

Parks and Lewisville Irrigation Company SCADA Installation Project:
Phase I

Applicant:

Parks and Lewisville Irrigation Company
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Project Manager:

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Technical Proposal and Evaluation Criteria

Executive Summary

Date: April __, 2022

Applicant: Parks and Lewisville Irrigation Company

Category: A

City: Lewisville, ID

County: Jefferson

State: Idaho

The only headgate on the Parks and Lewisville canal that is automated is the main diversion from the Dry Bed, a tributary of the Snake River. Installing automation for at the bottoms of the main laterals will increase the efficiency of the overall management of the canal by providing accurate data in real time to the water master. This data will allow the water master to inform shareholders when they can and cannot divert based on the amount of water flowing out of the bottom of the canal. This will also help conserve water and use the limited resource in the Parks and Lewisville Canal better.

Project Location

The Parks and Lewisville Irrigation Company SCADA project: Phase I, will involve installing SCADA systems and headgates and overshot gates at the end of the main canal and two major laterals of the Parks and Lewisville Canal. The Parks and Lewisville Canal diverts from the Dry Bed south of Labelle Idaho and extends north of the towns of Rigby and Lewisville where it connects back into the Dry Bed at the end of the North Branch of the Parks and Lewisville Canal. The location of the Canal is designated by the red line on the map below. The locations of the three ends of the main laterals are illustrated by the yellow pins in the map below as well as the exact gps coordinates below the map.



North Branch Bottom: 43°41'54.38"N 112° 3'47.29"W

Missionary Branch Bottom: 43°41'28.60"N 112° 3'46.72"W

South Branch Bottom: 43°41'3.07"N 112° 1'14.62"W

Project Description and Milestones

The Parks and Lewisville Irrigation Company SCADA project: Phase I is for the installation of SCADA programs as well as headgates, overshot gates, and trash diverters at the end of the three main laterals of the Parks and Lewisville Canal; the North Branch, the Missionary Branch, and the South Branch. The ability to monitor and control the bottom or ends of laterals and canals is extremely important for efficient management of the entire system. A canal's responsibility is to deliver water to its shareholders. If one shareholder shuts their ditch down early without telling the water master, extra water that could be used by another shareholder can easily flow out the bottom of the canal. The added information that installing the SCADA system will provide will ensure that the water master knows at all times how much water is at the bottom of the laterals and allow him to efficiently manage the limited resources of the Parks and Lewisville Canal.

The installation of the headgates and overshot gates at the ends of the laterals will provide the water master the ability to adjust the flow at the bottom of the laterals. The headgate will be installed to provide a consistent pond level for the ditches that divert from the end of the laterals. The overshot gates are also used to keep the pond level consistent, but they also provide a channel for debris and trash that gets stuck in the canal to flow through. These are all important things to consider when improving a canal. The North Branch will need new concrete wing walls poured to support the new headgate and overshot gate. The cost of cement for a new square bridge has been added to the cost for the North Branch as well. The existing bridge has a round culvert beneath it and it catches all of the debris and holds it in front of the bridge. A square culvert does not catch and hold the debris as much and allows for a more free flow of water. The South Branch and Missionary Branch do not need any cement work. The SCADA system will be installed to control the new headgates and overshot gates to make sure they operate properly, and to record and transmit the data to the water master.

The major milestones for this project will be:

1. The existing cement at the North Branch will be removed and new wing walls will be poured.
2. The headgates and overshot gates will be installed at the three lateral bottoms.
3. The SCADA system will be installed

Evaluation Criteria

E.1.1. Evaluation Criterion A—Project Benefits (35 points)

The main benefits to this project are the increased efficiency from receiving data in real time that tells that water master how much water is at the end of each lateral, and the ability to adjust the flow at the ends of the laterals. If the water master knows there is extra water at the end of a lateral he can call another shareholder and give them permission to divert water. If there isn't any water at the end of a lateral, he knows that there may not be enough water there for the scheduled diversions. He can act quickly and respond almost immediately when he is notified of the change in the levels at the ends. These simple but important benefits will improve the shareholders access to water and allow the water master to manage the water in the system more efficiently.

E.1.2. Evaluation Criterion B—Planning Efforts Supporting the Project (30 points)

In the Parks and Lewisville System Optimization Plan, the need for automation has been identified for many years. The current shareholders on the Parks and Lewisville are getting older and have a hard time pulling the wooden boards from the old checks that are currently used to control the water along the canal and at the end of the canal and laterals. To make management of the canal easier for them and for the water master, they have identified the ends of the laterals as the first locations that automation is needed. Other locations have also been identified for future automation projects, but the increased efficiency that comes from knowing how much or how little water is at the end of the laterals is the most important improvement to the Parks and Lewisville Board of Directors.

E.1.3. Evaluation Criterion C—Implementation and Results (20 points)

Implementation Plan - Estimated Project Schedule		
Major tasks	Milestones	Dates
Existing cement structure at the North Branch Bottom removed	existing cement removed and area prepared for new cement	April 1-7
New cement poured for the North Branch structure	New structure for headgates installed	April 7-10
Headgates and overshot gate installation	Install headgates and overshot gates	April 1-14
SCADA installation	SCADA installed at three lateral bottoms	April 1-14

We have received bids from Metcom Inc., a company that specializes in SCADA systems and automation for canal companies for the installation of the SCADA system and automation for the headgate and overshot gate. We have received bids from a company that builds and installs steel headgates and overshot gates to fit the specific location the headgates are needed.

Based on the bids we have received for concrete, automation, and steel, we expect that it will take one week to remove and replace the existing concrete for the new headgate and overshot gate. It will take three days to install and automate the new headgate and overshot gate for each lateral. Construction for these projects will not begin until after March 31, 2023. Water is not diverted into the Parks and Lewisville Canal until May 1st. The new and additional concrete can be poured before water is diverted into the canal, beginning April 1, 2023. The new headgate and overshot gate can be installed after the concrete has cured, and then the automation work can begin. It's estimated that it will take the automation expert 30 hours to automate each headgate and overshot gate. We estimate that this project can be finished in three weeks. This will allow extra time for the projects to be finished before water is diverted for the 2023 irrigation season.

E.1.4. Evaluation Criterion D—Nexus to Reclamation (5 Points)

Like the Bureau of Reclamation, Parks and Lewisville Irrigation Company strives to conserve water and make the most efficient use of the resources we do have. Our region has been faced with drought for many years now, and it appears that the situation is only going to get worse. Our efforts to conserve and more efficiently manage water from the Snake River, Palisades Reservoir, and Jackson Lake, two Reclamation facilities, will all contribute to a healthier Snake River Basin.

E.1.5. Evaluation Criterion E—Presidential and Department of the Interior Priorities (10 points)

These projects will strengthen water supply sustainability by improving the management and direction of the water that is diverted by the Parks and Lewisville Irrigation Company from the Dry Bed, a tributary of the Snake River. This increased management will allow us to conserve water by measuring how much is flowing through our system and redirecting it where it is needed most. If we can leave some of our allotted storage water in the reservoirs for later use either by us or let other entities rent it, it will increase the entire basins resilience to climate change and help mitigate some of the impacts of the drought conditions we are facing.

Project Budget

Funding Plan and Letters of Commitment

The Parks and Lewisville Irrigation Company receives annual assessments from shareholders for maintenance of the canal. They have also begun the process of obtaining a grant from the Jefferson County Soil and Water Conservation District (SWCD) for the proposed project. The SWCD will have a meeting in May where it will review the projects submitted for funding and make its decision on how much money they will provide for each project. With funds saved from assessments and potential funds from the SWCD, we have the full non-federal share available to realize this project.

Budget Proposal

Total Project Cost Table	
Source	Amount
Costs to be reimbursed with requested Federal Funding	\$100,000
Costs to be paid by SWCD	\$50,000
Costs to be paid by the applicant	\$ 46,281.00
Total Project Cost	\$196,281.00

Total Cost for Proposed Project				
Improvement	Materials/other costs	Price/unit	Quantity	Cost
Automation	Campbell CR-1000X	\$ 1,895.00	6	\$ 11,370.00

Automation	Spread Spectrum antenna plus cable and fittings	\$ 245.00	3	\$ 735.00
Automation	Manual-off-Automation switch box with display	\$ 1,700.00	6	\$ 10,200.00
Automation	5000 lb Actuators with limit switches and position	\$ 1,700.00	9	\$ 15,300.00
Automation	Hoffman box, 303010 with locks, insulated & plate	\$ 1,125.00	3	\$ 3,375.00
Automation	Metal stand for nema-4 box, painted	\$ 275.00	3	\$ 825.00
Automation	31 series Heavy Duty batteries	\$ 135.00	6	\$ 810.00
Automation	100 watt solar panel	\$ 150.00	3	\$ 450.00
Automation	7 amp solar regulator	\$ 155.00	3	\$ 465.00
Automation	3, 0-4.06 feet staff gauges	\$ 85.00	9	\$ 765.00
Automation	1" 30' Conduit, fittings, sealed flex and fittings	\$ 120.00	3	\$ 360.00
Automation	4" PVC stilling wells with transducers	\$ 795.00	6	\$ 4,770.00
Automation	Two rain tight boxes for junction boxes	\$ 75.00	3	\$ 225.00
Automation	Wire, terminals, breakers, treys, antenna mast, power cable,	\$ 250.00	3	\$ 750.00
Automation	Program plus communication programming	\$ 1,250.00	3	\$ 3,750.00
Automation	Labor	\$ 75.00	90	\$ 6,750.00
Cement	Materials and Labor	Based on bid	1	\$ 45,381.00
Headgates and overshot gates	Steel and Labor	based on bid	1	\$ 90,000.00
Total Cost for Proposed Project				\$ 196,281.00

Budget Narrative

Salaries and Wages

The Project Manager, David Spencer, is a board member of the Parks and Lewisville Irrigation Company. All the work for these proposed improvements has been contracted through an automation professional, a construction company for the cement work, and a steel fabricator for the headgates and overshot gates. No labor has been added for David as project manager. The construction company will pay their employees their standard wage. The professional from Metcom, Inc. will install the automation and SCADA systems for the headgate and overshot gate and charge his standard rate of \$75 an hour. The professionals from the steel fabrication

company will build the headgate and overshot gate and install them, charging their standard rate. The labor costs have been included in the budget proposal.

Equipment

No equipment from the irrigation company is needed. The companies that have been hired to do their particular tasks will provide the specific equipment needed to do it properly.

Materials and Supplies

Not all materials and supplies were itemized in the bids. The materials for the SCADA installation for the headgates and overshot gates are itemized in the budget proposal as they were itemized in the bids for the two automation projects. The total cost for installation of the SCADA systems for all three locations is \$60,900. The total estimated cost for the new wing walls and square bridge at the North Branch Bottom project is \$45,381. The remaining \$90,000 is the estimated cost for the steel and labor needed for the fabrication of the three headgates and three overshot gates, and the installation at the project location.

Contractual

There are three contractual items for these two projects. The first contract is with the cement company for the removal and construction of the new concrete structure at the North Branch Bottom. The second is with Metcom, Inc. for the installation and programming of the SCADA systems for the new headgates and overshot gates. The third is for the fabrication and installation of the headgates and overshot gates.

Environmental and cultural resources compliance

We will not be altering anything environmental or cultural and so do not need any compliance documents.

Required permits or approvals

We do not need any permits or approvals for this project.

Official Resolution

For Small Scale Water Efficiency Projects FY 2022

April 26, 2022

Whereas, the Parks and Lewisville Irrigation Company, in Lewisville, Idaho is a legally organized irrigation company in the State of Idaho, and

Whereas, the Company promotes, supports, and encourages water conservation, and

Whereas, the Company urgently needs system improvements to alleviate the risk of flooding, and provide accurate measurement for the system.

Therefore, be it resolved that the Board of Directors of the Parks and Lewisville Irrigation Company agrees and authorizes that:

1. The Board has reviewed and supports the application proposal to the waterSMART: Small-Scale Water Efficiency.
2. The Board authorizes David Spencer to enter into the WaterSMART: Small Scale Water Efficiency Grants agreement.
3. The Parks and Lewisville Irrigation Company can provide the matching obligations, and
4. If selected for a Small Scale Water Efficiency Grant, the applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

4-27-22

Date

Karl Kinghorn

Karl Kinghorn, President

Parks and Lewisville Irrigation Company