

WaterSMART Grants:
Small-Scale Water Efficiency Projects

Funding Opportunity No. R21AS00300

Cortaro Water Users' Association

As Agents for

Cortaro-Marana Irrigation District

12253 West Grier Road, Marana, Arizona 85653



Gate Replacement Project

Project Manager: Doug Greenland

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Technical Proposal and Evaluation Criteria

Executive Summary

Date: March 18, 2021

Applicant name: Cortaro Water Users' Association (CWUA) as Agents for Cortaro-Marana Irrigation District (CMID)

City, County, State: Marana, Pima, Arizona

As an Irrigation District we are a Category A applicant.

Project Summary

The proposed project will install 9 automatic, SCADA controlled gates within the Cortaro-Marana Irrigation District (CMID) that is located in Marana Arizona which is in northern Pima County. These solar powered gates will replace weir boards and weir sticks as our measuring device and will allow for constant monitoring and automatic adjustment of the flow rate. These gates will be connected to an existing SCADA system which will allow control and viewing of the gate data from a computer or hand-held device. This project is phase 4 of an infrastructure upgrade plan that includes electric starters for wells, automatic gates, and a SCADA system.

Length of Time and Estimated Completion Date

These locations are the main turn outs for our canal system, because of this it is anticipated that installation of the gates will only be able to occur when the canal is dry. If a signed contract is received by January of 2022, then the environmental clearance could be completed in early spring. Orders for the gates would occur by May of 2022 and installation could begin in the fall of 2022 as we begin to run less water. Installation would be completed by February of 2023 and running and fine tuning the system would be complete by the end of April 2023. Close-out of the project would then be completed by June 2023.

Federal Facility

The Gate Replacement Project will not be on a Federal facility.

Project Location

This project is in Northern Pima County, Arizona in the Northwest part of the Town of Marana. See appendix, attachments B and C, for maps of the District and the Water Users' boundaries. The latitude and longitude of the district office is 32 degrees 27 minutes 11.3 seconds North and 111 degrees 13 minutes and 34.7 seconds West.

Project Description

This project will facilitate the installation of solar powered automatic gates at the following locations:

Gate 10L	Canal Lateral 10 on Lockett Road
Gate 9.5L	Canal Lateral 9.5 on Lockett and Hardin Road
Gate 8.5L	Canal Lateral 8.5 on Stingray and Lockett Road
Gate 9.5	Main Canal at Kirby Hughes Road
Gate 8	Main Canal on Grier Road
Gate 7.5	Main Canal on Barnett Road
Gate 7	Main Canal on Moore Road
Gate 19	East bound Frontage Road South of Moore Road
Beard Pipeline	Benta Vista St .4 miles south of I-10Frontage Road

These sites were chosen based on the amount of water that goes through them, amount of time the gate is in use during the year and the potential time savings by the District's employees. If any issue is discovered at any of these locations, a new location will be chosen to locate the gate.

These gates will automatically adjust to the predetermined amount of water and maintain it within a predetermined range. Employees will be able to view the flow rate and adjust it from a handheld device or computer. A similar gate was installed in January of 2021 to test the concept and prove ease of use. The money for this test gate was provided by the State of Arizona's Groundwater Conservation Grant. This project has been successful at stopping leaks and has shown time savings for our operators. The automatic adjusting of the gates allows for a consistent amount of water to flow through the gate and provides for a more accurate measure.

Our SCADA system will be connected to these gates which will allow our employees to view wells and gates connected to our SCADA system on the same screen. We already have 16 wells that are connected to our SCADA system.

District employees will be responsible to prepare a smooth flat surface for the gate installations, connect the antenna and cable to the gate's solar panel post and help during the installation process. This will include some concrete and/or metal work within our existing canals and headboxes.

See attachment A for a map of the location of the gate sites. Attachment D Shows a photo of the existing solar powered gate and SCADA antenna.

Technical Proposal: Evaluation Criteria A – Project Benefits (35 Points)

Describe the expected benefits and outcomes of implementing the proposed project. What are the benefits to the applicant's water supply delivery system?

Benefits of this project include the ability to remotely and accurately control the amount of water flowing through the gate. Currently our water delivery people use a weir and weir stick to measure the water. Because everyone reads their weir stick slightly different, our employees typically send a little extra water to each delivery point so that people do not think they are being shorted on water. These gates will allow for a very accurate measurement of the water which can be shown to the customers on the employees' phones. During monsoon season as storm water enters the canal, the gates will automatically close to only allow the preset amount of water to enter that area. Excess water will continue down the main canal where it can be used in other fields, diverted to holding ponds, or sent to drainage areas. The SCADA system will allow us to view the amount of water passing through each gate and determine what areas are flooding. We will also have the ability to close or open the gates quickly without traveling to each site. The solar powered gates will be very helpful as we have frequent brownouts in the summer months. If too little water is coming down the canal, the gates will open to get the predetermined amount of water to that canal. Any shortage will go to a non-automatic gated canal and will be confined to a smaller area.

*If Other benefits are expected explain those as well. Consider the following:
Extent to which the proposed project improves overall water supply reliability*

The automatic gates will provide for a much more accurate water measurement ensuring that we don't use excess water which will save water and electricity in our area. The unused water will remain in the aquafer, for later use by us and other local water companies.

The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)

This project will save the district money by conserving water and electricity. The District is located along the Lower Santa Cruz River and within the Tucson Active Management Area (AMA) which is managed by the Arizona Department of Water Resources (ADWR). Saving groundwater in this area has been a focus of the state since 1980 and with the current extreme drought conditions and low reservoir levels in the lower Colorado River Basin it is even more critical today. The Bureau of Reclamation and ADWR are currently working on drought contingency plans that include this area.

Extent to which the proposed project will increase collaboration and information sharing among water managers in the region.

The construction and results of this project will be shared with the Avra Valley Irrigation District, the Red Rock Groundwater Storage Facility, and the Town of Marana. CWUA board members/landowners serve on these irrigation district boards as well as the Town Council. Members of these entities have seen our new test gate that was installed in January of 2021 and have stopped to view it and ask questions about its benefits. Collaboration between these entities is already occurring and will continue going forward.

Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)

This project will help the district to better control costs which will help agriculture in the area remain competitive by delivering water where and when it is needed to maximize crop yield.

Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

Currently there are no active projects with the NRCS. CWUA members have used them in the past for help with land leveling and ditch construction and it is anticipated that they will use them for similar projects in the future. We do participate in the Tucson, Arizona Active Management Area Groundwater Users Advisory Council meetings which promote the conservation of water for the Tucson Active Management Area.

Evaluation Criterion B – Planning Efforts Supporting the Project (35 Points)

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

This project is phase 4 of a district modernization plan that was developed by the district and George Cairo Engineering. A system optimization grant from the Bureau of Reclamation was also conducted over the last year. Developing these plans helped us to identify the areas of the district where updating the infrastructure would help us the most. As a precursor to this phase a test gate was installed in early 2021. It was funded by the State of Arizona's Groundwater Conservation Grant Program. With the success of that project, we are ready to move forward installing multiple gates across the district. The gate locations were chosen based on their flow, amount of time used during the year, and the time savings that will be realized by the District's employees. Rubicon water has reviewed the sites and suggested the gates for each site. See Appendix E for the District Plan title page, table of contents, and a summary of the SCADA plan.

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

The system analysis and system optimization study pointed out our antiquated methods of measuring water and reliance on people to continually visit our diversion points and adjust the water flow. The automated gate will keep the predetermined amount of water flowing down the canal and our employees will be able to check it using their handheld device freeing them up to do other tasks.

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

The locations chosen were based on amount of water used in the canal, amount of time the canal is used during the year and where development is occurring within the district. Rubicon water was chosen in part because their gates can be moved so that as the needs of the district change the gates can be moved to other locations within the District. The accurate measurement of water continues to be a focus in the district and this project will also save employee time.

Evaluation Criterion C – Project Implementation (10 Points)

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

The locations chosen are main turn outs for our canal system, because of this it is anticipated that installation of the gates will only be able to occur when the canal is dry. If a signed contract is received by January of 2022, then the environmental clearance could be completed in early spring. Orders for the gates would occur by May of 2022 and installation could begin in the fall of 2022 as we begin to run less water. Installation would be completed by February of 2023 and running and fine tuning the system would be complete by the end of April 2023. Close-out of the project would then be completed by June 2023.

Major Tasks	
Date	Description
January 2022	Notification of Grant award
March 2022	Environmental Clearance-Work with the Phoenix Bureau of Reclamation office to determine any issues
May 2022	Order Gates and SCADA Equipment
October 2022- February 2023	Installation of Gates and SCADA Equipment
March-April 2023	Testing of system, Complete Punch list items
June 2023	Closeout

This schedule is based on approval by January 2022.

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

No permits are anticipated for this work as it will be done on our existing canals.

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

George Cairo Engineering has been involved with the development of the SCADA Master Plan, evaluation of vendors and determining the site priority. Interactive Controls will be providing the hardware and design work for the SCADA system as they have already done work for the first three phases of our SCADA system.

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

Meetings to follow-up on tasks, and assignments will be held with staff and contractors. Training will need to be done to teach the canal riders and staff how to view and operate the gates both on site and remotely.

Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

The environmental compliance estimate was developed in consultation with Jessica Asbill-Case of the local Phoenix Bureau of Reclamation office. She informed us that the Bureau of Reclamation is now covering the cost of environmental compliance, but that it should be included in the schedule. Installation will be on current CMID canals and headboxes, no environmental issues are anticipated.

Evaluation Criterion D – Nexus to Reclamation (10 Points)

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

Please consider the following:

Does the applicant receive Reclamation project water?

CMID is the facility operator for the Lower Santa Cruz managed recharge project in which the Bureau of Reclamation participates and receives storage credits for their portion of the water in the Santa Cruz River. We also receive water from the Central Arizona Project (CAP). For 2021 we are scheduled to receive 10,987 acre-feet of water through the CAP. Our customer number is 1080. When requested we use CAP water in-lieu of pumping to store water using our GSF Permit. In the last 3 years we have stored water for the Bureau of Reclamation, the AK-Chin Indian Community, Arizona Water Banking Authority, and municipal water companies in Pima County.

Is the project on Reclamation project lands or involving Reclamation facilities?

This project is not on Reclamation lands and does not involve Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

This project is in the same basin as the Central Arizona Project which delivers water throughout Central and Southern Arizona.

Will the proposed work contribute water to a basin where a Reclamation project is located?

This project will help to conserve water in the Tucson Active Management Area which is currently experiencing drought conditions. The Central Arizona Project is also located in this area.

Will the project benefit any tribe(s)?

For 2021 we have no requests from any tribe to store water, but we have done so in the past.

Project Budget

Funding Plan and Letters of Commitment

The non-Federal share of the project cost will be paid by the Cortaro Water Users' Association as agents for Cortaro-Marana Irrigation District. These contributions will be monetary. The funds will come from tax revenue as well as water sales revenue. These funds are currently available. There is no funding from other Federal or non-Federal Partners. See Appendix E for board of directors' support letter. It is not anticipated that any costs will be incurred before the startup date.

Budget Proposal

Total Project Costs	Amount
Costs to be reimbursed with the requested Federal Funding	\$ 75,000
Costs to be paid by the applicant	\$107,079
Value of third-party contributions	\$ 0
Total Project	\$182,079

Budget Item Description	\$/Unit	Quantity	Type	Total
Wages-Maintenance	\$20.67	261	hours	\$ 5,395
Salary-General Manager	\$62.59	60	hours	\$ 3,755
Supplies & Materials				
Steel, Concrete, Supplies		1	each	\$ 679
Rubicon Pikometer Gates	\$12,950	8	each	\$ 103,600
Rubicon Slip Gate	\$19,150	1	each	\$ 19,150
Contractual				
Gate Installation	\$ 1,500	9	each	\$ 13,500
SCADA Installation	\$ 4,000	9	each	\$ 36,000
Total Direct Costs				\$ 182,079

Budget Narrative

Salaries and Wages

District maintenance personal will be used to prepare the gate locations for installation and to help with the gate and SCADA installations. No Fringe benefits will be charged to the project as it will be a small portion of the overall grant. All hours billed against the project will be the straight hourly time for maintenance personal and for the project manager the hourly rate is determined by dividing his salary by 40 hours a week for 52 weeks. No Fringe Benefits will be included for the salary contributions. Doug Greenland, the General Manager of CWUA/CMID will be the project manager. Break out by task is as follows:

Maintenance	Rate	Quantity	Total
Prepare Sites for Gate Installation	\$20.67	72	\$1,488.24
Gate Installation	\$20.67	144	\$2,976.48
SCADA Installation	\$20.67	45	<u>\$ 930.15</u>
			\$5,394.87
General Manager			
Coordination with Suppliers	\$62.59	40	\$2,503.60
Reporting Compliance	\$62.59	20	<u>\$1,251.80</u>
			\$3,755.40

Fringe Benefits

No costs for fringe benefits will be billed to the project as it is a small amount, compared to the hourly rate.

Travel

No travel will be billed to the project as they are not eligible under this Notice of Funding Opportunity. No travel is expected.

Equipment

District Equipment will be used to lower the Gates into the canals and to install the SCADA antennas. As this cost is expected to be under \$5,000 it is part of the Supplies and Materials. EP 1110-1-8 for Region 7 was used to calculate the rate for use of the excavator and concrete saw.

Materials and Supplies

The costs for the materials and supplies were estimated using costs from the local Home Depot Store. The Quantity was estimated based on our experience with the previously installed gate.

	Price	Quantity	Total
Small Gates	\$12,950	8	\$103,600.00
Medium Gate	\$19,150	1	\$ 19,500.00
Concrete Cutting Blades	\$68.50	2	\$ 137.00
Concrete Anchors	\$13.27/pkg	10	\$ 132.70
Rebar	\$11.27	2	\$ 22.54
Concrete Mix	\$5.67	10	\$ 56.70
Excavator	\$18.06	18	\$ 325.08
Concrete Saw	\$.86	6	<u>\$ 5.16</u>
			\$ 123,429

Contractual

Contractors will be hired using district purchasing guidelines. Prices were estimated based on initial quotes that may change by the time the grants are awarded.

Gate Installation	\$ 1,500	9	each	\$ 13,500
SCADA Installation	\$ 4,000	9	each	<u>\$ 36,000</u>
				\$ 49,500

Third-Party In-Kind Contribution

There are no 3rd party in kind contributions.

Environmental and Regulatory Compliance Costs

The environmental compliance estimate was developed in consultation with Jessica Asbill-Case of the local Phoenix Bureau of Reclamation office. She informed us that the Bureau of Reclamation is now covering the cost of environmental compliance, but that it should be included in the schedule. Installation will be on current CMID canals and headboxes, no environmental issues are anticipated.

Other Expenses

None

Indirect Costs

Indirect costs for this project will be very small and not included in the project cost.

Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil (dust), air, water, (quality and quantity, animal habitat)? Please briefly describe the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why.

The project does not take place in an environmentally sensitive area. Installations will be on existing canals and headboxes. Water is available on site if needed to minimize dust from vehicles, No effect on water quality or animal habitat. SCADA Antennas will be connected to solar panel pole that is part of the gate.

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

No endangered species or designated critical habitat are within the canals where the gates will be installed.

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 wetlands or other surface waters in our canals or headboxes.

When was the water delivery system constructed?

The wells were originally drilled in the late 1930's to 1970's. Canals range in age from the 1950's to the 2010's with 25-30% of them being done in the early 1980's when a flood damaged many of the canals and they had to be rebuilt. As Development occurs in the area, the developers are required to underground our canals. This is occurring at an estimated rate of ½ mile each year.

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 gates will be installed in our headboxes or canals depending on the location. No major modifications will be necessary. A metal plate and cement will be used to make the surface where the gate is attached smooth and level. Of the 9 locations it is believed that 2 of them were built in the 2010's, 4 were built in the 1980's and 3 were built in the 1950's.

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

There are no buildings, structures or features in the irrigation district listed on the National Register of Historic Places.

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

There are some known archeological sites within and bordering the district but none of the locations for the gates are near these sites.

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

The proposed project will not have any adverse effects on low income or minority populations.

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

The proposed projects will not limit access to any site or impact any tribal lands.

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 proposed project will not contribute to the introduction, continued existence or spread of noxious weeds or non-native invasive species known to occur in the area.

Required Permits or Approvals

No Permits or approvals are required for installation of the gates or the SCADA equipment. Everything will be with the District easements and in existing canals and headboxes

Official Resolution

The Official Resolution was passed at the March 9, 2021 Board meeting and is included in the packet. See appendix E for the signed copy of the Official Resolution. Daniel Post who signed the Document is Chairman for both Cortaro Water Users' Association and Cortaro-Marana Irrigation District. It was discussed during both CWUA and CMID board meetings and no one voiced any opposition.

Unique Entity Identifier and System for Award Management

Cortaro Water Users' Association is currently registered with in the System for Award (SAM). Our CAGE code is 6RM36 and our DUNS number is 072434467.

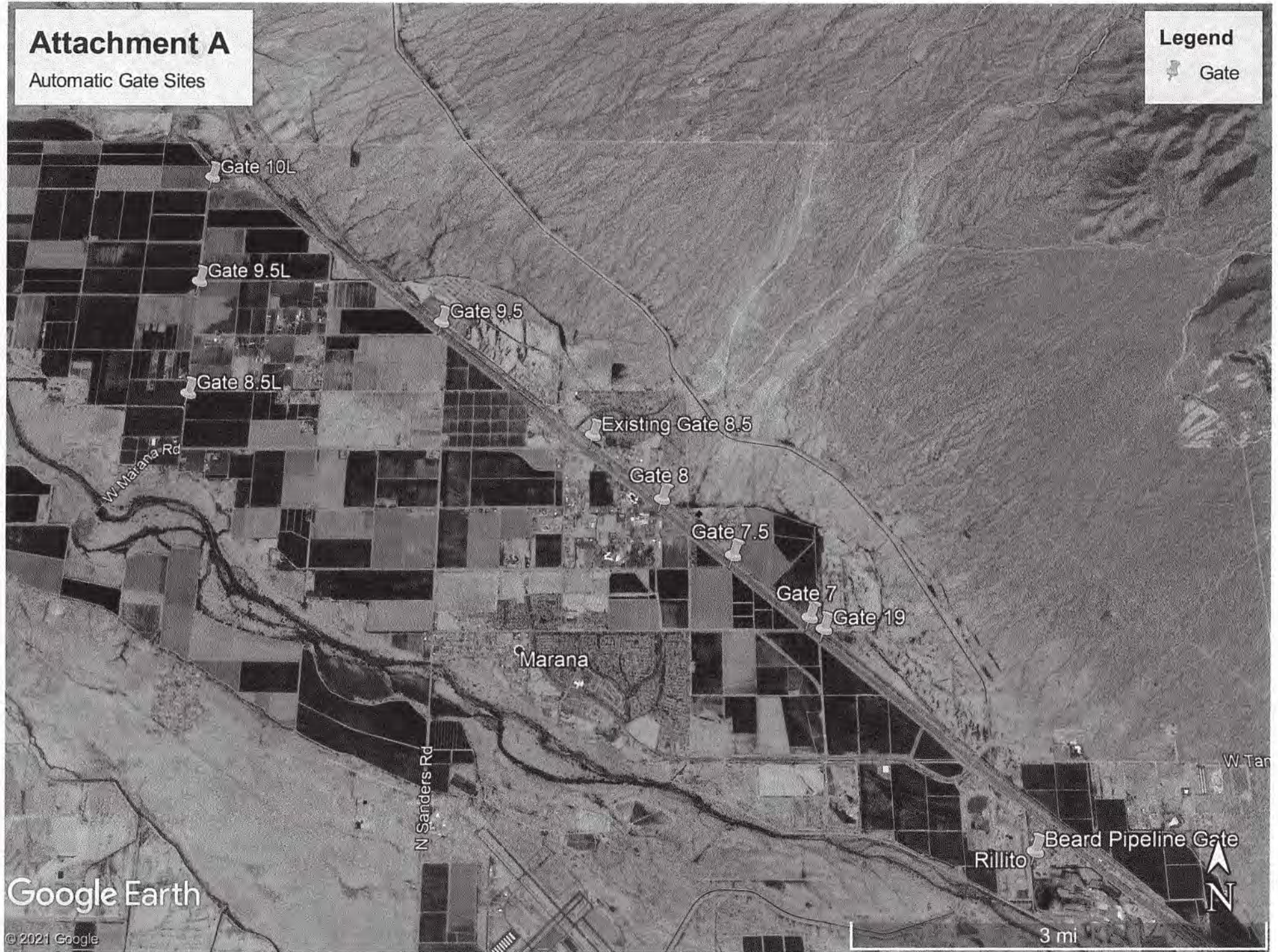
Appendix - Following 5 pages

Attachment A

Automatic Gate Sites

Legend

 Gate

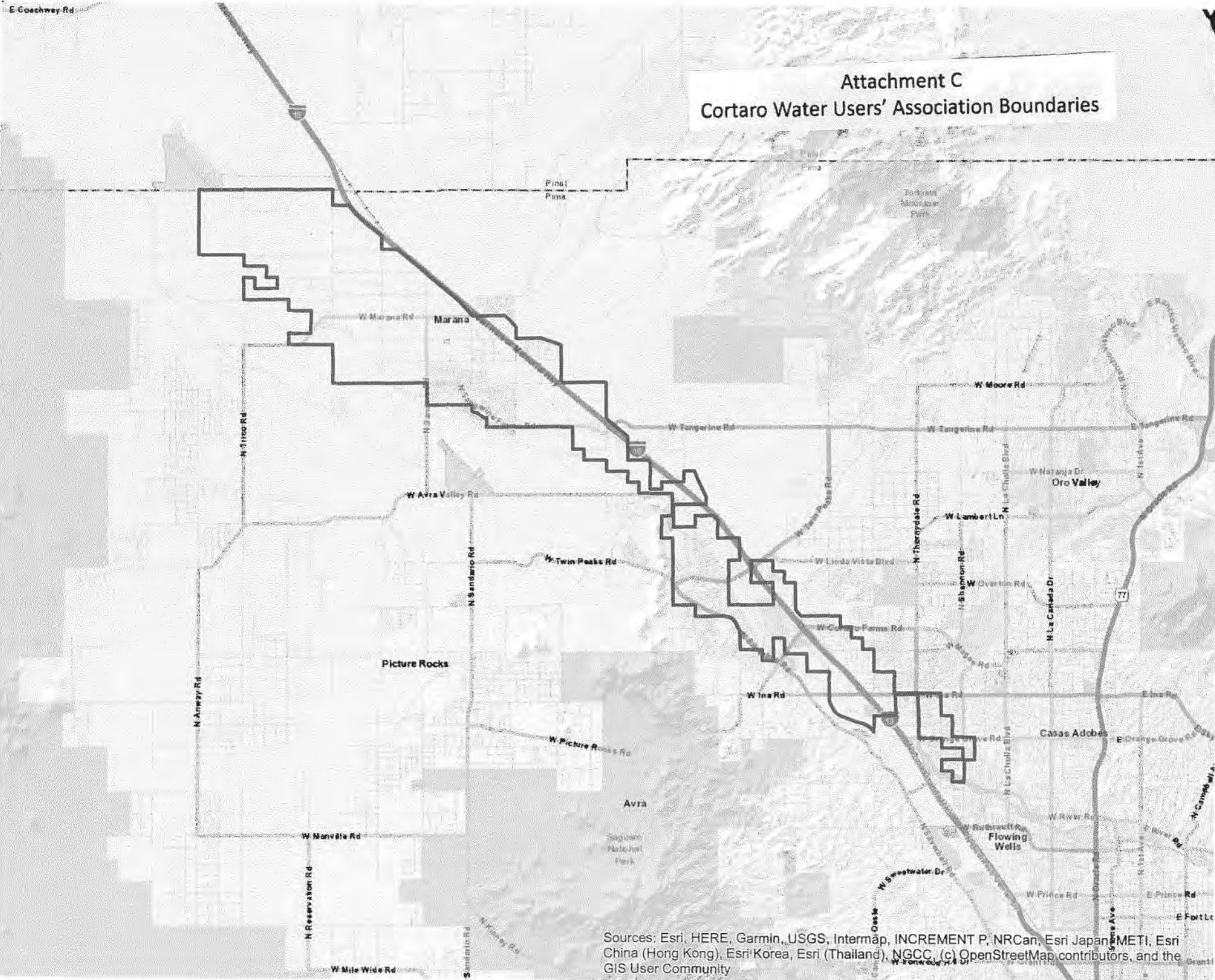


Google Earth

© 2021 Google

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Attachment C Cortaro Water Users' Association Boundaries



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Appendix D



APPENDIX E

Resolution No. 2021-03-09

Cortaro Water Users' Association As agents for Cortaro-Marana Irrigation District

There was discussion of the application for funding for and implementation of a Gate Replacement Grant application that would include Supervisory Control and Data Acquisition (SCADA). The gate replacement & SCADA program will conserve water and money and make water delivery more efficient. Motion by Jon Post, seconded by OK Rihl, to adopt the following resolutions, to wit:

WHEREAS, The Cortaro Water Users' Association Board must maintain, provide for, and service the water delivery system; and

WHEREAS, The Board desires to obtain grant funding from the Bureau of Reclamation through the WaterSMART: Small-Scale Water Efficiency Grant Program which requires some amount of funding as specified in the funding plan; and

WHEREAS; if selected for a WaterSMART: Small-Scale Water Efficiency Grant, the Association as agent for the District and the Board will be required to work with the Bureau of Reclamation to meet guidelines established for entering into a cooperative agreement; and

WHEREAS; the Board having reviewed with Management the need to obtain grant funding from the Bureau of Reclamation through the WaterSMART: Small-Scale Water Efficiency Grant Program which the Board finds will improve water conservation and water usage efficiency;

NOW THEREFORE, BE IT RESOLVED that the Board of Directors approves and supports the efforts to obtain grant funding from the Bureau of Reclamation through the WaterSMART: Small-Scale Water Efficiency Grant Program which requires some amount of funding as specified in the funding plan; and further RESOLVED if selected for a WaterSMART: Small-Scale Water Efficiency Grant, the Association as agent for the District and its Board commits to supply funding as required and to work with the Bureau of Reclamation to meet guidelines established for entering into a cooperative agreement and instructs Management to continue to take the steps necessary obtain grant funding from the Bureau of Reclamation through the WaterSMART: Small-Scale Water Efficiency Grant Program through an application for funding and execution of a cooperative agreement to implement participation in the program. Motion carried. The resolution was declared adopted as Resolution No. 2021-03-09.

Dated: 09 March 2021

Signed:

A handwritten signature in black ink, appearing to read "Daniel Post". The signature is written in a cursive style with a large initial "D" and "P".

Daniel Post, Chairman CMID & CWUA

Attest:

A handwritten signature in black ink, appearing to read "Laurie Hughes". The signature is written in a cursive style with a large initial "L" and "H".

Laurie Hughes, Secretary

APPENDIX F

***Cortaro Water Users' Association, As Agents for
Cortaro-Marana Irrigation District***
12253 West Grier Road Marana, Arizona 85653
Telephone (520) 682-3233 FAX (520) 682-3456
CMID12253@comcast.net

March 16, 2021

Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006

Grants Management
Acquisition and Assistance Management Office
Lower Colorado Region

To whom it may concern:

Please accept this letter as certification that the Salaries and Wages for the following classifications are true and correct:

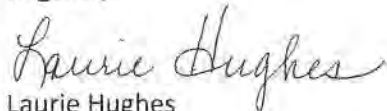
Manager \$62.59/Hour

Maintenance \$20.67/Hour

Note that these figures do not include any fringe benefits.

Please feel free to contact me with any questions.

Regards,



Laurie Hughes

HR Manager

Secretary-Treasurer, CMID