



# Shoestring Automation Phase One



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***Executive Summary***

1<sup>st</sup> of October, 2024

Owyhee Irrigation District

422 Thunderegg Blvd

Nyssa, Malheur County, OR 97913-3260

Category A Application

Project Manager – Clancy Flynn

Email: [Cflynn@owyheeirrigation.org](mailto:Cflynn@owyheeirrigation.org)

Phone: (541) 372-3540 ext. 101

Owyhee Irrigation District (District) meets the eligibility requirement under Category A because we are an irrigation district formed in Oregon under ORS 545. We are seeking funding under Task A funding group I.

The District, located in Nyssa, Oregon, will add 6 automated gates to existing check structures as phase one of automating every check on the Shoestring Canal (aka Ontario-Nyssa Canal). The Owyhee watershed has experienced drought conditions more frequently in recent years. For example nine of the last ten years have resulted in some level of drought condition with five of those years being severe enough for the District to reduce water allotment to the patrons. The Shoestring Canal captures tail and waste waters that during drought are greatly reduced. Adding these checks will decrease canal level fluctuations, save water from operational spills, save power through reduced pumping, move water through the canal quicker, reduce sediment loads in the river and provide safer working conditions for canal operators. This project was identified as a priority for the District during planning exercises to reflect the District's Conservation Plan, local drought and state drought plans. The project ended up scoring the 7<sup>th</sup> highest out of 60 projects identified by the District.

The District has been actively pursuing automation of its canal system, mainly the spillways and main check structures, for 20+ years. The Shoestring canal is a canal that can be fed from the Dunaway Pumping Plant off the Snake River and/or from gravity water from the Owyhee Reservoir. The canal is also the lowest canal in the system, so it picks up tail waters from farm fields and other canals. Through the years the farmers and other canal systems have become more efficient resulting in reduced return flows. The District is seeking to better manage the return flows that remain to minimize waste and reduce the amount of water that is pumped or sent down from the reservoir. The Shoestring canal is ~15 miles in length and most of the spillways have been automated. However, the end spillway and 23 check structures still need automation to complete the desired efficiency gains in moving/monitoring water from end to end. The District is breaking this large task up into four manageable phases, automating 6 new sites per phase. The benefits of phase one are the same as the other three phases and include: increased operational flexibility improving the time involved when moving water through the system, better management of the water, water

## **Owyhee Irrigation District Shoestring Automation Phase One (R24AS00052)**

savings from better management and reduced sediment loading in the river systems. Total automation of the Shoestring Lateral will allow the District to take full advantage of the return flows captured in the canal, once all four phases are completed, because the water will be held or released at these checks to maintain elevations for downstream deliveries as needed. Phase one will make the end spills and first five check structures available to view remotely via adding the new sites to the District's existing SCADA system as well as manage the water as it moves down stream to minimize waste at the tail end of the canal. Additionally, the ability to see the elevations and tail waste in real time will allow the district staff to more efficiently use the water that is turned into the canal from the Snake River pumps or the gravity flow from the Owyhee reservoir. Flows can be timed more efficiently, i.e. knowing when an increase will arrive and seeing it arrive at these locations means less water will pass through the system unused because orders and delivery of the orders can be timed more exactly. If awarded project activities could begin 1 November 2025 and would be completed no later than 1 April 2027.

This project is located on a federal facility that is operated by the District under a transferred works contract with USBR. The District does not anticipate any direct partnerships in construction or financing of this project but it has support from local entities because of the projects potential for water management and water savings potential, such as: the NRCS local office, Owyhee Watershed Council and Malheur SWCD.

### ***Project Location***

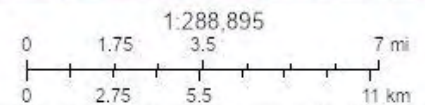
First Check location is 43°49'52.99" N 117°03'31.32" W, approximately 4.4 miles SW from the OID office, as the crow flies and the End of Shoestring Check is 43°58'59.01" N 117°04'33.53" W, approximately 7.9 miles NW from the OID office, as the crow flies (see map below).

# Owyhee Irrigation District Reference Map



4/8/2022, 3:08:23 PM

- ⊗ Override 1
- ▭ City Limits



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

## **Project Description**

The existing canal infrastructure that is targeted for replacement under this project are all concrete check structures with slots for stop logs. The operation of stop log structures is typical for many canal systems. However, operating these structures takes time, can be difficult and even dangerous as canal operators are performing this task over water, alone, and often in low light. As the operator adjusts the number of boards in the check slot(s) they could fall into or be pulled by the current against the stop-logs into the water. If the structure happens to be at the mouth of an inverted siphon this mishap could be fatal. By adding the automated gates to these check structures OID will greatly reduce the risk to the operator.

Another limitation to these structures is the timing of water as it moves through the system because operators are seldom able to be at each location just as the water is arriving or leaving each site which results in periods of time at the end of the canal where there may be too much or too little water and high water at some checks as sags or waves pass through. These conditions can shortchange water users of their instantaneous flow needs or threaten the integrity of the canal. By adding automation to these structures, the water will move through the system with more efficiency reducing these sag and wave cycles. Mitigating the sags and waves will protect the water users from instantaneous delivery shortages and protect the canal embankment from failures caused by high and fluctuating water levels.

Thankfully OID is well versed in modern technologies that allow for retrofitting the existing structures with automated canal gates that can operate on flow, upstream level or downstream level allowing for real-time capture or evacuation of water as it moves downstream. The data from these new automated gate locations will be added to the existing OID SCADA system which allows for remote monitoring, operation, and alarms. The gates will be built by OID staff and retrofitted into the existing canal check structures (typically the gates can be built to slide right in the existing stoplog “board” slots. The retrofitting of the gates for each site will need some level of demolition. This may entail removal of concrete pillars that divide bays on the check (if there are multiple bays that need to be combined to fit the new canal gate) and/or removal of board slots. Then any concrete repairs or other modifications are needed to make a square opening in the check structure to fit the new gate. Then OID crews will fabricate the gates in our shop to fit each site based upon measurements of the specific sites. The gates are installed by OID crews at each site. All the controls and SCADA are provided and commissioned by Aqua Systems 2000 Inc. with the help of OID’s electrician. The gates are all tested and programmed before the Aqua Systems technician returns to Canada. These gates will likely be programmed to operate on upstream elevation to maintain full canals to efficiently transport water through the system and deliver water to the farm units.

The completion of this initial stage of automation will provide significant drought resilience to the OID water users relying on the Shoestring. The timing of water will reduce the spillage at the end of the canal producing much needed water savings that can be used to lengthen the season during drought shortened seasons. There is also a power savings component to the District from reduced pumping cost that will come from the water savings. This will soften the financial impact to the water users less as they deal with fallowed ground and reduced yields caused by drought conditions. The more constant flow rates for the users will protect the crops from damage related to periodic shortages of water.

## **Evaluation Criterion A—Project Benefits**

### **Benefits to the Category A1b Applicant's Water Delivery System:**

The Shoestring canal diverts ~30,000AF/yr and the result of this project would be better management of all the water diverted into the Shoestring. This represents ~8% of OID's water supply. The water supply estimate is derived from the service acres for the shoestring divided by OID total acres. The sites would provide canal elevation and/or flow information to water managers. This information will inform decisions regarding water orders, deliveries and canal emergencies. Under current operations where the boards need to be moved manually there are times when patrons go without water, or their flow is reduced until the boards can be adjusted. This means that operators need to decide which is riskier, running the canal tight without much water being spilled to minimize waste or wasting water to always keep the canal full enough to ensure fluctuations won't reduce delivery flows. The practice of running with no waste will inevitably short patrons instantaneous flow that can lead to crop damage. However, running the canal with copious waste runs the risk of overtopping the banks or for the water to find rodent holes above the normal water level. Each of these scenarios put the district at risk of litigation. The addition of automation allows for a constant elevation in the canal ensuring delivery flows and protecting the embankment from rising water levels. OID would also benefit from a reduction to man hours needed to regulate canal elevation and ensure deliveries. The saved water could help by easing rationing during drought and high demand times by adding to the allotment and reducing the length and number of times OID will need to restrict instantaneous delivery flows. The expected lifespan of these gates is 25 years.

Not adding these automated sites will result in future canal failure(s) and crop damage. It leaves OID vulnerable during droughts especially because we'll need to wastewater to keep patron instantaneous demands met which reduces the amount of water for the irrigation during the season and shortens the season. The alternative then leaves OID patrons with canals that have fluctuations that will lead to reduced delivery for periods of time that in turn damages crops. Also, not adding these sites keeps ditch riders in a more dangerous working environment being over the water to adjust boards in the checks.

### **Broader Benefits:**

Some broader benefits that this project will have in the area are stronger economy for the Shoestring Canal, produce results that are consistent with local NRCS goals and improve drought impacts to the sub-basin. On a concentrated scope the project will benefit the farms and therefore the economy in this section by providing agriculture operations in the Shoestring Canal with more consistent water than previously available at times. The project doesn't directly intersect NRCS local efforts, but it does fit into the conservation efforts of the NRCS and OID coordinates often with the local NRCS office. Specifically, the reduction of waste waters will reduce sediment loading in the local river. Also, the saved waste waters and consistent delivery of water duty will ease drought impacts in the sub-basin because the portion that this canal serves will see a longer season and potentially higher allotments than previously without the automation.

## **Evaluation Criterion A2a: Environmental Benefits**

### **A2.a: Climate Change**

The project will help with flooding due to heavy rainfalls, which happen annually in subsections of OID by maintaining the canal levels to prevent overtopping of canals. The overtopping of canals often leads to flooding of homes and farm fields. The other major climate benefit is the protection of the water supply for the patrons under the Shoestring canal through better management and water savings.

### **A2.b: Environmental Benefits**

The project will prevent damage to habitat that can be caused by canal overtopping and breaks. As well as protecting the habitat that has built up along the wasteway ditches by regulating the canal outflows better which will reduce erosion.

### **A2.c: Other Benefits**

The project is phase one of a larger initiative to automate all the checks along the Shoestring canal. Once fully implemented the later phase will more than triple the benefits provided by this project.

## **Evaluation Criterion B—Planning and Preparedness**

### **Support for the Project:**

OID has a prioritized list of projects, and this project is number seven of sixty listed projects (see Appendix A). The project also falls broadly under state and county water planning efforts. The project also addresses many of the elements in OID's water Conservation Plan. OID has a System Improvement Plan (SIP) that this project will support various elements of and much of the information that is available on water loss OID derives from this SIP. One major driver behind the SIP was the frequent droughts that have gripped the area on an increasingly frequent basis. The SIP was developed as a part of OID's efforts to acquire funding through PL-566 because this program offers more potential funds than any current drought funding mechanism known to OID at this time.

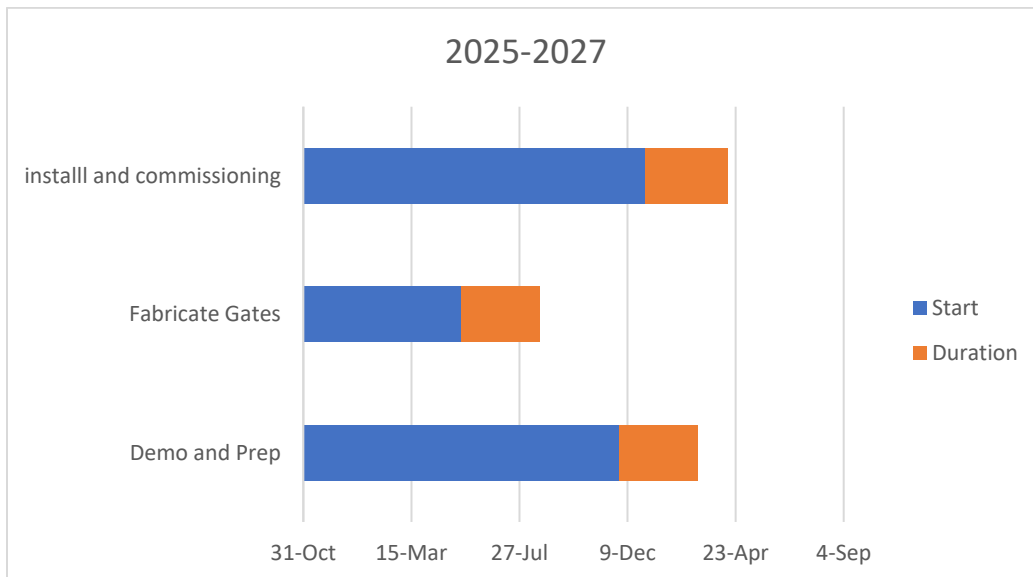
The project is a priority because it is a high impact project for annual water savings and drought mitigation. Drought conditions are becoming more frequent in the basin.

## **Evaluation Criterion C: Severity of actual or Potential Drought or Water Scarcity Impacts**

The area, specifically Malheur County, has experienced prolonged droughts 13 out of the last 23 years: 2002-2006, 2012-2017, 2019-2023 (see Appendix B). These drought years produced reduced water allotments for patrons of OID in 2003, 2013, 2014, 2015, 2021, 2022 and uncertainty in 2055 and 2016 as the runoff is coming later in the spring as compared to historical norms. In 2023 the area received sufficient snowpack and rainfall to end this last drought for at least one water season.

### Evaluation Criterion E—Readiness to Proceed and Project Implementation

The project will begin as soon as possible after dewatering canals in November 2025 and completion is March 2027. The gantt chart below shows the major tasks and their start and completion projections.



The project won't require any permits because all work will be performed within the canal right of way. The engineering work will be performed by the supplier of the automated gates based upon the measurement we take to retrofit the gates to the stop log slots. Due to the number of other automated sites already operational in the OID system implementation will not require any new policies but monitoring of results will require some data collection to be folded into the operations of the ditch rider's daily work. The timeline of the cultural review was discussed with Reclamation staff.

### **Evaluation Criterion F—Nexus to Reclamation**

The Owyhee Project, which encompasses OID receives Reclamation project water and is located on lands and facilities owned by USBR. The project will contribute water to this Reclamation basin by means of saving stored water in the Owyhee Reservoir for later irrigation release.

### **Evaluation Criterion G: Stakeholder Support for Proposed Project**

The project has no other monetary supporters but has letters of support from the local NRCS, Malheur SWCD and the Owyhee Watershed Council. This project fits very nicely into the overall goals of these organizations.

### ***Performance Measures***

The gates will be added to the District's existing SCADA system that includes data logging which will allow the District to compare past waste data to data collected after the installation of the gates. The District will compile pre-project data during the 2024 water season with special attention to the sites proposed for automation in this application. The District will also seek to compare man hours post installation to pre installation to see the time savings. Also, the District will compare the pumping expense after installation to prior similar years.

## Project Budget

### Funding Plan and Letters of Funding Commitment

OID will fund all non-federal portions of the project directly from its operating budget unless state funds are secured. OID currently allocates \$50k-\$100K annually for automation depending on the needs of the planned project(s).

OID will contribute \$51,375 of in-kind labor and equipment time. The remaining \$48,987 of OID's share of the project costs will be funded by OID's budgetary line item for automation projects.

### Budget Proposal

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

<b>FUNDING SOURCES</b>	<b>AMOUNT</b>
<b>Non-Federal Entities</b>	
1. OID In-Kind	\$124,204.00
<b>Non-Federal Subtotal</b>	\$124,204.00
<b>REQUESTED RECLAMATION FUNDING</b>	\$124,204.00

Table 2. —Total Project Cost Table

<b>SOURCE</b>	<b>AMOUNT</b>
Costs to be reimbursed with the requested Federal funding	\$ 124,204.00
Costs to be paid by the applicant	\$ 124,204.00
Value of third-party contributions	\$ 0
<b>TOTAL PROJECT COST</b>	<b>\$ 248,408.00</b>

Table 3. —Budget Proposal Format

<b>BUDGET ITEM DESCRIPTION</b>	<b>COMPUTATION</b>		<b>Quantity Type</b>	<b>TOTAL COST</b>
	<b>\$/Unit</b>	<b>Quantity</b>		
<b>Salaries and Wages</b>				
Operations Manager	\$35.05	240	hours	\$ 9,130
Laborer(s)	\$24.10	240	Hours	\$ 5,860
Fabricator	\$25.12	240	Hours	\$ 6,511
Electrician	\$30.67	140	Hours	\$ 4,638
Project Manager	\$66.88	40	Hours	\$ 2,890

<b>Fringe Benefits</b>				
Full-Time Employees	<b>\$/hour</b>	<b>60%</b>	\$29,029	\$ 17,418
<b>Equipment</b>				
Quonset Shop	\$1,750	1	Month	\$1,803
Shop Welder and Compressor	\$20.39	81	Hours	\$ 1,702
Service truck	\$37.69	48	Hours	\$ 1,863
Crane Truck	\$85.17	24	Hours	\$ 2,107
Pickup	\$30.22	75	Hours	\$ 2,335
<b>Supplies and Materials</b>				
Site controls and automation	\$17k	6	gate	\$110,160
Gate materials	\$6k	6	gate	\$ 38,880

Table 3. —Sample Budget Proposal Format

<b>BUDGET ITEM DESCRIPTION</b>	<b>COMPUTATION</b>		<b>Quantity Type</b>	<b>TOTAL COST</b>
	<b>\$/Unit</b>	<b>Quantity</b>		
<b>Contractual/Construction</b>				
Aqua Systems Commissioning	\$1,000	6		\$ 12,000
Cultural Survey	\$6,500	1		\$7,020
<b>Other</b>				
Contingency		10	%	\$ 22,432
<b>TOTAL DIRECT COSTS</b>				<b>\$ 246,749</b>
<b>Indirect Costs</b>				
Admin Staff	\$38.40	40	hours	<b>\$ 1,659</b>
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$248,408.00</b>

## Budget Narrative

### *Salaries and Wages*

The General Manager of Owyhee Irrigation District Clancy Flynn is estimated to spend 40 hours on this project at a rate of \$66.88/hour. This time is for supervision of the field work to address design and implementation concerns. The Operations Manager will be the lead for field work, and he is estimated to work 240 on the project at a rate of \$35.05/hour. The Hydro/Dam operations Manager is also the District's electrician and is estimated to spend 140 hours on the project at a rate of \$30.67/hour. The Fabricator is estimated to spend 240 hours on this project at a rate of \$25.12/hour. The laborer(s) is estimated to spend 240 hours on this project at a rate of \$24.10/hour. The Administrative assistant is estimated to spend 40 hours on tasks involved with this project at a rate of \$38.40/hour and this rate reflects an additional 60% to account for fringe benefits. The expected hours for compliance with reporting are the 40 hours of administrative staff.

The submission of this application certifies that the salaries, wages and fringe benefits are the actual labor rates of the identifies personnel of OID and are used for all works federal and non-federal, as of the time of this application's submission.

#### *Fringe Benefits*

The fringe benefits include the District's costs for employee health insurance, health reimbursement account, retirement, employer taxes, vacation and sick leave. This costs the District 60% over and above the employees hourly wages, on average.

#### *Travel*

No travel is anticipated related to this project.

#### *Equipment*

The equipment rates included are for the use of District owned equipment that will be used during for the project and the hourly rates are calculated based upon the United States Army Corps of Engineer standard rates for like equipment. The rates were taken from the 2018 region 8 rate tables and the severe weather rates have been utilized given the climate of Malheur County, Oregon.

#### *Materials and Supplies*

The materials will consist of the metals for fabrication of the gates, cables, pulleys, welding rod and electrical wires at a cost of \$6,000 per site. The controls, including batteries and electronics will be provided by Aqua Systems 2000 Inc. at a cost of \$17,000 per site.

#### *Contractual*

OID plans to contract out the cultural survey and draft the survey report.

#### *Third-Party In-Kind Contributions*

No third-party contributions are expected.

#### *Environmental and Regulatory Compliance Costs*

The Cultural Survey line item includes this cost plus all USBR estimated costs regarding this process.

#### *Other Expenses*

None.

#### *Indirect Costs*

The indirect costs are anticipated to include the time that admin staff spends reviewing timesheets, invoices and other documentation to ensure all cost are accurately attached to the project. Along with the time involved in preparing and submitting the reports associated with the grant.

## ***Environmental and Cultural Resources Compliance***

- Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?

Yes, but only moderately during construction due to possible concrete dust from modification to existing structures.

- 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?

There are no known endangered or threatened species in the project area.

- Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States”?

The canal and its associated spillways are the only waterways in the project area.

- When was the water delivery system constructed?

1932-1936

- Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)?

Yes, the canal will have six automated gates added to check structures. The canal was constructed between 1932-1936 and many modifications have been made over the years including repairs to sections, lining of sections and repairs to existing check structures.

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

Yes, the canal itself is a feature that could be listed due to its age.

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

There is no record or evidence of archaeological sites in the project area. This is known due to the excavation activities to construct the canal didn't reveal any.

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

There will be no negative effect 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?

There are no Native American sites within the project area and if there were the project would not change the access to such sites.

- 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 will not contribute to any weed problems any more than normal O&M activities.

### ***Required Permits or Approvals***

No permits are necessary as all work will be on existing O&M rights-of-way and will not involve the removal of any existing structures.

### ***Overlap or Duplication of Effort Statement***

This proposal will not have overlap or duplication but the canal will require three more projects (phases of automation) to complete the automation of the Shoestring Lateral.

### ***Conflict of Interest Disclosure***

OID has no known Conflicts of interest in any of the business functions associated with this project, including purchasing and contracting.

### ***Uniform Audit Reporting Statement***

OID was not required to submit a single audit for the most recently closed federal fiscal year.

### ***Certification Regarding Lobbying***

OID doesn't participate or donate to any lobbying causes and is not seeking more than \$100,000.

## **H.1. Environmental and Cultural Resource Considerations**

- 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.

Minimal impacts during construction due to the retrofitting of the existing structures. Which may include some concrete dust from cutting, some excavation to install footing if needed and travel on the O&M roads. OID will mitigate these effects by watering roads and minimizing dust from cutting concrete.

- 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.

- 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.

No.

- When was the water delivery system constructed?

1932-1936

- 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.

Yes, adding automated gates to replace stop logs. These checks were part of the original construction 1932-1936.

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

The Dam compound is listed with the National Register of Historic Places.

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

No.

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

No.

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

No.

- 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?

No.

**Letters of Support and Letters of Partnership**



United States Department of Agriculture

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**Natural  
Resources  
Conservation  
Service**

2925 SW 6<sup>th</sup> Ave.  
Suite 2  
Ontario, OR 97914  
Voice 541-823-  
5132

April 15, 2022

Clancy Flynn - General Manager  
Owyhee Irrigation District  
Nyssa, OR

RE: WaterSmart Grant Application

Dear Clancy,

I am writing to concur with the goals of the WaterSmart grant application being submitted by the Owyhee Irrigation District (OID) to increase automation of irrigation system delivery which will benefit water quantity and quality.

OID is a valued partner with a strong history of conservation planning and implementation. Their work has made significant positive impacts to the environment and the economic outlook for their patrons and local citizens in Malheur County. NRCS has worked closely with their efforts.

This grant application proposes to add automated canal gates to the Shoestring lateral that would replace the stop logs at the canal check structures. This lateral has historically relied upon return flows from other canals and farm fields to meet its delivery demands. Increased efficiency of farmers and OID itself are resulting in decreased return flows into the canal. The addition of more automated sites will allow OID to more efficiently use the remaining inflows and reduce waste waters. This is critical in all years but more so in drought conditions, which are hitting the area with increased frequency. This proposal will also continue the ongoing efforts to improve water quantity and quality in Malheur County. This is of particular interest to NRCS because it supports the priorities of the Malheur County Long Range Strategy. Implementation of this project will leverage the ongoing NRCS conservation efforts planned in the area.

Thank you for your consideration,

A handwritten signature in black ink, appearing to read "Lynn Larsen".

Lynn Larsen  
District Conservationist  
USDA-NRCS  
2925 SW 6<sup>th</sup> Ave. Ste 2  
Ontario, OR 97914



Owyhee Watershed Council  
106 Owyhee Street  
P.O. Box 275 • Adrian, OR 97901  
Telephone: (541) 372-5782 • Fax: (541) 372-5785  
Nicole Sullivan-Coordinator  
Email: nicole.agratek@gmail.com

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April 19, 2022

Clancy Flynn  
Owyhee Irrigation District  
422 Thunderegg Blvd  
Nyssa, OR 97913

RE: Owyhee Irrigation District Shoestring Lateral Automation

Dear Clancy,

Owyhee Watershed Council extends our strong support to Owyhee Irrigation District (OID) for the Shoestring Lateral Automation Project.

Owyhee Watershed Council has been working with Owyhee Irrigation District and several private landowners in the Basin to improve water quality and increase irrigation efficiency through implementation of pipeline and sprinkler irrigation system conversions. As ag producers increase the acres under sprinkler or drip irrigation and become more efficient, so must our delivery systems. Continuing uncertainty in our snowpack and weather cycles trending warmer and dryer, also create an urgency to become more efficient with water delivery and use. Automating the Shoestring lateral will allow the district to deliver irrigation water more efficiently and reduce wastewater.

Thank you,

Nicole Sullivan  
Coordinator



2925 SW 6<sup>th</sup> Ave. STE#2  
Ontario, OR. 97914

4/18/2022

Clancy Flynn  
Owyhee Irrigation District  
422 Thunderegg Blvd  
Nyssa, OR 97913

RE: Owyhee Irrigation District Shoestring Lateral Automation

Dear Clancy,

The Malheur SWCD strongly supports the Owyhee Irrigation District (OID) request for funding assistance for the addition of automated canal gates in the Shoestring Lateral aka Ontario-Nyssa Canal. The Shoestring canal is a canal that can be fed from the Dunaway Pumping Plant off the Snake River and/or from gravity water from the Owyhee Reservoir. The canal is also the lowest canal in the system, so it picks up tail waters from farm fields and other canals. Through the years the farmers and canal systems have become more efficient resulting in reduced return flows. The District is seeking to better manage the return flows that remain to minimize waste and reduce the amount of water that is pumped or sent down from the reservoir. The Shoestring canal is ~15 miles of in length and most of the spillways have been automated. However, the end spillway and 23 check structures still need automation to complete the desired efficiency gains in moving/monitor water from end to end. The District is breaking this large task up into four manageable phases, automating 6 new sites per phase. The benefits of adding these automated gates include; increased operational flexibility from real-time data and adjustment the automation will allow and water savings from better management. Total automation of the Shoestring Lateral will allow the District to take full advantage of the return flows captured in the canal, once all four phases are completed, because the water will be held or released at these checks to maintain elevations for downstream deliveries as needed. Phase one will automate the end spills and first five check structures and add the new sites to the District's existing SCADA system and manage water as it moves down stream to minimize waste at the tail end of the canal. Additionally, the ability to see the elevations and tail waste in real time will allow the district staff to more efficiently use the water that is turned into the canal from the Snake River pumps or the gravity flow from the Owyhee reservoir. Flows can be timed more efficiently i.e. knowing when an increase will arrive and seeing it arrive at these locations means less water will pass through the system unused because orders and delivery of orders can be timed more exactly.

Sincerely,

A handwritten signature in cursive script that reads "Bret D. Cleaver".

Bret D Cleaver

District Manager

**Official Resolution**

**OWYHEE IRRIGATION DISTRICT  
Shoestring Canal Automated Gates Phase One  
Resolution 2024-5**

WHEREAS, the Owyhee Irrigation District is actively seeking to automate as much of the canal system as possible annually; and

WHEREAS, the District recognizes the benefits that canal automation brings to operations including safety and water savings; and

WHEREAS, the Shoestring Canal (aka Ontario-Nyssa Canal) captures considerable return waters while only having some automated wasteway gates; and

WHEREAS, said lateral provides service to an estimated 5,491 irrigable acres; and

WHEREAS, by adding automated gates the District will more efficiently use these return waters and conserve water to ensure reliable service to these acres; and

WHEREAS, the Bureau of Reclamation has available WaterSmart grants to help with financing drought resiliency projects.

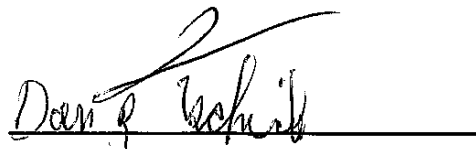
NOW THEREFORE, BE IT RESOLVED that the Owyhee Irrigation District authorizes a project to add six automated gates to the Shoestring canal.

BE IT FURTHER RESOLVED that the Owyhee Irrigation District authorizes the pursuit of Reclamation WaterSmart, Drought Resiliency Projects monies to help cover the cost of said project.

BE IT FURTHER RESOLVED that Owyhee Irrigation District is capable of and commits itself to providing the funds/in-kind contributions outlined in the grant application and to work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

Dated this 17th day of September 2024.

**OWYHEE IRRIGATION DISTRICT**

A handwritten signature in black ink, appearing to read "Dan Tschida", is written over a solid horizontal line.

**Dan Tschida, Chairman**

## Appendix A

### OID Prioritized Project List

<b>Master List</b>	<b>Priority Score</b>
China Wall Replacement	35.7
Locket Gulch SCADA	34.75
Orbit Radios for SCADA system	34.45
Mitchell Butte SCADA	32.50
Lining Between Malhuer and V Siphons	30.95
Snivley shotcrete lining	28.8
Roof at Turrent	27.35
Dunaway VFDs	26.80
Middle Lift 4.0	24.95
Kingman 5.4.1 from SIP	24.60
Automate Shoestring	24.60
Transformer Dunaway	24.30
Dunaway Trash Rake	24.30
NC 4.4 from SIP	24.15
Jacobsen Gulch trash rack/structure	22.70
Kingman 0 from SIP	22.20
NC 43.2 from Sip	22
NC 25.4 below 25.4-1.8 from SIP	21.75
NC 35.1 from SIP	21.75
NC 28.7 from SIP	21.75
NC 38.9 from SIP	21.75
NC 54.2 from SIP	21.75
Tire and pipe fitting storage	21.75
NC 55.6 from SIP	21.65
8.5 structure from NC	20.95
Kingman 5.4.3 from SIP	20.50
MB 0 from SIP	20.50
MB 9.4 from SIP	20.5
NC 14.5 from SIP	20.50
NC 31 from SIP	20.5
NC 32.2 from SIP	20.50
55.6 below 55.6-0.5 from SIP	20.50
Dam Elevator	20.05
RV Spaces at dam	19.80
Shoestring Lateral Piping from SIP	19.75
Storage building Dead Ox	19.65
25.4-1.8	19.25
25.4 from SIP	19.25
13.6 from the SIP	19.25

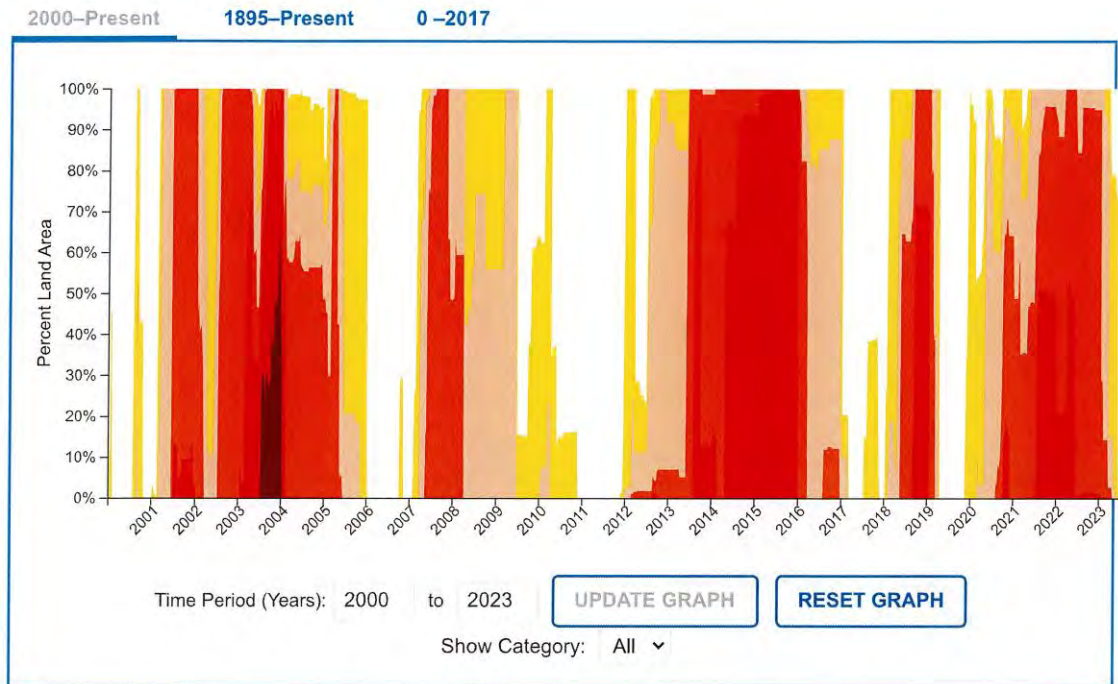
26.4 from SIP	19.25
50.8 from SIP	19.25
55.6 above 55.6-0.5 from SIP	18.00
recoat siphons	17.65
32.2 Check	17.15
MB 7.5 from SIP	16.75
33.1 from SIP	16.75
43.2 from SIP	16.75
49.2 from SIP	16.75
54.4 from SIP	16.75
Paraphet wall repair	16.65
Covered parking Nyssa yard	16.1
Recoat Jet Flows	15.9
Kingman 5.4.2 from SIP	15.80
22.8 Sidesweep Screen	15.05
43.2 Trash Rack	15.05

# Appendix B

8/28/23, 11:46 AM

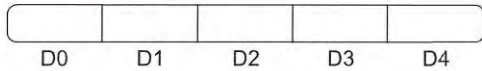
Malheur County Conditions | Drought.gov

## Historical Conditions for Malheur County



### Legend

#### U.S. Drought Monitor



The U.S. Drought Monitor (2000–present) depicts the location and intensity of drought across the country. Every Thursday, authors from NOAA, USDA, and the National Drought Mitigation Center produce a new map based on their assessments of the best available data and input from local observers. The map uses five categories: Abnormally Dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought (D1–D4). [Learn more.](#)

LATEST AVAILABLE DATA: 2023-08-22



## Appendix C

DIVISION	CONVEYANCE	START LOCATION ID	END LOCATION ID	MEASURED LOSS (CFS)	DAILY LOSS (AF/DAY)	LOSS (%)
	Kingman Lateral	KM 0.0	KM 5.4	10.1	20.0	7.94
	Kingman Lateral	KM 5.4.1	KM 9.3	3.39	6.72	6.61
	Kingman Lateral	KM 5.4.2	KM 5.4.end	23.4	46.4	34.9
	Kingman Lateral	KM 5.4.3	KM pt.14	1.46	2.90	15.8
	Mitchell Butte Lateral	MB 0.0	MB 9.4	1.79	3.55	2.27
	Mitchell Butte Lateral	MB 9.4	MB 10.7	1.10	2.18	3.93
	Mitchell Butte 7.5 Lateral	MB 7.5.start	MB 7.5.end	-0.08 <sup>1</sup>	-0.16	-0.70
	Shoestring Canal	SS 0.0	SS.end	9.74	19.3	15.1
	13.6 Lateral	NC 13.4.start	NC 13.4.end	0.00	0.00	0.00
	14.5 Lateral	NC 14.5.start	14.5.end	1.73	3.43	8.01
	25.4 Lateral	25.4.start	25.4.e.end	0.98	1.94	1.56
	25.4-1.8 Lateral	25.4.s.start	25.4.s.end	0.98	1.94	4.54
	25.4 Lateral (below 25.4-1.8)	25.4.e.start	25.4.e.end	5.17	10.3	20.8
	26.4 Lateral	26.4.start	26.4.end	0.94	1.86	10.2
	28.7 Lateral	28.7.start	28.7.end	3.26	6.47	9.82
	31.0 Lateral	31.0.start	31.0.end	1.79	3.55	13.9
	32.2 Lateral	32.2.start	32.2.end	2.25	4.46	23.1
	33.1 Lateral	33.1.start	33.1.end	-0.28 <sup>1</sup>	-0.56	-1.75
	35.1 Lateral	35.1.start	35.1.end	2.94	5.83	30.1
	38.9 Lateral	NC 38.9	NC 38.9.end	8.92	17.7	13.0
	38.9-4.8 Lateral	38.9.n.start	38.9.n.end	1.59	3.15	9.70

### 2.2.2.3 End/Operational Spill Methodology

As part of the District’s open channel delivery system, operational spills (or end spills) are located throughout the system to ensure the timely delivery of water to patrons. To measure and quantify the potential losses associated with these end spills, FCA installed nine HOBO U20L-01 Water Level Loggers on August 6 and 7, 2018. FCA recorded water depth (gage height) at 15-minute intervals until October 10 and 11, 2018, when FCA staff retrieved the loggers. Each end spill location had existing water measurement structures for calibration purposes.

### 2.2.2.4 End/Operational Spill Results

The largest average discharge during the study period (19.8 cfs) was measured at the Jacobsen Spill, which spilled a total of 2592 ac-ft between August 6 and October 11. Other end spills averaged as little as roughly 1.0 cfs, such as the Sayers and 49.2 end spills. Peak discharge at several of the measurement sites occurred at the end of the 2018 irrigation season, presumably as a result of the irrigators ‘turning off’ and the subsequent draining of the canal system. Calibration checks were performed at four of the nine end spill locations as a quality assurance measure. The difference between the measured and theoretical discharges at these four measuring devices was small (approximately 5 percent or less) and were largely within the uncertainty of the direct measurements. This small difference, along with the excellent condition of most of the measuring devices, supports the validity of the theoretical equations used to calculate the flow rates. Table 2-5 presents the summary of the computed results for each of the sites for the monitoring period. Figure 2-6 through Figure 2-9 show the location of end spill monitors.

**Table 2-5. Owyhee Irrigation District Estimated Loss Due to End/Operational Spills between August 6 and October 11, 2018.**

DIVISION	LOCATION	TYPE OF WEIR	SPILLED TO	AVERAGE DISCHARGE (CFS)	TOTAL VOLUME (AF)
<b>Mitchell Butte</b>	Annabelle Spill	5-foot Rectangular Contracted Weir	Owyhee River	6.81 cfs	864
	Horse Barn Spill	6-foot Rectangular Contracted Weir	Un-named creekbed south of Malheur River	1.15 cfs	150
	Kingman 9.3 Spill	3-foot Rectangular Contracted Weir	Snake River	2.68 cfs	340
	Sayers Spill	3-foot Cipolletti Weir	Un-named creekbed south of Malheur River	1.07 cfs	139
	Shoestring Spill	8-foot Cipolletti Weir	Nevada Canal	15.7 cfs	2,026
<b>Dead Ox Flat</b>	High Lift Spill	6-foot Cipolletti Weir	Snake River	10.9 cfs	1,397
	Jacobsen Spill	10-foot Cipolletti Weir	Jacobsen Gulch to Jacobsen Gulch Lateral and Snake River	19.8 cfs	2,592
	NC 43.2 Spill	3-foot Cipolletti Weir	Willow Creek	3.60 cfs	465

Table 3. —Budget Proposal Format

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
Operations Manager	\$39.06	240	hours	\$ 9,374
Laborer(s)	\$24.42	240	Hours	\$ 5,860
Fabricator	\$26.11	240	Hours	\$ 6,276
Electrician	\$33.12	140	Hours	\$ 4,638
Project Manager	\$72.25	40	Hours	\$ 2,890
<b>Fringe Benefits</b>				
Full-Time Employees	<b>\$/hour</b>	<b>60%</b>	\$29,029	\$ 17,418
<b>Equipment</b>				
Quonset Shop	\$1,750	1	Month	\$1,803
Shop Welder and Compressor	\$20.39	81	Hours	\$ 1,702
Service truck	\$37.69	48	Hours	\$ 1,863
Crane Truck	\$85.17	24	Hours	\$ 2,107
Pickup	\$30.22	75	Hours	\$ 2,335
<b>Supplies and Materials</b>				
Site controls and automation	\$17k	6	gate	\$110,160
Gate materials	\$6k	6	gate	\$ 38,880

Table 3. —Sample Budget Proposal Format

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
<b>Contractual/Construction</b>				
Aqua Systems Commissioning	\$1,000	6		\$ 12,000
Cultural Survey	\$6,500	1		\$7,020
<b>Other</b>				
Contingency		10	%	\$ 22,432
<b>TOTAL DIRECT COSTS</b>				<b>\$ 223,211</b>
<b>Indirect Costs</b>				
Admin Staff	\$38.40	40	hours	<b>\$ 1659</b>
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$248,408.00</b>

**Budget Narrative**

*Salaries and Wages*

The General Manager of Owyhee Irrigation District Clancy Flynn is estimated to spend 40 hours on this project at a rate of \$72.25/hour. This time is for supervision of the field work to address design and implementation concerns. The Operations Manager will be the lead for field work, and he is estimated to work 240 on the project at a rate of \$39.06/hour. The Hydro/Dam operations Manager is also the District's electrician and is estimated to spend 140 hours on the project at a rate of \$33.12/hour. The Fabricator is estimated to spend 240 hours on this project at a rate of \$26.11/hour. The laborer(s) is estimated to spend 240 hours on this project at a rate of \$24.42/hour. The Administrative assistant is estimated to spend 40 hours on tasks involved with this project at a rate of \$41.48/hour and this rate reflects an additional 60% to account for fringe benefits. The expected hours for compliance with reporting are the 40 hours of administrative staff.

The submission of this application certifies that the salaries, wages and fringe benefits are the actual labor rates of the identifies personnel of OID and are used for all works federal and non-federal, as of the time of this application's submission.

#### *Fringe Benefits*

The fringe benefits include the District's costs for employee health insurance, health reimbursement account, retirement, employer taxes, vacation and sick leave. This costs the District 60% over and above the employees hourly wages, on average.

#### *Travel*

No travel is anticipated related to this project.

#### *Equipment*

The equipment rates included are for the use of District owned equipment that will be used during for the project and the hourly rates are calculated based upon the United States Army Corps of Engineer standard rates for like equipment. The rates were taken from the 2018 region 8 rate tables and the severe weather rates have been utilized given the climate of Malheur County, Oregon.

#### *Materials and Supplies*

The materials will consist of the metals for fabrication of the gates, cables, pulleys, welding rod and electrical wires at a cost of \$6,480 per site. The controls, including batteries and electronics will be provided by Aqua Systems 2000 Inc. at a cost of \$18,360 per site.

#### *Contractual*

OID plans to contract out the cultural survey and draft the survey report.

#### *Third-Party In-Kind Contributions*

No third-party contributions are expected.

#### *Environmental and Regulatory Compliance Costs*

The Cultural Survey line item includes this cost plus all USBR estimated costs regarding this process.

#### *Other Expenses*

None.

*Indirect Costs*

The District does not have a current Federal negotiated indirect cost rate agreement so indirect costs were calculated using the 10% de minimis rate against MTDC as detailed below. Federal funding will not be used to pay these costs. The indirect costs are anticipated to include the time that admin staff spends reviewing timesheets, invoices and other documentation to ensure all cost are accurately attached to the project. Along with the time involved in preparing and submitting the reports associated with the grant.