to instream flows, enhanced ecosystem protection, and improved water quality. With earthquakes and wildfires being hazards in California, water conveyance infrastructures are at high-risk of damage. With most of Western's water travelling a long distance—over thousands of miles—

the probability of an earthquake or damaging wildfire increases because we are not just looking at the probability of those events occurring in Riverside County, but throughout the state. The odds of a natural hazard add together as one move over the distance. By decreasing imported supply, the risk of earthquakes and wildfire become more locally centered, therefore system reliability increases, and hazard risk reduces.

Will the proposed project increase collaboration and information sharing among water managers in the region? Please explain.
The real-time data provided by the SCADA system will send information more frequently to water managers at Western Water and improve water management within the District. Western Water also hosts quarterly meeting with its Retail agencies (14 agencies) and the success of this improvement and water savings will be provided to the water managers in the region.

Is the project in an area that is experiencing, or recently experienced, drought or water scarcity? Will the project help address drought conditions at the sub-basin or basin scale? Please explain.
Until the winter of 2023, Western Water continued to experience dry weather following the third driest year on record in 2021. With the driest January and February on record in 2022, water use efficiency and conservation is needed more than ever. Also, because of climate change, as of 2050, droughts will be twice as likely to occur. Extreme heat days are projected to increase 250 percent by 2050 and 500 percent by 2100 and heat wave duration is expected to increase 174 percent by 2100 (CDC, Climate and Health). From 2021 to 2023, a California Executive Order from Governor Newsom, N-7-22, called on local water suppliers to shift to "Level 2" of their individual Water Shortage Contingency Plans, which involved taking preparatory actions for water shortage levels of up to 20 percent. At that time, Western Water entered Stage 2 in January 2022 asking customers to reduce their water usage by 20 percent (basin-wide action). This project directly addresses these challenges by creating a more efficient water system and increasing the District's ability to meet water demands during times of extreme heat. With extreme heat, there is also increased likelihood of wildfire. By minimizing the chance of leaks and system pressure issues, Western Water will be able to respond more timely and effectively in the event of a fire disaster.

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 explain.
Conserving 135 AFY of water will decrease the amount of water Western Water purchases from the State Water Project (SWP), reducing the demands on the Bay-Area Delta. With climate change affecting California's water supply through more intense rainfall, less snowpack, and more frequent and severe droughts, there is less source water for the Bay-Area Delta. Reducing imported water demands from the Bay-Area Delta allows for reduced source flows to stay in the Bay-Area Delta, improving ecological resiliency. Reducing imported water from the SWP is a direct benefit to the Delta Smelt and other species, such as the Shad and Striped Bass. Reducing the amount of water Western takes from the Bay-Area Delta allows water to stay in this vital ecosystem, where many of the aquatic species are endangered or threatened. For example, the endangered Delta Smelt, which is endemic to the upper Sacramento-San Joaquin Estuary that mainly inhabit the freshwater-saltwater mixing zone. With more freshwater being diverted to the SWP, the mixing zone becomes more brackish and further endangers the Delta Smelt, which causes a ripple effect on the ecosystem. Since the implementation of this project will reduce the

amount of water exported from Northern California stream systems, there will be a positive benefit for the sensitive in the Sacramento–San Joaquin River Delta including the Delta Smelt (federally endangered) and its critical habitat, and Longfin Smelt. With the 2017 wet year, the American Shad and the Striped Bass population increased, where the previous dry years had a negative impact on population. It is no question that extra fresh water in the Bay-Area Delta had a positive impact on the fish populations.
Thus, the less water taken from the Bay-Area Delta during the wet and dry years is beneficial to the habitat and the species that inhabit the Bay-Area Delta. In summary, this project does have the potential to benefit species of the Bay-Area Delta due to projected climate change impacts.

Will the proposed project positively impacts/benefit various sectors and economies within the applicable geographic area (e.g., impacts to agriculture, environment, recreation, and tourism)? Please explain.
The proposed Project will positively impact various sectors and economies within the applicable geographic area because water savings benefits all customers, including agriculture, municipal, industrial, and domestic, in Western Water service area. Reducing water loss and the issues/damage that can arise from undiscovered leaks, benefits domestic/residential customers through minimizing large shutdowns that could leave the community without water. Major leaks lead to increased risk of water contamination that could potentially make the water undrinkable for the community. The project reduces that risk and provides a positive impact to water reliability for the region. The project can monitor water flows that occur during peak times and can help better inform future development needs and infrastructure needs, creating a positive impact to the local economy. Additionally, all customers benefit from reduced water loss because water loss is a component built into the rate structure. With reduced water loss, the water loss component in the rates can be decreased, leading to a direct reduction in how much customers pay for water.

Will the project complement work being done in coordination with NRCS in the area (e.g., the area with a direct connection to the districts water supply)? Please explain.
The amount of water used for irrigation of major crops is insignificant and therefore, work being done with NRCS is not applicable to this project.

EVALUATION CRITERION B: PLANNING EFFORTS SUPPORTING THE PROJECT

Is your project supported by a specific planning document or effort? If so, describe the existing plan. When was the plan developed? What is the purpose and objective of the plan?
Western Water's SCADA Master Plan, developed in 2018, supports this project's effort. The plan identified an improved SCADA system as critical for efficiency. The strategic plan identifies expansion and upgrades to improve reliability, accessibility, maintainability, and security. During the development of the SCADA Master Plan, weaknesses and failures were identified in the pump station control systems that impact operations, regulatory reporting, security, and finances.

Who developed the planning effort? What is the geographic scope of the plan?
CH2M Hill Engineers prepared the plan for Western Municipal Water District. Its geographic scope includes Western Water's Riverside service area as shown in the boundary of the map in Figure 1.

Describe to what extent the proposed project is supported by the identified plan. Consider: Is the project identified specifically by name and location in the planning effort?

The proposed Project is identified in the SCADA Master Plan under Phase 2's Control System Upgrades. Within the Control System Upgrades, "SCADA (S2) - Upgrade Design and Implementation" section outlines the hardware and software upgrades recommended at fourteen stations which make up Western Water's potable water distribution system. These upgrades will bring the stations to industry and district standards. Of the fourteen stations, project managers at Western Water have prioritized the three key sites identified in this project to receive SCADA upgrades.

Is this type of project identified in the planning effort?
This type of project is directly identified in the SCADA Master Plan under Phase 2's Control System Upgrades section "SCADA (S2) - Upgrade Design and Implementation."

Explain whether the proposed project implement a goal, objective, or address a need or problem identified in the existing planning effort?
The proposed Project will implement recommendations identified in the SCADA Master Plan which will contribute to a cohesive, standardized, and optimized control system and improve the overall SCADA system's reliability, accessibility, maintainability and security.

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.
The proposed Project has been determined as a priority for Phase 2's Control System Upgrades due to the importance of upgrading these four pump stations to industry and district standards. These pump stations risk system failure and pose a threat to the continued reliable delivery of potable water to Western Water's Riverside service area.

EVALUATION CRITERION C: IMPLEMENTATION AND RESULTS

Implementation Schedule
Describe the implementation plan for the proposed project.
The Project will consist of two stages: environmental work and construction. Based on the NOFO, award notification is anticipated in the fall of 2024. For planning purposes, it is assumed that project start date would occur in November 2024. The Project is anticipated to be completed by October 2026. The project implementation schedule by task is shown below in Table 1.

Table 1. Project Schedule

	Task	Start Date	End Date
1	CEQA Categorical Exemption	November 2024	February 2025
2	Construction	February 2025	October 2026

Permits
Describe any permits and agency approvals that will be required along with the process and timeframe for obtaining such permits or approvals.
No permits or special approvals are needed for implementation of the Project. Project work will be conducted at existing pump station locations and will entirely within Western Water property.

The project is anticipated to fall within a Categorical Exemption pursuant to CEQA and a Categorical Exclusion pursuant to NEPA and will not require further compliance measures. There is no ground disturbance with this project.

Design and Engineering Work

Identify and describe any engineering or design work performed specifically in support of the proposed project. What level of engineering design is the project currently?

Engineering and design work standards have been completed for this Project.

Land Access

Does the applicant have access to the land or water source where the project is located?

Has the applicant obtained any easements that are required for the project?

The Project is taking place on Western Municipal Water District property and is therefore fully accessible. No easements are required for the project.

Environmental and Cultural Resource Compliance

Have potential environmental and cultural resource compliance requirements and costs been identified?

The project is anticipated to fall within a Categorical Exemption pursuant to CEQA and a Categorical Exclusion pursuant to NEPA and will not require further compliance measures.

EVALUATION CRITERION D: NEXUS TO RECLAMATION

Is the proposed project connected to a Reclamation project or activity? If so, how?

The proposed project is not connected to a Reclamation project or activity.

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

The Project is neither on Reclamation lands nor does it involve Reclamation facilities. Western Water does not have a water service, repayment, or O&M contract with Reclamation.

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

As a Metropolitan Water District of Southern California member agency, Western Water receives water from Reclamation's Colorado River Project.

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

The proposed project will be implemented within Western Water's service area in western Riverside County. This region is within Reclamation's Lower Colorado Region and is served by Reclamation's Boulder Canyon Project. The Project is neither on Reclamation lands nor does it involve Reclamation facilities. The Project will not contribute water to a basin where a Reclamation project is located. Western Water's application for a WaterSMART Water and Energy Efficiency Grant for fiscal year 2021 was accepted for a project implementing Phase 1 of SCADA upgrades which executed a new design for the SCADA Wide Area Network.

EVALUATION CRITERIA E: PRESIDENTIAL AND DEPARTMENT OF THE INTERIOR PRIORITIES

E.1.5.1 Sub-criterion No. E1 Climate Change

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

To increase water supply reliability and proactively address the region's concern with drought, in 2021 Western Water embarked on the preparation of a regional Drought Contingency Plan (DCP), funded in part by the United States Bureau of Reclamation (Reclamation). The DCP was adopted by Western Water's Board of Directors on July 20, 2022. The DCP document can be found at www.wmwd.com/uwmp. Western Water's DCP includes considerations of climate change impacts to water resources or drought. A vulnerability assessment was conducted through the development of the DCP (chapter 4). The vulnerability assessment performed aimed to improve the understanding of climate change impacts on future water demand in Western Water's wholesale service area and the sources of Western Water's water supplies during normal and drought periods. In its climate change vulnerability analysis, Western Water's Drought Contingency Plan identified the key supply vulnerabilities to climate change as the following:

- Insufficient local water supply
- Increase dependence on imported supply
- Inability to meet water demand during droughts
- Shortage in long-term operational water shortage capacity

Additionally, increasing concerns exist about the reliability of imported water, particularly from the Bay-Area Delta, due to climate change, competing demands and environmental goals. As part of the 2020 updates to its UWMP and Integrated Water Resources Plan (IRP), Metropolitan Water District of Southern California (Metropolitan) evaluated the reliability of these supplies and concluded that if nothing is done to invest in water supplies or conservation, supply short-falls are likely to occur in the future. As of July 2022, Metropolitan had identified short-falls for the next fiscal year, including providing water allocations to agencies that are SWP dependent.

Potential constraints to Metropolitan supplies, and thus to 70% of Western's retail demands, and associated supply reliability include:

- Drought: The Colorado River has been in drought conditions for much of the past 15 years, exacerbating claims to water in the River. The Sacramento-San Joaquin Delta (Bay-Area Delta) has suffered reduced flows and rising temperatures in the current drought, and SWP supplies have been significantly curtailed during the current drought.
- Environmental/Ecological Needs (Operational Constraints): Sensitive species in the Bay-Area Delta system require base flows for survival; these flows are threatened by drought and other factors, reducing the volume of water available for pumping to the SWP. As species become further stressed, environmental demands on Bay-Delta water may increase.
- Climate Change: Climate change is anticipated to increase the frequency and intensity of droughts and flooding, alter the timing of snowmelt, and increase variability in precipitation while raising average temperatures. These effects may reduce the availability of supplies in the Bay-Area Delta and Colorado River systems, as well as change the timing of availability, which could reduce Metropolitan's ability to utilize the supplies that it can access, all while demands are anticipated to increase as a result of climate change. Sea level rise poses a significant challenge to the salt balance in the Bay-Area Delta with likely impacts to the supply balance that can be expected. Sea level rise also increases the vulnerability of the Bay-Area Delta supply to seismic events.

- Threats to Infrastructure: Metropolitan's imported supplies must travel across large distances to reach turnouts where local agencies are able to access the water. California is a seismically active state, prone to wildfires, which could damage imported water infrastructure anywhere along the SWP or Colorado River Aqueduct in such a manner as to disrupt supply availability. California is also a large state with a large economy, housing some major industries and defense installations. This makes it a potential target for acts of terrorism, including potential threats to its water supplies and infrastructure.

The US Bureau of Reclamation's Climate Change Adaption Strategy (CCAS) provides strategies and goals around the type of projects and adaptation needed to accommodate climate change in water system planning and management. The CCAS focuses around four goals: 1) The need for increase water management flexibility; 2) The need to enhance climate adaptation planning; 3) The needs to improve infrastructure resilience; and 4) the need to expand information sharing. This project is a strategic project for climate change adaptation by addressing three of the four goals in the CCAS (water management flexibility, infrastructure resilience, and information sharing).

During the development of the DCP, Western Water's Drought Task Force members participated in a drought mitigation survey where all members had an opportunity to submit projects that would help their agency mitigate drought. The Project is listed in Western Water's DCP to help Western Water conserve water and enhance regional water supply reliability and resiliency. The Project directly addresses these supply reliability issues, heightened competition for finite water supplies, and over-allocation (e.g., population growth) by using smarter technology and more advanced infrastructure to better manage the water supply. The project will reduce the amount of water taken from the Bay-Area Delta, allowing more water to remain in the Delta which will reduce drought stress and benefit the environment of the Delta. The water savings will reduce Western Water's direct water demand on the Bay-Area Delta (decreased dependence on imported supply). By saving 135 AFY of Western Water's water demand through this Project, Western Water is making a more resilient water system and giving a beneficial use back to the lost water supply (keeping it at its source per the Reduced Reliance on the Delta statewide initiative).

In Southern California, water use efficiency is essential for sustaining adequate and reliable water supplies. The Project, implementing SCADA component upgrades at three potable water pump stations, will address the impacts of climate change through its facilitation of immediate detection of facility problems such as water leaks. Water leaks are a large factor in inefficient water use. If undetected, these problems would worsen system inefficiency and lead to unnecessary water loss. The SCADA system upgrades will help optimize the distribution of water resources and will conserve 135 AFY of water transported from the Bay Area Delta. This supply is currently being influenced by climate change. More efficient use of this source of water can help combat the climate crisis.

Does this proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?
Yes, the proposed project strengthens water supply sustainability to increase resilience to climate change. By identifying leaks almost immediately with the SCADA system, Western Water's potable water supply will be used more sustainably. This Project directly contributes to lower water usage within the District. These water savings will help Western Water deal with the effects of climate change as drought conditions

become more prevalent in the region. The Project also benefits the Bay-Are Delta ecosystem. Specifically, exports during critically dry years have a greater chance of conflicting with the Bay-Area Delta's aquatic ecosystem. During critically dry years, the Bay-Area Delta experiences lower inflows to support its natural communities. During wet years, Bay-Area Delta inflow is higher, and many aquatic species are less stressed by exports (Water Exports | Delta Stewardship Council (ca.gov)).

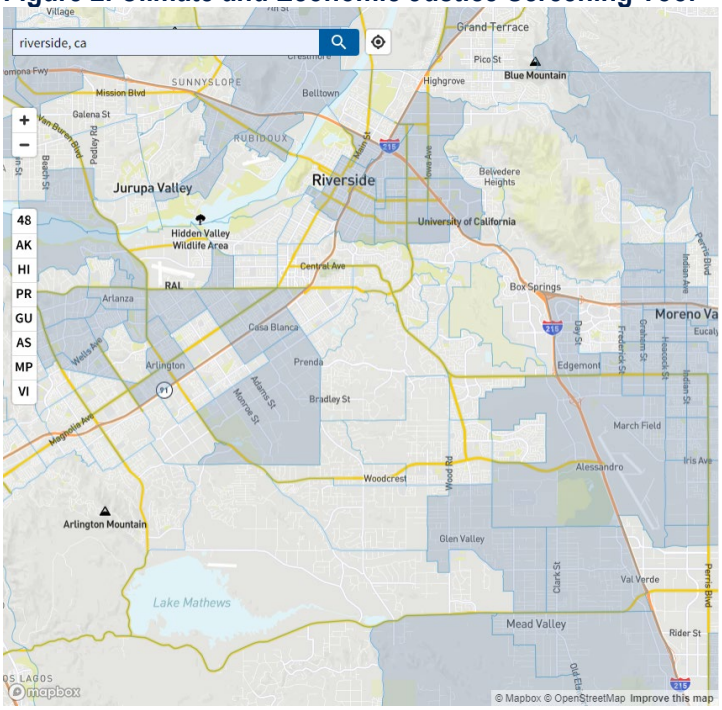
Disadvantaged or Underserved Communities

E.1.5.2. Sub-criterion No. E2. Disadvantaged or Underserved Communities

Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool, available online at Explore the map – Climate & Economic Justice Screening Tool (https://screeningtool.geoplatform.gov) to identify any disadvantaged communities that will benefit from your project.

Figure 2 is a snapshot from the Climate and Economic Justice Screening Tool. Disadvantaged communities in Western Water's Riverside service area will benefit from the Project.

Figure 2. Climate and Economic Justice Screening Tool



Using California Environmental Protection Agency (CalEPA)'s EnviroScreen 4.0 tool (CalEnviroScreen 4.0 Results (arcgis.com), the population can be described in Table 2 below.

Table 2. EnviroScreen 4.0 Census Track Results

Census Tracks	6065042007	6065031701
% White	61.7	21.68
% Hispanic	22.99	60.17
% African American	7.63	5.45
Percentile in Pollution Burden	79	89
Percentile in Poverty	39	85

Census Tracks	6065042007	6065031701
Percentile in Unemployment	38	75
% between ages of 10-64	71.19	70.54
% older than 65	16.1	18.85

The Environscreen results highlight that the region suffers from pollution. In one of the areas, there is a large Hispanic population, with a high poverty and unemployment score. The project area has community members older than 65 being 16-19% of the community.

If applicable, describe how the project benefits those disadvantaged or underserved communities identified using the tool. For example, does the project increase reliability of water supplies, improve water quality, provide economic growth opportunities, improve or expand public access to natural areas or recreation, or provide other benefits in a disadvantaged or underserved community?
Western Water's access to local supplies requires that we pay neighboring agencies for the water itself, plus pumping, treatment and transportation costs to deliver it to our service area. This amounts to about $600 per acre-foot to transport the water from the well to your region, making our "local supply" up to five times more expensive than our neighbors. Since Western Water's Riverside customers sit atop a large hill predominantly made of rock, Western Water must import nearly 60% of our water from more than 700 miles away, from the Bay-Area Delta, moved by the Metropolitan Water District of Southern California. This is a long, energy-intensive and expensive trip. The cost of energy, systems and labor that is needed to pump the water from the Sierra Nevada Mountains into our region (a cost of $1,256 per acre-foot) and uphill into customer homes and businesses is a major factor in Western Water's cost of service, which results in a higher rate.

The proposed Project will benefit disadvantaged communities through a reduction in delayed attention to water leaks, specifically a reduction in the more costly imported water. When water leaks go unnoticed, customers pay for the lost water through increased rates. By identifying leaks promptly, Western Water can ensure customers won't pay for unused water that has been lost through leaks. This will prevent disadvantaged customers from paying higher water bills for water they didn't actually use. With one of the higher rates in the Riverside area, disadvantaged communities are already paying a proportionately higher bill for their water. With a community that has large unemployment, poverty, and a population on fixed income, any water savings that can reduce the water loss component in the rate and any additional benefits from operational and energy saving in the operation of the system, directly allow for lower future rate increases than what could occur without the project.

SECTION 2. BUDGET DETAIL AND NARRATIVE

Table 3. Project Budget

Funding Sources	Amount
Non-Federal Entities	
1. Western Municipal Water District	$124,135
Non-Federal Subtotal	$124,135
REQUESTED RECLAMATION FUNDING	$100,000

Table 4. Project Budget Summary

Summary			
6. Budget Object Category		**Federal Estimated Amount**	**Non-Federal Estimated Amount**
a. Personnel	$159,135		
b. Fringe Benefits	$0		
c. Travel	$0		
d. Equipment	$65,000		
e. Supplies	$0		
f. Contractual	N/A		
g. Construction	$0		
h. Other Direct Costs	$0		
i. Indirect Charges	$0		
Total Costs	$224,135	$100,000	$124,135
Cost Share Percentage		45%	55%

Budget Narrative

Personnel

Project implementation will be conducted by Western Water staff. Western Water will not seek reimbursement for staff activities outside of installation of control system upgrades, such as project management activities, as it is considered to fall under normal staff activity. Under this Project, staff will remove aged components from pump stations, install a PLC at each station and sensors where necessary, and rewire the electrical connections at each pump station.

Table 5. Personnel Budget Detail

Salaries and Wages	Average $/hour	# of Hours	Total
Position 1 – Sr. OPS Tech	$210	300	$63,000
Position 2 – OPS Tech IV	$195	285	$55,575
Position 3 – OPS Tech III	$169	240	$40,560

Fringe Benefits

Fringe benefits are not included in the overall project budget.

Travel

Travel to and from project sites are considered a part of normal staff activity and no reimbursement of match for staff travel is being sought.

Equipment

Table 6. Equipment Budget Detail

Pump Stations	Equipment Cost	Quantity	Total
Mockingbird	$25,000	1	$25,000
Hillside	$20,000	1	$20,000
Rolling Meadows	$20,000	1	$20,000

Supplies

N/A

Contractual

There will be no contractor for this project.

Construction

The cost for constructing the control systems is listed under the Personnel category.

Other

No other expenses are anticipated.

Indirect Costs

No other expenses are anticipated that are not captured under the above categories.

SECTION 3. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

1. *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

The Project will consist of aboveground installations at already existing pump stations. No earth-disturbing work will take place. The sites have compacted earth with either pavement or gravel overlay. Sites are devoid of vegetation. No sensitive resources are anticipated to be affected by the project.

2. *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

Project activities will be located within existing facility boundaries. Based on prior assessments of sensitive species and habitats within the Western Water district area, sensitive species or habitats will not be impacted by the Project.

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

There are no "Waters of the United States" located within the Project boundaries and the Project will not impact nearby wetlands or surface waters.

4. *When was the water delivery system constructed?*

The formation of Western Water dates back to 1954. The pump stations where Project work will be completed range in age from 53 to 20 years old.

5. *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

The Project will not result in any modification of or effects to individual features of an irrigation system.

6. *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?*

No buildings, structures or features associated with the Project are listed or eligible for listing on the National Register for Historic Places.

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

There are no known archaeological sites within the Project area.

8. *Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*

The Project will not have a disproportionately high or adverse effect on low income or minority populations. The Project would equally benefit all Western Water water customers and could provide financial benefits to customers through improved efficiency and leak detection that could reduce water bills.

9. *Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on tribal lands?*

No, the Project will not limit access to or ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

10. *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

The Project is not anticipated to contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

SECTION 4: REQUIRED PERMITS OR APPROVALS

No permits or special approvals are needed for the implementation of the Project. Project work will be conducted at existing pump station locations and will be entirely within Western Water property.

SECTION 5. OVERLAP OR DUPLICATION OF EFFORT STATEMENT

There is no overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. The proposal submitted for consideration under this program is not duplicative of any proposal or project that has been or will be submitted for funding consideration to any other potential funding source.

SECTION 6. CONFLICT OF INTEREST DISCLOSURE STATEMENT

There is no actual or potential conflict of interest at the time of submission.

SECTION 7. UNIFORM AUDIT REPORTING STATEMENT

Western Municipal Water District was required to submit a Single Audit Report for the fiscal year ending June 30, 2022 (the most current reporting year) and this is available at the Federal Audit Clearinghouse website. Western Municipal Water District is currently in the process of conducting the Single Audit for the fiscal year ending June 30, 2023; available for viewing at the Federal Audit Clearinghouse website subsequent to March 31, 2024. The applicable Employer Identification Number is: 956005108.

SECTION 8. CERTIFICATION REGARDING LOBBYING

This application requests more than $100,000 in Federal funds, therefore the Authorized Official's signature on the appropriate SF-424, Application for Federal Assistance form also represents the entity's certification of the statements in 43 CFR Part 18, Appendix A.

SECTION 9. DISCLOSURE OF LOBBYING ACTIVITIES

A completed and signed SF-LLL is included in the submitted files.

SECTION 10. LETTERS OF SUPPORT

Letters of support from the following agencies are included in Appendix B.

- Elsinore Valley Municipal Water District

- Santa Ana Watershed Project Authority

SECTION 11. OFFICIAL RESOLUTION

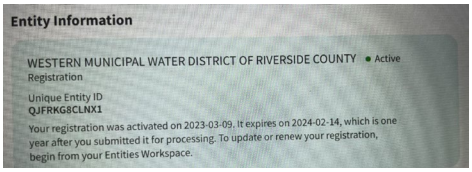
An official resolution authorizing Western Water's Board of Directors to submit this grant application, commit to the financial and legal obligations, and negotiate and execute the grant agreement is provided in Appendix A. The resolution was adopted by the Board of Directors on January 3, 2024.

SECTION 12. LETTERS OF FUNDING COMMITMENT

The non-Federal share of Project costs will come from Western Water's Capital Improvement Plan Funds. No funding will be provided by funding partners. As such, no letters of commitment are being provided.

SECTION 13. SAM REGISTRATION

Western Water is registered in the System for Award Management (SAM). Its unique entity identifier is (DUN) is: 030589311 and its CAGE code is 0AEE2. Western Water will maintain an active SAM registration with current information during the period of its federal assistance agreement.



RESOLUTION 3306

A RESOLUTION OF THE BOARD OF DIRECTORS OF WESTERN MUNICIPAL WATER DISTRICT AUTHORIZING THE DISTRICT'S APPLICATION, AND APPROVING NEGOTIATION AND EXECUTION OF A COOPERATIVE AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION FOR A WATERSMART SMALL-SCALE WATER EFFICIENCY GRANT FOR FISCAL YEAR 2024 (FUNDING OPPORTUNITY NO. R24AS00059)

WHEREAS, the Western Municipal Water District ("Western Water") is organized and operates pursuant to the Municipal Water District Act of 1911 commencing with Section 71000 of the California Water Code; and

WHEREAS, the District seeks to increase water efficiency through improving its' Supervisory Control and Data Acquisition (SCADA) infrastructure; and

WHEREAS, the United States Department of the Interior, Bureau of Reclamation (USBR) under the WaterSMART: Small-Scale Water Efficiency Grant will make funding available to qualifying applicants; and

WHEREAS, the Board of Directors of Western Water has identified and approved a project that exemplifies the objectives of the WaterSMART Small-Scale Water Efficiency Grant, the "SCADA Implementation Phase 2 - Control Systems Installation at Pump Stations", approves of the application to the Reclamation WaterSMART Small-Scale Water Efficiency Grant; and

WHEREAS, Western Water agrees to the administration and cost sharing requirements of the grant criteria.

NOW, THEREFORE, BE IT RESOLVED, as follows:

Section 1. The General Manager or their designee, has reviewed

and supports the application to the WaterSMART Small-Scale Water Efficiency Grants for FY 24.

Section 2. Western Water is hereby authorized to receive, if awarded, the WaterSMART Small-Scale Water Efficiency funding and will make a good faith effort to enter into a cooperative agreement with the United States Bureau of Reclamation for the receipt and administration of said grant funds.

Section 3. The General Manager, or their designee, is hereby authorized to take any and all action which may be necessary for the completion and execution of the project agreement and to take any and all other action which may be necessary for the receipt of the grant funding.

Section 4. This Resolution officially becomes part of Western Water's grant application submitted to the United States Bureau of Reclamation.

Section 5. Western Water is capable of providing the amount of funding and/or in-kind contributions specified in the grant application funding plan.

Section 6. This Resolution shall be effective as of the date of adoption.

ADOPTED, this 3rd day of January, 2024.

MIKE GARDNER
President

January 3, 2024

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution 3306 adopted by the Board of Directors of Western Municipal Water District of Riverside County at its regular meeting held January 3, 2024.

FAUZIA RIZVI
Secretary-Treasurer

January 8, 2024

ELECTRONIC MAIL

Western Municipal Water District
Attn: Craig Miller, General Manager
14205 Meridian Parkway
Riverside, CA 92518

SUBJECT: SUPPORT FOR WESTERN MUNICIPAL WATER DISTRICT'S BUREAU OF RECLAMATION WATERSMART: SMALL-SCALE WATER EFFICIENCY PROJECT APPLICATION FOR THE SCADA MASTER PLAN – CONTROL SYSTEMS UPGRADE PHASE 2 FOR WATER SYSTEM EFFICIENCY PROJECT

Dear Mr. Miller:

On behalf of Elsinore Valley Municipal Water District (EVMWD), I would like to express my support for Western Municipal Water District's (Western Water) application to the United States Bureau of Reclamation's (USBR) WaterSMART (Sustain and Manage America's Resources for Tomorrow) Small-Scale Water Efficiency Program.

This funding opportunity supports Small-Scale Water Efficiency Projects that have been prioritized through planning efforts led by the applicant. These projects are generally in the final design stage. USBR will provide funding for small-scale, on-the-ground water efficiency projects which seek to implement work identified in an applicant's water planning efforts and includes activities related to Supervisory Control and Data Acquisition and Automation (SCADA) projects. Western Water is applying to the Small-Scale Water Efficiency Program to implement the SCADA Master Plan – Control Systems Upgrade Phase 2 for Water System Efficiency Project (Project).

The proposed Project includes the implementation of control system upgrades at four of Western Water's Riverside Service Area's pump stations: Mockingbird, Hillside, Rolling Meadows, and 1865. These pump stations are outdated, do not meet industry standards and are not currently on the existing SCADA backbone infrastructure. Once the proposed Project is complete, the pump stations will be automated to operate based on system pressures and reservoir levels. Most importantly, the SCADA system will highlight real-time operational data, with the ability to be remotely operated and promptly detect leaks. Benefits of this Project are three-fold:

1) Provides system enhancements and efficiency to monitor the system and its performance;
2) Allows for system operational flexibility; and
3) Increases resiliency through monitoring and system control.

The Project will help Western Water achieve water system efficiency by implementing a small-scale on-the-ground Control Systems Upgrade Phase 2 Project that was identified in Western's SCADA Master Plan. Specifically, the proposed Project gives Western Water the ability to ensure critical equipment uptime and allows for immediate more targeted response actions especially in terms of water loss and leaks. Without implementing the proposed Project, Western Water cannot upgrade its pump stations to meet industry standards which will result in higher risks for operational failure at the outdated pump stations.

As a regional partner to Western Water, EVMWD can attest to the benefits and water efficiency this proposed Project will bring to the region. EVMWD is proud to support Western's WaterSMART grant application for the SCADA Master Plan – Control Systems Upgrade Phase 2 for Water System Efficiency Project.

Sincerely,

Greg Thomas,
General Manager

PK/se

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Santa Ana Watershed Project Authority
Over 50 Years of Innovation, Vision, and Watershed Leadership

January 2, 2024

Craig Miller, General Manager
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

Subject: **Support for Western Municipal Water District's Bureau of Reclamation WaterSMART: Small-Scale Water Efficiency Project Application for the SCADA Master Plan – Control Systems Upgrade Phase 2 for Water System Efficiency Project**

Dear Mr. Miller,

Western Municipal Water District (Western Water) is applying to the United States Bureau of Reclamation (USBR)'s WaterSMART (Sustain and Manage America's Resources for Tomorrow) Small-Scale Water Efficiency Program. This Funding Opportunity supports Small-Scale Water Efficiency Projects that have been prioritized through planning efforts led by the applicant. Western Water is applying to the Small-Scale Water Efficiency Program to implement the SCADA Master Plan – Control Systems Upgrade Phase 2 for Water System Efficiency Project (Project).

The proposed project includes the implementation of control system upgrades at four of Western Water's Riverside Service Area's pump stations: Mockingbird, Hillside, Rolling Meadows, and 1865. Once the proposed project is complete, the pump stations will be automated to operate based on system pressures and reservoir levels. Most importantly, the SCADA system will highlight real-time operational data. Benefits of this Project include providing system enhancements to monitor the systems performance, allows operational flexibility, and increases resiliency through monitoring and system control.

The Project will help Western Water achieve water system efficiency by implementing a small-scale on-the-ground Control Systems Upgrade Phase 2 Project that was identified in Western's SCADA Master Plan.

As a regional partner to Western Water, SAWPA can attest to the benefits and water efficiency this project will bring to the region. SAWPA wholeheartedly supports Western's WaterSMART grant application for the SCADA Master Plan – Control Systems Upgrade Phase 2 for Water System Efficiency Project.

Sincerely,

Jeff Mosher
General Manager