

Integrated Flow Measurement and Control Gate Automation Project

Applicant

Westland Irrigation District
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Integrated Flow Measurement and Control Gate Automation Project

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Integrated Flow Measurement and Control Gate Automation Project

EXECUTIVE SUMMARY

April 24, 2019 - Westland Irrigation District- Echo, Umatilla County, Oregon

Westland Irrigation District is proposing to install an automated flume gate to better manage water levels and increase water delivery efficiency throughout the District's canal system. The funds will be used to purchase and install an automated flume gate near the bifurcation of the District's main canal. The automated gate will integrate with Westland's existing SCADA/Telemetry system and give field staff increased management over demand and target flows down the District's A and B-Line canals below the bifurcation.

The project is consistent with the Department of Interior's WaterSMART Program for Small-Scale Water Efficiency Projects and contributes to accomplishing the goals described in the Funding Opportunity Announcement by: 1) being a project prioritized in the District's *Priority Plan 2018-2019* planning document; 2) improving the use of technology to increase water reliability; 3) increasing the efficiency of District canal systems, resulting in conservation of water by the District to the benefit of District patrons; 4) modernizing District infrastructure; and 5) allowing better management of a scarce and valuable resource in the Umatilla Basin—home to four of the state's seven Critical Groundwater Areas.

Assuming an estimated start date of mid-October, the project would be completed approximately early to mid-December.

The project is not located on a Federal facility; the District's canal system is non-Federal and maintained by District employees funded through annual patron incurred charges.

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BACKGROUND DATA

Westland is one of the four irrigation districts in the U.S. Bureau of Reclamation's Umatilla Project, located in north-central Oregon. Established in the early 1900's, Westland is a private district delivering water from the Umatilla River early in the spring and then later from McKay Reservoir to approximately 14,700 acres of farmland, mainly in Umatilla County. Primary crops include alfalfa, asparagus, beans, corn, grass seed, melons, mint, onions, peas, potatoes, wheat and pasture.

Westland holds Oregon State water rights to Umatilla River water supplies and has a contract with Reclamation for stored water in McKay Dam and Reservoir, located south of Pendleton. The district's privately owned diversion facilities, the Westland Diversion Dam and Main Canal, are located 1 mile south of Echo. Separate individuals holding Umatilla River water rights, and water right holders in four private ditch companies, rely upon Westland's canal to receive their water supplies as well. Westland has fully repaid the U.S. for its share of capital construction costs for the Umatilla Project. Westland serves approximately 270 water users annually. Each year there are potential shortfalls in water supply due to low snow pack, drought, McKay Reservoir not filling to capacity and various other factors.

Westland's delivery system is a mix of earthen, open canals which carry water supplies to the bulk of its patrons, and pressurized pump stations serving 3,500 acres through buried pipelines. Approximately 55,000 acre-feet of water is diverted into the 30 miles of Westland delivery system each irrigation season. Every withdrawal point from the Westland canal is metered or recorded via staff gages to ensure both proper delivery and water use accountability.

Due to the need for efficient use and management of its water supplies, Westland has instituted remote monitoring of canal flow locations and pump station output, in combination with automated control of gate

structures integrated into its SCADA/Telemetry system for canal safety and reduced tailwater losses.

Westland has a long-standing partnership with Reclamation in the Umatilla Basin, most recently in collaboration to address water right claims of the Confederated Tribes of the Umatilla Indian Reservation.

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PROJECT LOCATION

The Integrated Flow Measurement and Control Gate Automation Project is located in Umatilla County, Oregon approximately five miles southwest of Hermiston. The project latitude is 45°46'35.60"N and longitude is 119°19'46.85"W.



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TECHNICAL PROJECT DESCRIPTION

Westland Irrigation District is proposing to install an automated flume gate at a critical bifurcation of its Main Canal into two separate canals: the A-line and the B-line. The gate will be installed at the A-line flume, but the project will have benefits for the A-line, the B-line, and the District overall. The automated gate will help better manage demand and target flows down the A and B-lines by maintaining water levels behind the gate to create more consistent flow rates for water deliveries, especially along the B-line.

Currently, water that does not go down the B-line flows into the A-line with the open weir scheme. If the B-line needs a greater quantity of water, more water must flow into the A-line – above the rate actually needed – in order for the B-line to get the increased flow rate it needs. This inefficiency will be alleviated by installation of the proposed flume gate, thereby conserving valuable McKay Reservoir stored water during its period of use while allowing for better overall canal management throughout the water season.

The automated gate will provide for more precise control of water down the proper canal depending on specific water management needs. The flume gate will be lowered to increase water in the A-line during peak demand, rather than calling for additional McKay Reservoir water under the current regime. Closing the gate will eliminate unnecessary water going down the A-line, reducing waste and spillage downstream. In addition, by effectively creating a temporary storage space for water behind the gate, field staff will have additional time to make demand adjustments along the canal with minimal interruption downstream on the A-line and B-line.

This project targets increased flow control through better operational management, producing benefits of extending District water supplies through greater efficiency and conservation within the District's delivery system. The flume gate will readily integrate into the District's SCADA/Telemetry, providing real-time data information for field staff to optimize deliveries to patrons.

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EVALUATION CRITERIA

Evaluation Criterion A – Project Benefits

The proposed project will improve the efficiency of the District's water delivery system by installation of a modern flume gate structure at an important bifurcation point, replacing an outdated manual gate control. The project will conserve and improve reliability of valuable District water supplies through improved water management, decreasing operational spill from excess water no longer being in the District's A-line canal during times of increased demand in the B-line. An initial conserved water estimate of five to six-hundred acre-feet is expected, with additional savings expected as the flume gate operation is fine-tuned through experience.



Evaluation Criterion B – Planning Efforts Supporting the Project

The proposed project is supported by, and consistent with, the District's *Priority Plan 2018-2019* strategic planning document (attached). This planning effort is the product of staff and board of director input to develop District goals and priorities for a two-year focus period.

The project addresses two goals identified in the District's planning effort:

- 1) *WATER SUPPLY & SOURCE, Goal 2: Reduce water loss within the District's system* (page 1 of *Priority Plan* document); and
- 2) *INFRASTRUCTURE IMPROVEMENT AND MAINTENANCE, Goal 1: Prioritize infrastructure improvements* (page 2 of *Priority Plan* document).

The proposed flume gate was prioritized in District planning as a result of being identified as a key infrastructure location in the canal system capable of showing immediate efficiency and water conservation benefits by modernization. The cost-effectiveness of the project, coupled with a relatively short implementation period, resulted in it being identified as a high priority.

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PRIORITY PLAN 2018-2019

I. WATER SUPPLY & SOURCE

Goal 1: Obtain additional water supply sources for the District

Action Steps:

- Identify additional water supply options, including Columbia River opportunities, and present findings to Board.
- Select committee members to continue active negotiations with the Tribes on increasing the size of the pipeline to bring additional water to the District.
- Meet with County Line Water Improvement District to discuss and evaluate options for a recharge and extraction contract.
- Continue to evaluate opportunities for recharge and extraction for A Line and gravel pit.

Goal 2: Reduce water loss within the District's system

Action Steps:

- Develop a process for finding losses in the system, which will include reviewing past studies and/or performing new studies.
- Evaluate options for lining ditches (necessity, feasibility, and cost).

II. COMMUNICATIONS

Goal 1: Improve effectiveness of communications with patrons

Action Steps:

- Evaluate the website as a tool for sharing newsletters, news, and meeting information.
- Create a plan for distribution of updates and news to patrons (via email, website, Facebook, text, etc.).
- Assess effectiveness of communication tools (email, website, Facebook, text, etc.) in relaying information to patrons.
- Evaluate the delivery and content of the year-end report.
- Assemble an accessible manual for patrons and the Board that includes District policies and procedures, in addition to records of meeting motions that are relevant to current and ongoing District operations.

Goal 2: Increase visibility and interactions with CTUIR leadership

Action Steps:

- Actively seek opportunities to meet with and interact with Tribal leaders.
- Initiate meeting requests with the TNT.
- Initiate meeting to connect CTUIR leaders with Board members.

Goal 3: Increase interactions with local and state partners and organizations

Action Steps:

- Attend regular meetings with irrigation district managers.

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- Work with other District managers to hold annual joint board meetings.
- Attend professional conferences at the local and state levels.

Goal 4: Develop a communication protocol for Board and staff

Action Steps:

- Prioritize internal communication needs.
- Create guidelines for email use.

III. INFRASTRUCTURE IMPROVEMENT AND MAINTENANCE

Goal 1: Prioritize infrastructure improvements

Projects to evaluate and prioritize:

- Improvement of A Line diversion gate control ←
- Temporary dam at Westland dam repair
- Improve water flow in B Line
- Repair and replace turnout gates where needed
- Control and account for water at end of the A Line
- Gravel pit, spill place on the A Line, recover water
- Determine pump efficiencies
- Improve technology and telemetry systems
- Evaluate the need for District-wide mapping
- Evaluate the need for completion of Water Management and Conservation Plan

Goal 2: Develop a budget for improvements

Action Steps:

- Present list of projects to Board and Budget Committee to solicit feedback and guide process.
- Develop a budget based on priority list.
- Seek alternative funding sources and grant opportunities for projects, including PL566 grants.

Goal 3: Create Contingency and Emergency Plans

Action Steps:

- Create an emergency plan to be followed in the case of ditch breaks, including communication protocols to alert relevant parties and a list of approved contractors to perform infrastructure repairs.
- Create a contingency plan for drought scenarios.
- Solicit feedback from other irrigation district managers and/or OWRC during development of new plan.

IV. TRAINING AND EDUCATION

Goal 1: Enhance staff competency

Action Steps:

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- Ensure there are plans in place for the District to provide new employee training, on-the-job training, and advanced training (including CAD, QuickBooks, and other technical and administrative training).
- Provide customer service, communications, and ethics training for staff.
- Ensure staff understands protocols and rules related to public meetings, public contracting, and public records.
- Develop training/education request procedures.
- Provide opportunities to interact and network with peers.

Goal 2: Support board member effectiveness and understanding of responsibilities

Action Steps:

- Provide materials and guidance to ensure board members understand their roles and responsibilities.
- Identify and recommend opportunities for board member ethics training.
- Provide opportunities for board members to interact with other district boards and managers.

Goal 3: Expand educational resources for patrons

Action Steps:

- Adhere to communication goals to increase outreach to improve effectiveness of communications to patrons.
- Increase accessibility to District materials (including bylaws, history, operations information, and recent news) by adding them to the District's website.
- Disseminate information about local and regional conferences, events, and workshops to patrons to encourage education about topics relevant to the District.

V. STAFFING

Goal 1: Hire and retain effective staff

Action Steps:

- Review and develop job descriptions.
- Review and develop personnel policies and employee handbook.
- Develop performance appraisal policy. Create clear guidelines for expectations and evaluations.
- Develop and utilize effective personnel evaluation system at all levels.
- Develop a recruitment and hiring policy.

Goal 2: Create a replacement/succession plan

Action Steps:

- Outline current and future District needs.
- Work towards ensuring patron expectations and Board expectations align.

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ADOPTED AND APPROVED this 17 day of July, 2018 by the Westland Irrigation District Board of Directors.



Board Chairman, Bob Levy



Office Manager, Tami Sherer

Evaluation Criterion C – Project Implementation

Project implementation is anticipated to proceed as follows:

- Following an initial recommendation by Reclamation to award a financial assistance agreement, environmental compliance requirements will be completed, either prior to signing such a financial assistance agreement or in parallel as a contingency of the award.
 - Discussions with the local Reclamation have been initiated. Based on those discussions, an environmental compliance estimate of \$16,000 is budgeted.
 - Timeframe: Due to the limited scope of the project geographic work area and minimal anticipated disturbance, environmental compliance is estimated at two to three weeks. Specific timeframe dates are uncertain, as the date of initial award notification has not been announced.
 - **Milestone:** Completion of identified environmental compliance requirements.
- Project site preparation.
 - Site preparation includes removal of the existing gate structure and components, and readying the installation area to accept the new flume gate.
 - A boom truck crane will be used for existing gate structure removal.
 - Preparation for installation will include minimal soil disturbance for positioning of temporary concrete forms and pouring of new concrete in accordance with recommended flume gate installation procedures.
 - Timeframe: Approximately two to three weeks. Assuming a mid-October start date, site preparation will be complete in early November.
 - **Milestone:** Completion of site preparation for flume gate installation.
- Flume gate installation.
 - A boom truck crane will be used for installation of the flume gate structure.
 - Installation will be in accordance with the manufacturer's recommended procedures.

- Timeframe: Approximately two weeks, including installation of flume gate and associated components plus initial operation and maintenance training. Flume gate installed mid to late November.
- **Milestone:** Installation of flume gate and components; training in operation and maintenance; flume gate ready for integration with District's SCADA/Telemetry system.
- Integration with existing SCADA/Telemetry
 - The installed flume gate operation and data logging will be incorporated with the existing SCADA/Telemetry system the District operates.
 - Telemetry technician will install materials and components into the A-Line Flow Station Telemetry Unit and confirm integration with District personnel.
 - Timeframe: Approximately two weeks/mid-December completion.
 - **Milestone:** Integration of flume gate operation and data into District SCADA/Telemetry.

Evaluation Criterion D – Nexus to Reclamation

Westland Irrigation District is one of the four irrigation districts in the Bureau of Reclamation's Umatilla Project. The proposed project is connected to Reclamation by the stored supplemental water Westland receives from McKay Dam and Reservoir, a Reclamation facility. Westland has fully repaid the United States for its share of capital construction costs for the Umatilla Project.

The proposed project will allow water to be more effectively and strategically managed with the construction and installation of new infrastructure, advancing stewardship of the resource.

Evaluation Criterion E – Department of Interior Priorities

The proposed project supports Department of Interior priorities of:

1. Conservation stewardship, by utilizing science and technology to best manage water resources. Westland Irrigation District is recognized as a leader among Umatilla Basin irrigation districts for its progressive utilization of SCADA/Telemetry to best manage its water supplies. The proposed flume gate will both conserve valuable water resources within the District's canal system and continue the forward-thinking philosophy of the District regarding water resource management.
2. Modernization of infrastructure, by partnering with Reclamation as a private sector irrigation district to construct and install a modern flume gate at a strategic location within the District's canal system. This modernization of District infrastructure will not only provide increased water management efficiencies through its direct operation, but also by improving field staff time efficiencies by its integration with the District's current SCADA/Telemetry – utilized by field staff on a daily basis.

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PROJECT BUDGET: FUNDING PLAN

Westland Irrigation District will provide the non-Federal portion of the project funding. These costs include labor related to concrete installation and groundwork. The source of funds comes from reserve funds set aside by the District for water delivery improvements.

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

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Westland Irrigation District	\$35,293.50
Non-Federal Subtotal	\$35,293.50
Other Federal Entities	
1. n/a	-
Other Federal Subtotal	\$0
REQUESTED RECLAMATION FUNDING	\$35,293.50

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PROJECT BUDGET: BUDGET PROPOSAL

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
Field Foreman	30.70/hr	70		\$2,149
Laborer	17.50/hr	70		\$1,225
Fringe Benefits				
				\$1,526
Travel				
Equipment				
Boom Truck Crane	\$886/day	2		\$1,772
Supplies and Materials				
Electrical				\$2,500
Concrete				\$4,000
Contractual/Construction				
Rubicon FlumeGate	\$32,365	1		\$32,365
Integral Walkway	\$1,883	1		\$1,883
Upstream Level Tuning	\$1,500	1		\$1,500
Rubicon Delivery, Installation Technician	\$2,500			\$2,500
Telemetry, Components & Installation	\$3,167			\$3,167
Other				
Environmental Compliance				\$16,000
TOTAL DIRECT COSTS				\$70,587
Indirect Costs				
Type of rate	Percentage	\$base		
TOTAL ESTIMATED PROJECT COSTS				

Table 2.—Budget Proposal

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PROJECT BUDGET: BUDGET NARRATIVE

Salaries and Wages:

Westland Irrigation District will provide labor necessary to complete this project. The Program Manager is Mike Wick, District Manager. Expenses associated with the Program Manager's activities, including being of contact for environmental compliance plus financial and performance reporting associated with the project are non-quantified, in-kind contributions by the applicant.

Labor rates for Field Foreman and Laborer are actual labor rates of those personnel for project work including: project site preparation; flume gate installation and training; and telemetry integration and training.

Fringe Benefits:

Fringe benefits are actual labor amounts, representing that of medical, dental, retirement, vacation & sick time prorated to the applicable budget work hours.

Equipment:

A rental boom truck will be required for removal of the existing gate structure and installation of the new flume gate. The budgeted amount is based on present rental rates.

Materials & Supplies:

- Electrical---\$2,500 for any required electrical panel additions and wiring.
- Concrete---\$4,000 for creation of flume gate installation structural framework.

Contractual:

(1) Using Intermediate Procurement for the following goods and services not exceeding \$150,000 combined value:

- 1 FGB-1675-1437 Rubicon FlumeGate---\$32,365
6' Width, 4.5' Checking Height, Integral Pedestal
- 1 WW-1675-M-BEE Integral Walkway---\$1,883
- 1 Upstream Level Tuning---\$1,500
- Delivery, Installation supervision and commissioning---\$2,500

(2) Using Small Procurement for the following goods and services not exceeding \$10,000:

- Telemetry Components & Installation---\$3,167.

Environmental and Regulatory Compliance:

Estimated costs of \$16,000 based on initial discussions with local Reclamation Office personnel. A Categorical Exclusion is estimated at \$1,000; unquantified costs for cultural surveys, historical surveys, and related determinations are estimated at \$15,000.

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ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE; PERMITTING

The proposed project will not impact the surrounding environment or any endangered species or designated critical habitat. Minimal earth-disturbing work is anticipated due to the limited project area. Equipment required for removal of the current gate structure and installation of the new flume gate will be used only in the immediate project area of work.

There are no species listed or proposed to be listed as a Federal threatened or endangered species, or any designated critical habitat in the project area.

There are no wetlands or surface water in the project area that fall under the Clean Water Act.

The water delivery system was constructed in the early 1900s. The existing gate was installed in the 1980s as part of District operation and maintenance activities using in-house reserve funds.

The project will replace an existing manually-operated gate on the A-line canal installed 30+ years ago.

No buildings, structures, or features in the district listed or eligible for National Register of Historic Places. There are no historic or archeological sites in the proposed project area. It has no effect on low income or minority populations or tribal lands.

The project will not contribute to the spread of noxious weeds.

No special permits or approvals are required beyond that which may be needed for minor electrical work.

RESOLUTION #2019-D

A RESOLUTION OF THE BOARD OF DIRECTORS OF WESTLAND IRRIGATION DISTRICT AUTHORIZING THE DISTRICT TO APPLY FOR A BUREAU OF RECLAMATION WATERSMART: SMALL-SCALE WATER EFFICIENCY PROJECTS GRANT

WHEREAS, the Bureau of Reclamation has released guidelines for WaterSMART grants consistent with its Small-Scale Water Efficiency Projects Program; and

WHEREAS, Westland Irrigation District has identified projects that meet the requirements and has developed an application for said grant; and

WHEREAS, Westland Irrigation District has adequate capability within its reserve funds to provide the amount of funding for the implementation of the proposed grant project; and

WHEREAS, federal guidelines require that the Westland Board verify certain financial and legal obligations associated with such a grant;

NOW, THEREFORE, BE IT RESOLVED by the Westland Irrigation District Board of Directors:

That it commits the District to the financial and legal obligations associated with the receipt of this financial assistance award, and verifies that:

- 1. The General Manager has the legal authority to enter into an agreement with the federal government for said grant;**
- 2. The General Manager has reviewed and supports the application submitted;**
- 3. Westland Irrigation District is capable of providing the matching funds specified in the funding plan; and**
- 4. Westland Irrigation District will work with the Bureau of Reclamation to meet established deadlines for entering into a grant agreement.**

Adopted, Signed and Approved this 17th day of April, 2019.



Jack Bellinger, Chairman

Attest:



Mike Wick, Secretary