

APPLICATION

WaterSMART

Small-Scale Water Efficiency Projects NOFO No. R21AS00300



SCADA Master Plan - Wide Area Network Implementation
Phase 1 for Water System Efficiency



Western Municipal Water District 14205 Meridian Parkway Riverside, CA 92518 Jason Pivovaroff
Deputy Director Water Resources
jpivovaroff@wmwd.com
(951) 571-7100 tel

Proposal Contents

Proposal Co	ntents	S		i		
List of Tables				j		
List of Figures.				i		
List of Acronyr	ns and .	Abbrevia	tions	i		
Appendices				i		
Section 1:	Technical Proposal and Evaluation Criteria					
	1.1	1.1 Executive Summary				
	1.2	Project Location				
	1.3	Projec	t Description	3		
	1.4	.4 Evaluation Criteria				
		1.4.1	Evaluation Criterion A: Project Benefits	4		
		1.4.2	Evaluation Criterion B: Planning Efforts Supporting the Project	5		
		1.4.3	Evaluation Criterion C: Project Implementation	5		
		1.4.4	Evaluation Criterion D: Nexus to Reclamation	6		
Section 2:	Proj	Project Budget				
	2.1	1 Funding Plan and Letters of Commitment				
	2.2	Budge	et Proposal	8		
	2.3	Budge	et Narrative	g		
Section 3:	Envi	ironmeı	ntal and Cultural Resource Compliance	11		
Section 4:	Req	uired P	ermits or Approvals	13		
Section 5:	Lett	Letters of Project Support				
Section 6:	Offic	Official Resolution1				
Section 7:	S A IV	l Regiet	tration	16		

Proposal Contents (cont'd)

List of Tables

- 1 Project Schedule
- 2 Total Project Cost Table
- 3 Budget Proposal

List of Figures

1 Project Location

List of Acronyms and Abbreviations

CEQA California Environmental Quality Act
NEPA National Environmental Policy Act
NOFO Notice of Funding Opportunity

Reclamation Bureau of Reclamation

SAM System for Award Management

SAWPA Santa Ana Watershed Project Authority
SCADA Supervisory Control and Data Acquisition

WAN Wide Area Network

WMWD Western Municipal Water District

Appendices

- A Letter of Support
- B Resolution Authorizing the District's Application for and Approving Negotiation and Execution of a Cooperative Agreement with the United States Bureau of Reclamation for Federal Funding Under WaterSMART Small-Scale Water Efficiency Program

Section 1: Technical Proposal and Evaluation Criteria

1.1 Executive Summary

Date: 18 March 2021

Applicant Name: Western Municipal Water District

Applicant City, County, State: Riverside, Riverside County, California

Applicant Category: Category A (Local authority with water delivery

authority)

Project Title: SCADA Master Plan – Wide Area Network

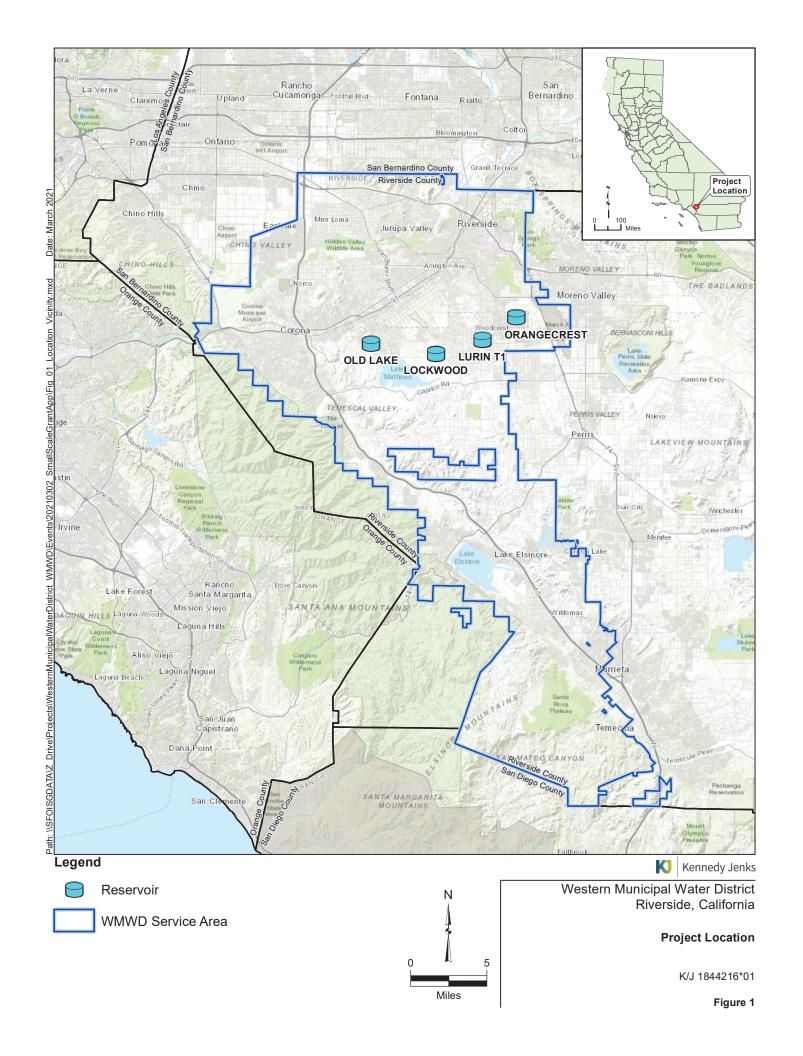
Implementation Phase 1 for Water System

Efficiency

The Western Municipal Water District (WMWD), located in Riverside County, California, will execute a new design for the SCADA Wide Area Network (WAN) as part of an overall effort to upgrade and expand the SCADA telemetry system, an identified need in the SCADA strategic plan developed for WMWD in 2018. This Project is the first phase of the SCADA WAN upgrade that was identified, and it will involve installation of WAN capability at four potable water reservoirs. Installation of the WAN capability enhances security, reliability, and the ability to install additional SCADA infrastructure to better monitor the water system with the goal of optimizing and increasing the overall reliability of WMWDs water deliveries. A key benefit of this project is that it allows for real-time viewing of the facilities to allow operational staff to view, monitor trends, and adjust facility operations. 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.

Construction bidding will commence upon completion of the prior design phase, expected to be in November 2021, with construction occurring between March 2022 and March 2023. The Project is anticipated to be completed within 18 months.

The Project will not be located on a Federal facility.



1.2 Project Location

The Project will be implemented at four potable reservoirs located in Riverside County, California.

- Lockwood Reservoir (33.862125, -117.396841)
- Lurin Reservoir (33.875907, -117.344161)
- Orangecrest Reservoir (33.897997, -117.30549)
- Old Lake Reservoir (33.8712, -117.471329)

The locations of the reservoirs are shown on Figure 1. The Lurin and Orangecrest Reservoirs are located in the southeast corner of the City of Riverside. The Lockwood and Old Lake Reservoirs are located one to two miles south of the City of Riverside, between the City of Riverside and Lake Mathews.

1.3 Project Description

This Project will involve the bidding and construction phases of the installation of Wide Area Network (WAN) capability at four potable reservoirs that provide service to the majority of the Riverside Service Area of WMWD. The Project is a significant part of an overall WAN expansion that was identified as a need in WMWD's SCADA system strategic plan. The proposed installations at the four reservoirs are key sites to help establish the foundation of the new WAN infrastructure and will constitute 90% of the network backbone. The four key sites were selected based on their geographic location, elevation, and location within the water distribution system. When planning for a WAN network, locating the hardware is crucial in both reducing the amount of hardware needed and effectiveness of the communication signals/links.

Prior to the start of the Project, WMWD will start design of the WAN expansion, which will include re-design of the existing telemetry network and purchase and installation of new and upgraded equipment including telemetry radios and high-speed licensed microwave backhaul links. Specific details of the construction of the WAN capability at the four reservoirs will be developed during design.

One of the reservoirs, Lockwood, is not on the existing WAN and requires installation of new communications equipment to bring it into the existing system. Orangecrest, Lurin, and Old Lake Reservoirs are part of the existing WAN infrastructure backbone, and therefore do not require installation of a new system, but instead require radio hardware updates, rehab of existing radio infrastructure and expansion of their existing WAN capabilities. WAN equipment will be installed on the tops of the existing reservoirs.

1.4 Evaluation Criteria

Evaluation criteria of the NOFO are presented in *italics*, followed by specific information on the Project in the following subsections.

1.4.1 Evaluation Criterion A: Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project.

The Project will expand WMWD's ability to view facilities throughout the Riverside service area. In an ideal SCADA system, the WAN would connect all facilities and allow constant monitoring for security and operations, and automatic actions in response to conditions within the system. The Project will be a significant initial step towards filling gaps in the communications network and updating the existing WMWD SCADA system.

WMWD selected the four key sites for the Project to begin establishment of the foundation of the new WAN for the SCADA system. These four sites will constitute about 90% of the network backbone. A comprehensive WAN is necessary for an effective SCADA system connecting all facilities in the water distribution network. 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.

The new WAN will increase operational efficiency by allowing staff to view, monitor trends, and adjust in real-time. 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. 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.

The WAN infrastructure will increase network uptime, security and provide new protocols for public access. The WAN infrastructure is also defined as a "self-healing" network and will redirect communication paths if links are broken or down. This enhances the water distribution system as many facilities require field visits and manual adjustments as changes are identified by operational staff, resulting in improved water and operational efficiency.

The Project will also allow for the installation of additional SCADA pieces to expand the future District Metered Area project, adding flow meters and connecting 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. The Project also provides the ability to add on additional asset

condition monitoring, which ensures critical equipment uptime, and supports additional security cameras in remote locations for improved system security.

1.4.2 Evaluation Criterion B: Planning Efforts Supporting the Project

Describe how your project is supported by an existing planning effort.

WMWD previously developed a SCADA Master Plan and identified improved SCADA as critical for efficiency. The strategic plan identifies expansion and upgrades to improve reliability, accessibility, maintainability, and security. During the development of the SCADA strategic plan, weaknesses and failures were identified in the Wide Area Network (WAN) communications system that impact operations, regulatory reporting, security, and finances.

The Project is the first phase of addressing the WAN weaknesses, building WAN capacity where there is none currently, and building 90% of the WAN backbone for the service area. Without this Project, many of the other recommendations from the strategic plan cannot be implemented.

WMWD also recently completed a Water System Optimization Study that identified measures to align hydraulic performance, water quality, and energy efficiency. The study identified the needs for improving WMWDs SCADA system in support of mitigating the inefficiencies identified in the water system.

1.4.3 Evaluation Criterion C: Project Implementation

Implementation Schedule

Describe the implementation plan for the proposed project.

The Project will consist of two stages: bidding and construction.

Based on the NOFO, award notification is anticipated in summer 2021. For planning purposes, it is assumed that award notification would occur in June 2020 and a financial assistance agreement would be finalized by 1 September 2021. The Project is anticipated to be completed by March 2023, or within about 18 months of executing the agreement. The project implementation schedule by task is shown below.

TABLE 1. PROJECT SCHEDULE

	Task	Start Date	End Date
1	CEQA Categorical Exemption/ NEPA Categorical Exclusion	September 2021	October 2021
2	Bidding	November 2021	March 2022
3	Construction	March 2022	March 2023

Permits

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

No permits or special approvals are needed for implementation of the Project. Project work will be conducted at existing reservoir locations and will be entirely within WMWD 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.

Design and Engineering Work

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

Engineering and design work will be completed prior to the start of this Project.

Policies and Administrative Actions

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

No new policies will be required to implement the Project. At the conclusion of the bidding phase, the Board will be required to approve the construction contract(s).

Environmental and Cultural Resource Compliance

Describe the timeline for completion of environmental and cultural resource compliance.

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.

1.4.4 Evaluation Criterion D: Nexus to Reclamation

Is the proposed project connected to Reclamation project activities? If so, how?

As a Metropolitan Water District of Southern California member agency, WMWD receives water from Reclamation's Colorado River 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. WMWD's application for a WaterSMART Water and Energy Efficiency Grant for fiscal year 2020 was accepted for a project upgrading customers to "smart" meters and adding radio towers for collection of the meter reads.

• *Will the project benefit any tribe(s)?*

The Project will not directly benefit any tribes.

2.1 Funding Plan and Letters of Commitment

The non-Federal share of Project costs will come from WMWD Capital Improvement Plan funds.

No funding will be provided by funding partners. As such, no letters of commitment are being provided. No funding has been requested or received from other Federal partners for the Project. There are no other pending funding requests.

The budget proposal does not include design or other project costs that will be incurred prior to project award.

2.2 Budget Proposal

Table 2, below, summarizes all funding sources (non-Federal and Federal) for the Project.

TABLE 2. TOTAL PROJECT COST TABLE

Funding Sources	Funding Amount
Costs to be reimbursed with the requested Federal funding	\$70,000
Costs to be paid by the applicant	\$70,000
Value of third-party contributions	\$0
Total Project Cost:	\$140,000

The budget proposal is provided in Table 3, which lists all budget categories of the NOFO. The budget items consist of costs associated with the implementation of the Project and fall within the Construction category, as described in detail below.

TABLE 3. BUDGET PROPOSAL

Budget Item Description	Computation		Quantity Type	Total Cost		
	\$/Unit	Quantity				
Salaries and Wages						
Not applicable	•	-	-	\$0		
Fringe Benefits						
Not applicable	-	-	-	\$0		
Travel						
Not applicable	-	-	-	\$0		
Equipment						
Not applicable	-	-	-	\$0		
Supplies and Materials						
Not applicable	-		\$0			
Contractual/Construction						
Construction	Engineers Estimate		\$140,000			
Other						
Not applicable		-		\$0		
	Total Direct Costs		\$140,000			
Indirect Costs						
Not applicable		-		\$0		
Total Estimated Project Costs				\$140,000		

2.3 Budget Narrative

Salaries, Wages, and Fringe Benefits

WMWD will not seek reimbursement for staff time spent on the Project, such as project management and bid solicitation, as it is considered to fall under normal staff activity. Fringe benefits are not included in the overall project budget.

Travel

Travel related expenses are not eligible for reimbursement under this NOFO and no reimbursement or match for staff travel is being sought.

Equipment

WMWD will not purchase or rent equipment for project implementation. Purchase or rental of equipment for the Project will be included in the contractual/construction costs.

Materials and Supplies

WMWD will not purchase materials and supplies for project implementation. Purchase of material and supplies for the Project will be by the construction contractor and will be included in the contractual/construction costs.

Contractual/Construction

The estimated contractual/construction cost for this Project is based on engineer cost estimates developed during planning of the overall SCADA Master Plan Implementation, of which installation of the WAN communication equipment is a crucial first phase. The cost estimate includes required equipment and materials. The estimated cost breakdown by reservoir is \$50,000 each for Lockwood and Lurin Reservoirs, and \$20,000 each for Orangecrest and Old Lake Reservoirs

All procurements with an anticipated aggregate value that exceeds the Simplified Acquisition Threshold (currently \$10,000) will use a competitive procurement method.

Third-Party In-Kind Contributions

There are no third-party in-kind contributions related to the Project.

Environmental and Regulatory Compliance Costs

The Project is anticipated to be fall within a Categorical Exemption pursuant to CEQA and Categorical Exclusion pursuant to NEPA that will require minimal effort for filing applicable documentation. WMWD will not be seeking reimbursement for staff time related to this effort. Therefore, no budget is included for this category.

Other Expenses

WMWD will not be seeking reimbursement for expenses other than the above categories.

Indirect Costs

No indirect costs are included in the proposed budget.

Section 3: Environmental and Cultural Resource 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 on top of four existing WMWD facilities. Below-ground work will also be required at Lockwood reservoir, although digging will be within the WMWD fence line and the surrounding environment will not be directly impacted. 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 WMWD 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 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 WMWD dates back to 1954. The reservoirs where Project work will be completed range in age from 12 to 28 years old.

5) Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, 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 WMWD water customers and could actually provide financial benefits to customers through improved efficiency and leak detection that could reduce water bills.

9) Will the proposed project limit access or 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 implementation of the Project. Project work will be conducted at existing reservoir locations and will be entirely within WMWD property.

Section 5: Letters of Project Support

A letter of support from the Santa Ana Watershed Project Authority (SAWPA) is included in Appendix A.

Section 6: Official Resolution

The WMWD Board of Directors adopted a resolution on 3 March 2021 authorizing WMWD to apply for a WaterSMART grant, to execute an agreement with Reclamation for implementation of the Project and verifying WMWD's funding capability. A copy of the resolution is provided in Appendix B.

Section 7: SAM Registration

WMWD is registered in the System for Award Management (SAM). Its unique entity identifier (DUN) is: 030589311 and its CAGE code is oAEE2. WMWD will maintain an active SAM registration with current information during the period of its federal assistance agreement.





Santa Ana Watershed Project Authority

OVER 50 YEARS OF INNOVATION, VISION, AND WATERSHED LEADERSHIP

February 24, 2021

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

Re: Support for Western Municipal Water District's Bureau of Reclamation WaterSMART: Small-Scale Water Efficiency Project Application for the SCADA Master Plan – Wide Area Network Implementation Phase 1 for Water System Efficiency Project

Dear Mr. Miller:

Western Municipal Water District (Western) 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. 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 is applying to the Small-Scale Water Efficiency Program to implement the SCADA Master Plan – Wide Area Network Implementation Phase 1 for Water System Efficiency Project (Project).

The proposed project includes installing Wide Area Network infrastructure on four of Western's Riverside Service Area's potable reservoirs: Lockwood, Lurin, Orangecrest, and Old Lake. Together, these four reservoirs service 60% of the Riverside Service Area's potable needs. These tanks are outdated and not currently on the existing SCADA backbone infrastructure. Once the proposed project is complete, 90% of Western's SCADA backbone infrastructure will be complete.

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 future resiliency through monitoring and system control.

The Project will help Western achieve water system efficiency by implementing a small-scale on-the-ground Wide Area Network Phase 1 project that was identified in Western's SCADA Master Plan. Specifically, the proposed project gives Western the ability to add on additional asset condition monitoring to ensure critical equipment uptime, enhance system security by being able to support security cameras at remote locations, and allows for immediate more targeted response actions especially in terms of water loss, leaks, public safety power shut offs, emergency damage due to hazards like wildfire. Without implementing the proposed Project, Western cannot install additional SCADA pieces to help further increase the benefits of the SCADA system – we cannot install and monitor a future project

Jasmin A. Hall Chair Inland Empire Utilities Agency Bruce Whitaker Vice Chair Orange County Water District Brenda Dennstedt Secretary-Treasurer Western Municipal Water District

June D. Hayes Commissioner San Bernardino Valley Municipal Water District David J. Slawson Commissioner Eastern Municipal Water District Jeffrey J. Mosher General Manager Craig Miller February 24, 2021 Page 2

around District Metered Areas – a project that will connect customer AMI meters to Pump Station/reservoir areas so we can monitor water in/water out and thus where and when water loss is occurring.

As a regional partner to Western, the Santa Ana Watershed Project Authority (SAWPA) can attest to the benefits and water efficiency this project will bring to the region. SAWPA is proud to support Western's WaterSMART grant application for the SCADA Master Plan – Wide Area Network Implementation Phase 1 for Water System Efficiency Project.

Very Respectfully,

Jeff Mosher

General Manager

APPENDIX	В
-----------------	---

Resolution Authorizing the District's Application for and Approving Negotiation and Execution of a Cooperative Agreement with the United States Bureau of Reclamation for Federal Funding Under WaterSMART Small-Scale Water Efficiency Program

Resolution 3157

A RESOLUTION OF THE BOARD OF DIRECTORS OF WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY AUTHORIZING WESTERN'S APPLICATION FOR AND APPROVING NEGOTIATION AND EXECUTION OF A COOPERATIVE AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION FOR FEDERAL FUNDING UNDER WATERSMART SMALL-SCALE WATER EFFICIENCY PROGRAM

WHEREAS, the Western Municipal Water District of Riverside County (Western) is a municipal water district established pursuant to Section 71000 et seq. of the California Water Code; and

WHEREAS, Western's supervisory control and data acquisition (SCADA) system is a critical asset that is used to optimize operational efficiency, operational reliability, predictive maintenance, regulatory compliance, asset management, and business performance; and

WHEREAS, Western developed a SCADA strategic plan to identify SCADA component upgrades and system improvements for a cohesive, standardized, and optimized control system and to improve overall SCADA system Reliability, Accessibility, Maintainability, and Security (RAMS); and

WHEREAS, Western adopted a SCADA Master Plan in 2018; and WHEREAS, Western's SCADA Master Plan identified a need to implement a new design for the Wide Area Network Communication system; and

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

WHEREAS, the Board of Directors of Western has identified a project that exemplifies the objectives of the WaterSMART program in its SCADA Master Plan - Wide Area Network Implementation Phase 1 for Water System Efficiency (the Project); and

-2- R-3157

WHEREAS, all applicants wishing to obtain state and federal funding are required to provide a resolution designating Authorized Agents to act on behalf of the applicant to receive these funds from the USBR; and

WHEREAS, Western desires to designate the General Manager and his designee as Authorized Agents for this purpose; and

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

NOW, THEREFORE BE IT RESOLVED BY the Board of Directors that:

- 1) Western is hereby authorized to receive, if awarded, the WaterSMART funding and will make a good faith effort to enter into an agreement with the USBR for the receipt and administration of said grant funds and agree to abide by the federal award terms and conditions as set forth in the Articles of Agreement;
- 2) The General Manager, Craig Miller, or his 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 and administration of the grant funding in accordance with the requirements of the USBR;
- 3) This resolution officially becomes a component part of Western's grant application that will be submitted to the USBR before March 18, 2021;
- 4) Western is capable of providing the amount of funding and/or in-kind contributions specified in the grant application funding plan;
- 5) This resolution shall be effective as of the date of adoption.

6) The Recitals set forth above are incorporated herein and made an operative part of this resolution.

ADOPTED, this 3rd day of March, 2021.

President

March 3, 2021

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of Resolution 3157 adopted by the Board of Directors of Western Municipal Water District of Riverside County at its regular meeting held March 3, 2021.

MIKE GARDNER

Secretary-Treasurer