KLAMATH IRRIGATION DISTRICT
6640 K.I.D. LANE
KLAMATH FALLS, OREGON 97603
Phone: (541) 882-6661 Fax (541) 882-4004

02 October 2019

Reference: WaterSmart Grant Request: BOR-DO-20-F001

Title Page

Project Title: Klamath Irrigation District (Klamath ID) C-4-a Canal Lining/Piping 2020 Improvements.

Brief Narrative: Klamath ID will install lining and piping materials along 1.5 miles of the C-4-a Canal to provide water savings across the entire water delivery system. The current C-4-a Canal seepage, evaporation, and excessive weed growth increases transit loss and over-deliveries resulting in unnecessary spill into the Number 1 (#1) drain.

Applicant: Klamath Irrigation District, 6640 KID Lane, Klamath Falls Oregon, 97603

Project Manager: Jaxsen Sikorski, 6640 KID Lane, Klamath Falls, Oregon, 97603 jsikorski@klamathirrigation.com. (541) 882-6661.

Point of contact is the undersigned at (541) 882-6661 or gsouza@klamathirrigation.com

Gene R Souza

Gene Souza
District Manager
Klamath Irrigation District

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EXECUTIVE SUMMARY

In 2020, The Klamath Irrigation District (Klamath ID) of Klamath County, Oregon, will install lining and piping materials along 1.5 miles of the C-4-a Canal to provide water savings across the entire water delivery system. The current C-4-a Canal seepage, evaporation, and excessive weed growth increases transit loss and over-deliveries resulting in unnecessary spill into the Number 1 (#1) drain.

This 2020 C-4-a Canal lining/piping improvement project targets a canal where seepage is identified and excessive weed growth is requiring additional water deliveries to meet demand. This project is expected to take 18 months to complete at a total cost of $421,301.

Overall results of the project is anticipated to conserve over 889 acre feet of water annually; the measured loss on this canal is between 5 -12 cubic feet of irrigation water per second (cfs) while in operation.

BACKGROUND DATA

Klamath ID is a Bureau of Reclamation (Reclamation) District and is part of the Klamath Project (Project). The Klamath ID provides operations and maintenance on the Project's "Main Unit" lands and Warren Act lands. Klamath ID is the backbone of the Klamath Project, providing service to seven (7) additional irrigation/improvement districts within the Project.

Federal support for expansion of irrigation efforts in the Klamath Basin began pursuant to the Reclamation Act enacted on 17 June 1902 and further expanded by Congress with the Warren Act on 21 February 1911. Construction of the "Main Unit" distribution system, under Federal supervision, occurred between 1905 and 1917. Klamath ID was officially formed, with voter approval on 8 December 1917 and holds the KA1000 water-right in the State of Oregon.

In 1918, Klamath ID entered into a contract with Reclamation for repayment of the costs of Project works. In 1954, the District entered into another contract with Reclamation to assume operation and maintenance of the A, B, C, D, E, F, and G Canals; the C-G cutoff; and all the related distribution, drainage, and pumping plants. Under this contract, Klamath ID is also required to serve water users both within and outside of its boundaries, including Klamath Basin Improvement District, individual Warren Act Contracts, and areas within Tulelake Irrigation District boundaries. The District has one major diversion, from Upper Klamath Lake into the A Canal, with a capacity of 1,150 cfs. Most measuring points use weirs.

Klamath ID provides service to over 2,500 patrons and irrigates 53,638 acres of cropland through 200 miles of canals and laterals. The primary crops grown in Klamath ID are alfalfa, pasture, potatoes, and cereal grains; however, row crops, orchards, strawberries, and landscape plants are also irrigated from the District's system.

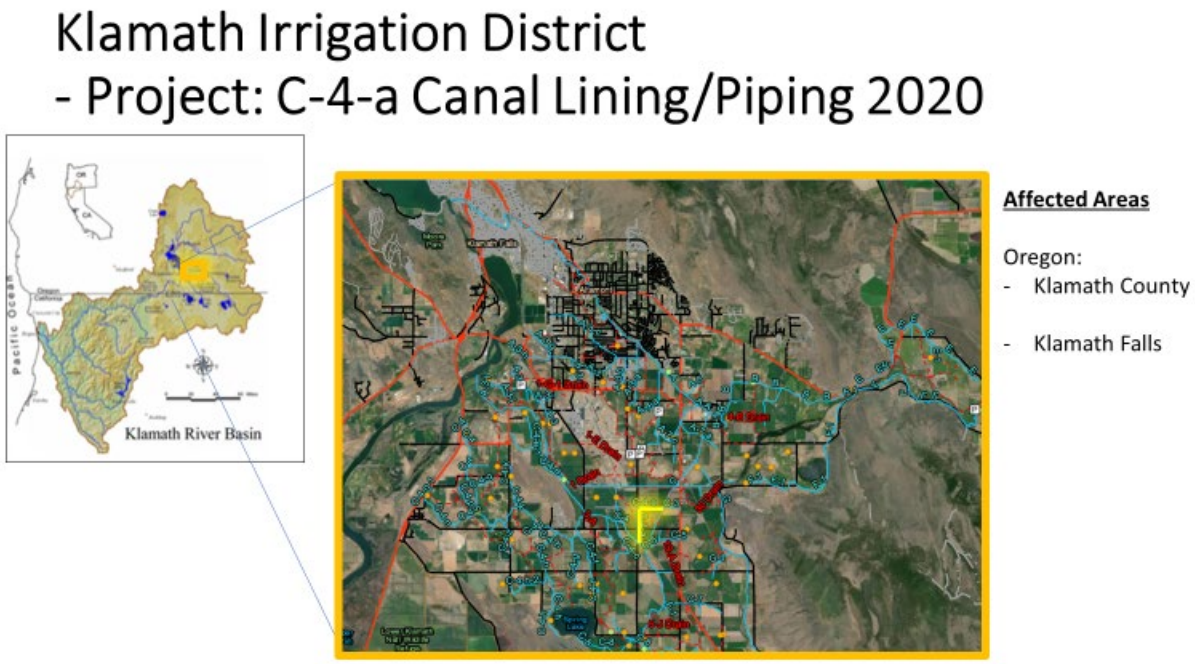
Existing water loss data for the District indicate that between 1991 and 2000, approximately 20 percent of diverted water was lost in end spills, 14 percent was lost to lateral seepage, 1 percent

was required for filling and draining the system, and the remaining 65 percent reached patrons.

PROJECT LOCATION

Klamath County, Oregon

The Klamath Irrigation District is located in southern Oregon, south and east of Klamath Falls, Oregon. This project will focus specifically on the Poe Valley, just east of Klamath falls.



TECHNICAL PROJECT DESCRIPTION

The C-4-a Canal is a 1.5-mile, shallow water delivery system designed to transport water from Upper Klamath Lake through the A Canal to the C Canal to provide water to farmers in the Henley-Ankeny area of the "Main Unit" of the Klamath Project. The C-4-a Canal engineering and design is relatively unchanged from the original 1905 plans.

Klamath ID's 2020 C-4-a Canal lining/piping project will provide water savings to reduce losses due to canal seepage and excessive weed growth which requires water over-deliveries resulting in spill to the #1 drain to ensure farmers and ranchers receive adequate supply of irrigation water.

EVALUATION CRITERIA

Evaluation Criteria: Scoring Summary	Points:
A. Quantifiable Water Savings	**30**
B. Water Supply Reliability	**18**
C. Implementing Hydropower	**18**
D. Complementing On-Farm Irrigation Improvements	**10**
E. Department of the Interior Priorities	**10**
F. Implementation and Results	**6**
G: Nexus to Reclamation Project Activities	**4**
H: Additional Non-Federal Funding	**4**
Total	***100***

Quantifiable Water Savings:

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

Estimated annual water savings is computed by analyzing water loss from the C-4-a Headgate through the C-4-a spill. Loss is attributed to seepage and evaporation. Over-deliveries are attributed to excessive weed growth requiring higher volumes of irrigation water to be diverted from Upper Klamath Lake.

b. How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.

Ponding and tule growth along the outer banks of the C-4-a Canal provide indicators of seepage. Seepage rates vary by volume of irrigation water being delivered.

Data supporting the seepage is as follows:

Tule growth along the C-4-a Canal is indicative of areas where irrigation water is escaping the system.

Measured flow from the head of the C-4-a to the C-4-a spill indicates a 5% loss during transport.

c. What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

Post project seepage in critical areas are anticipated to reduce to zero (0). Our experience with replacing the rubberized liner in the Olene Flume at the head of the C-4-a indicate the material eliminates water loss through seepage.

d. What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?

Annual transit loss reductions may be reduced by at least 889 acre feet of water per year. The calculated C-4-a losses are 5 -15 cubic feet per second while in operation; we typically operate this canal 179 days per year.

e. How will actual canal loss seepage reductions be verified?

Verification will be verified through our SCADA 2020 upgrades to provide better visibility on water spill.

f. Include a detailed description of the materials being used.

24" HDPE Pipe with a 35+ year anticipated lifespan

Ductile Rubber Lining EPDM, .100" thick, with a 27+ year anticipated lifespan

Water Supply Reliability

Improved efficiencies to reduce diversions out of Upper Klamath Lake (UKL) by the Klamath ID increases the amount of water available for multiple beneficiaries.

Tribes along the Klamath River will benefit by having water stored in Upper Klamath Lake for in-stream water rights.

Project supply water will be stored in Upper Klamath Lake for a longer period, increasing lake levels and reducing lake temperatures which may be beneficial for the **Upper Klamath Lake Short Nosed Sucker, an endangered species**.

While the water is stored in Upper Klamath Lake, **wildlife and local communities may benefit** from increased lake levels which will reduce water temperature and increase water quality and reduce algae blooms.

Conserved water will **benefit the Lower Klamath National Wildlife Refuge** as unused supply is authorized for diversion to the Refuge. Conserved water may be delivered to the Lower Klamath National Wildlife Refuge through the system operated by the Klamath Drainage District.

With increased efficiencies, a water-related crisis or conflict may be mitigated with improved understanding of water demands, deliveries, and usage. The U.S. Fish and Wildlife Service supports all efforts to find efficiencies in the Klamath Project.

Partner Roles:

None identified.

Implementing Hydropower

This project will not improve, nor impact existing Hydropower projects.

On-Farm Improvements

None identified

Department of the Interior Priorities

This project addresses the following Department of the Interior Priorities:

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt

a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment.

b. This project does not address 1.b.

c. This project does not address 1.c.

d. Review Department water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;

e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;

f. Identify and implement initiatives to expand access to Department lands for hunting and fishing;

2. Utilizing our natural resources

a. Ensure American Energy is available to meet our security and economic needs;

3. Restoring trust with local communities

a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;

b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

4. Striking a regulatory balance

a. This project does not address 4.a.

b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

5. Modernizing our infrastructure

a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;

Project Planning

Ongoing efforts with Farmers Conservation Alliance are being developed to improve the Project (Klamath Project system wide) with Klamath ID as the central hub to these plans. See attached Annex B "FCA_Klamath District Brief"

Performance Measures

Measure of Effectiveness #1: Reduced daily water-loss calculations from headworks to spill
Measure of Effectiveness #2: All spill water is able to be recaptured/recirculated.
Measure of Effectiveness #3: Loss to seepage and evaporation is eliminated.

Readiness to Proceed

Klamath ID has invited Jim Young, of Skidmark Geomembrane, to conduct a site survey of the C-4-a immediately upon dewatering of the system for an evaluation of the materials required.

Adkins Engineering is on contract to provide consultation support if required.

No policies or administrative actions are required to implement the project.

No environmental compliance estimates are anticipated as changes to the physical structures are within the scope of operations and maintenance of the existing system.

Schedule:
Fall 2019 – Set conditions, purchase equipment, prepare sites for liner installation
Winter 2019 – Install piping in critical areas
Spring 2000 – Inspect and record water efficiencies

Nexus to Reclamation Activities.

Klamath ID is a Reclamation District.
Klamath ID operates and maintains the "Main Unit" of the Klamath Project on Reclamation Lands.
Klamath ID is in the same basin as Reclamation's Klamath Basin Regional Office.
This project may contribute to water efficiencies in the Klamath Basin.
This project may benefit the Klamath Tribe.

Additional Non-Federal Funding

Klamath ID will provide the remaining balance of non-Federal funding.

210,651 Non-Federal Funding
421,301 Total Project Cost

PROJECT BUDGET

FUNDING PLAN AND LETTERS OF COMMITMENT

Klamath ID will provide $210,651 from annual O&M for FY 2020 & 2021 for this project as non-Federal contribution. The funds will be available with the approval of the FY 2020 and FY 2021 budgets. Funds will be available for immediate project use upon budget approval. Klamath ID contribution will be contingent upon approval and amount of this Grant.

Costs have already been incurred for this project in planning.

BUDGET PROPOSAL

Cost Table SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	$ 210,650
Costs to be paid by the applicant	$ 210,651
Value of third party contributions	$ 0
TOTAL PROJECT COST	**$ 421,301**

	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				
Project Manager – Jaxsen Sikorski	$94,121/annual	5%	% of time	$4,706
Program Manager	$128,645/annual	2%	% of time	$2,573
Water Master	$104,527/annual	5%	% of time	$5,226
Maintenance Supervisor	$74,683/annual	15%	% of time	$11,202
Maintenance Level II	$57,833/annual	15%	% of time	$8,675
Maintenance Level II	$57,833/annual	15%	% of time	$8,675
Maintenance Level II	$57,833/annual	15%	% of time	$8,675
Ditch Rider	$57,833/annual	10%	% of time	$8,675
Ditch Rider	$57,833/annual	10%	% of time	$8,675
Ditch Rider	$57,833/annual	10%	% of time	$8,675
Fringe Benefits				
None				$
				$
Travel				
Site Survey, 2 days	1200 ea	1 pax/2 days	Each	$2,400
Installation	1200 ea	2 pax/14 days		$33,600
Inspections	1200 ea	1 pax/2 days		$2,400
Equipment				
Excavator	$185	120	hour	$22,200

Dozer and Loader	$150	210	hour	$31,500
Trucks and Backhoe	$125	320	hour	$40,000
Supplies and Materials				
EPDM Liner	24	1000	Yard	$24,000
HDPE Pipe	24	5000	Foot	$120,000
Backfill Material	45	1500	Ton	$67,500
Couplers	972	2	ea	$1,944
Contractual/Construction				
Third-Party Contributions				
None				$
Other				
None				
TOTAL DIRECT COSTS	**$421,301**			
Indirect Costs				
None Noted				
TOTAL ESTIMATED PROJECT COSTS	**$421,301**			

BUDGET NARRATIVE

Salaries and Wages

Jaxsen Sikorski is the Klamath ID Assistant Manager, Director of Operations, and Project Manager for this project. The project manager is expected to dedicate 5% of his annual effort to ensuring the completion of this project and submitting updates and reports. Costs estimated above are based upon a fixed annual salary.

Additional Klamath ID employees, at their annual salary, will contribute efforts as indicated in the chart above. Tasks for employees will include site preparation, installation, and inspections.

Fringe Benefits

None anticipated

Travel

Travel costs are based upon three (3) scheduled site visits from Rubber Irrigation Canal Lining experts and piping experts.

Equipment

Equipment, with operators included in the hourly rate, is necessary to prepare the sub grade, lay the pipe and lining, backfill the pipe with crushed rock and soil, and to grade the pipe cover. The excavator, loader, dozer, and three dump trucks and backhoe are owned by KID. No equipment will be purchased.

Materials and Supplies

The quantity of pipe and lining will be located in the C-4-a open channel. The quantity of backfill material has been estimated to construct the pipeline project. The unit prices are the average local rates for the purchase of materials.

Contractual

No contractual obligations are expected.

Third Party In-Kind Contributions

None

Environmental and Regulatory Compliance Cost

None Identified

Indirect Costs

None Identified

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

None Identified above Reclamation standard practices.

There are no terrestrial, marine, vegetative species, nor migratory birds impacted by this project.

There are no identified cultural resources along this preconstructed canal.

Potential for air quality issues are minimal, and minimized to only during the course of the project.

REQUIRED PERMITS OR APPROVALS

None Identified

LETTERS OF SUPPORT

Klamath Water Users Association

KWUA Klamath Water Users ASSOCIATION
Phone (541) 883-6100 Fax (541) 883-8893 ~ 735 Commercial Street, Suite 3000 Klamath Falls, Oregon 97601

1 October 2019

For: Grant Approval Authority at the Bureau of Reclamation

Reference: Letter of Support for Klamath ID's 2020 Modernization Efforts

The Klamath Water Users Association supports Klamath Irrigation District's modernization planning which includes Supervisory Control and Data Acquisition and Automation (SCADA) improvements, piping and canal lining improvements, hydropower, and solar projects.

The installation of SCADA components will enhance inter-district communications, reduce spills, and decrease over-deliveries. This project will benefit all eight (8) Districts linked to Klamath Irrigation District and has potential to benefit the U.S. Fish and Wildlife Service, Klamath Tribes, and several endangered species.

Efforts to improve canals with piping and liners will reduce seepage and other losses due to weed control measures. These savings can be applied and used by numerous stakeholders.

Energy projects to create renewable energy are beneficial to the entire Project and Basin.

Furthermore, this initiative will improve visibility of water deliveries across the three (3) largest Districts in the Klamath Project.

Sincerely,

Mark Johnson
Deputy Director
Klamath Water Users Association

Tulelake Irrigation District

Tulelake Irrigation District
P. O. Box 699 * 2717 Havlina Road * Tulelake, CA 96134
Phone: 530-667-2249 * Fax: 530-667-4228 * Email: tid@cot.net

Brad C. Kirby, Manager
Kraig D. Beasly, Asst. Mgr.
Kacie A. Fields, Office Mgr.
John F. Crawford, President
Gary A. Wright, V. President
James E. Havlina, Director
Edgar J. Staunton, Director
Scott M. Seus, Director

1 October 2019

For: Grant Approval Authority at the Bureau of Reclamation

Re: Letter of Support for Klamath ID's 2020 Modernization Efforts

The Tulelake Irrigation District supports Klamath Irrigation District's modernization planning which includes Supervisory Control and Data Acquisition and Automation (SCADA) improvements, piping and canal lining improvements which will have a positive impact on Tulelake Irrigation District operations.

The installation of SCADA components is anticipated to enhance inter-district communications, reduce spills, and decrease over-deliveries. This project will benefit Tulelake Irrigation district as in allowing for visibility on Klamath Irrigation District spills into our District, and will reduce our overall pumping costs. We believe these projects have potential to benefit the U.S. Fish and Wildlife Service when efficiencies are realized.

Efforts to improve canals with piping and liners will reduce seepage and other losses due to weed control measures. These savings can be applied and used by numerous stakeholders, to include Tulelake Irrigation District.

We anticipate this initiative will improve visibility of water deliveries across the three (3) largest Districts in the Klamath Project.

Sincerely,

Brad Kirby
District Manager
Tulelake Irrigation District

Project Title: KID C-4-a Lining/Piping 2020 Improvements. BOR-DO-20-F001

OFFICIAL RESOLUTION

To be submitted by the Klamath ID Board of Directors Secretary following the scheduled 10 October 2019 Board Meeting.

ANNEX A: Farmers Conservation Alliance Klamath Irrigation District Brief

KLAMATH IRRIGATION DISTRICT DISTRICT BRIEF

Background

Klamath Irrigation District (Klamath ID or the District) is located in southern Oregon, south and east of Klamath Falls, just north of the California border. Klamath Irrigation District was officially formed in 1917.[1] However, the District's infrastructure dates back to 1906 when construction began on the A Canal.[2] Construction of the District's canals, laterals, and drainage system continued through 1917.[1] Klamath ID is a Bureau of Reclamation (Reclamation) District and is part of the Klamath Project, which provides water to 240,000 acres of cropland.[2] The District's water supply is from the Klamath River, Upper Klamath Lake, and Lake Ewauna.

In 1918, Klamath ID entered into a contract with Reclamation for repayment of the costs of certain project works.[1] In 1954, the District entered into another contract with Reclamation to assume operation and maintenance of the A, B, C, D, E, F, and G Canals; the C-G cutoff; and all the related distribution, drainage, and pumping plants.[1] Under this contract, Klamath ID is also required to serve water users both within and outside of its boundaries, including Klamath Basin Improvement District and individual Warren Act Contracts.[1] Since the District delivers water to eight other districts or companies, it does not keep records of the number of acres irrigated annually; however, approximately 74,996 acres are irrigated from the Klamath ID system.

Klamath ID has over 2,500 patrons and irrigates 53,638 acres of cropland through 200 miles of canals and laterals.[3] Although urbanization has occurred throughout the District, especially close to Klamath Falls, the District only delivers water for irrigation and stock water; no water is delivered for domestic or municipal purposes.**Error! Bookmark not defined.** The District has one major diversion, from Upper Klamath Lake into the A Canal, with a capacity of 1,150 cfs. The diversion is screened through a vertical-plate, V-shaped fish screen before passing through a 3,300-foot-long tunnel beneath the City of Klamath Falls, then is discharged into the A Canal. The A Canal flows southeast for about 9 miles where it terminates and delivers water into the B Canal and the C Canal. The B Canal flows east about 4 miles where it terminates and delivers water into the E and F canals. The C Canal flows south about 1 mile to the C-G Cutoff, continues southwest about 2 miles to C-4 Lateral, and flows to the west. Below the C-G Cutoff, the G Canal flows southeast about 8 miles to discharge into the D Canal.**Error! Bookmark not defined.** Approximately, 21,460 feet of the District's laterals in urban areas have been piped, but the vast majority of the system is open and unlined.

[1] Klamath Irrigation District. (2019). *District Website*. Retrieved from: http://www.klamathirrigation.com/page11.html
[2] Bureau of Reclamation. (2019). *Klamath Project*. Retrieved from: https://www.usbr.gov/projects/index.php?id=470
[3] Klamath Irrigation District *Water Management and Conservation Plan*. (2011).

The District has seven reuse pumping stations (Miller Hill, Stukel, Adams, South Poe Valley, North Poe Valley, Melhase Ryan, and the #5 Pump) with a total of 16 pumps; ten major drains; and 2,000 turnouts. According to District staff, the South Poe Valley and Miller Hill stations are used most frequently, along with the Stukel station, which is used to correct water deliveries. The Miller Hill station's three pumps operate at 100 HP each and nearly always pump approximately 17 to 20 cfs between the Lost River Diversion Channel and the C-4 Canal. The A, B, C, D, and G Canals, and the Miller Hill Pumping Plant have SCADA.[4] Some measuring points use weirs and flumes, and others use differential pressure flow measurement meters. The District would like to install SCADA at the C and D drops and C Syphon Gate. The District has flow measurements for water discharging back to the Lost River and to Tulelake Irrigation District. Tulelake Irrigation District measures flows at the Anderson Rose Diversion Dam and Station 48 but does not typically share those measurements with Klamath Irrigation District staff.

The District maintains and operates one hydroelectric power facility located at the C Drop, though the facility is owned by Ted Sorenson. It has a vertical Kaplan turbine and a capacity of 1.1 MW. The power that is generated is sold to Pacific Power. The District receives royalties on power production, which are approximately $200,000 to $250,000 per year. Though, there is no drought contingency plan in the contract, so in a low water year the District could be subject to paying Pacific Power if the facility does not produce the agreed-upon amount of power. According to the District's water rights, the 700 cfs-capacity facility provides an average annual generation of 2,900 megawatt-hours (MWh). The turbine operates at a theoretical horsepower (HP) of 1,790.

Approximately 40,000 acres within the District are irrigated with sprinklers (i.e., wheel lines, solid set, and, more frequently, pivots), and approximately 13,000 acres are flood irrigated. The primary crops grown in Klamath ID are alfalfa, pasture, potatoes, and cereal grains; however, row crops, orchards, strawberries, and landscape plants are also irrigated from the District's system.

Existing water loss data for the District indicate that between 1991 and 2000, approximately 20 percent of diverted water is lost in end spills, 14 percent is lost to lateral seepage, 1 percent is required for filling and draining the system, and the remaining 65 percent reaches patrons.[3] However, overall, the Klamath Project re-uses and recycles between 90 and 95 percent of the diverted water, according to a 1998 draft report entitled "Klamath Project Historical Water Use Analysis" by Davids Engineering.[3]

Goals and Objectives

- Modernization Goal: The District's main goal for modernization is to optimize its water resources by improving the flexibility and resiliency of its system.
- Key Modernization Objectives:
    - Improve water tracking from diversion to drain

[4] Freeman, B., Hicks, J., & Burt, C. (2005). *Leveraging SCADA to Modernize Operations in the Klamath Irrigation Project.* SCADA and Related Technologies. Retrieved from: https://mountainscholar.org/bitstream/handle/10217/46525/121_Proceedings%202005%20USCID%20Vancouver%20Freeman.pdf?sequence=20&isAllowed=y

        - Possible actions: water loss assessment; identify irrecoverable losses; mass balance study; improve measurement devices
            - The vast majority of the water loss in the District's system is reused by other Klamath Project water users; actions that impact recoverable losses could impact and reduce the overall Project efficiency.
    - Maximize efficiency and flexibility of water deliveries
        - Possible actions: reduce irrecoverable losses through piping; water transactions/marketing
    - Bring people together
        - Possible actions: build/strengthen partnerships to collaboratively manage water resources in the basin
    - Update failing infrastructure
        - There is a lots of failing infrastructure in the District. The A Canal between the diversion and the tunnel needs to be replaced, which is about ¼ mile.
    - Economic benefits: The District noted that it's tough to make things work financially for the District and the patrons, with power costs, market prices, water accessibility, etc.
        - Reduce power costs through piping
        - Reduce weed control through piping

Opportunities/Data Gaps

- Strengthen partnerships with local governments and other stakeholders
- Potential for low-head hydro in the District, with about 85 feet of drop across the existing system
- Potential for other power-generating activities, like solar
- The District has GIS data for its main canals and laterals but not for its smaller ones. The District is working on completing a GIS data set (which is 80-90% complete as of early May) that will include all the turnouts and the associated acreage.
- Updated water loss assessments, District- and project-wide, would inform the development of a System Improvement Plan and Modernization Strategy. Given the extensive reuse of water in the Klamath Project, an updated mass-balance study would also inform modernization efforts.
- Better information/data regarding stormwater inflow into the system from the City of Klamath Falls
- Mapping/GIS development of unmapped laterals and/or delivery points to District patrons, particularly in the southern part of the District
- Water rights mapping—need to get PDFs from District office
- Engineering designs—need to get PDF copies from District office

Challenges

- Water supply certainty is a challenge: Water deliveries are predicated on the current biological opinion, as well as the annual water availability. The BOR releases an Annual

Operations Plan, which dictates that quantity of water available to Project water users. Hence, from year to year, there is no certainly, regarding Project water supply.
- There is a lot of competition between stakeholders for limited water supply and disagreement on how the limited water supply should be used.
- Because there is extensive water reuse within the Project, any piping or lining of canals and laterals requires careful review and analysis to not adversely affect downstream water supplies
- Effective coordination with local jurisdictions about stormwater management is a challenge.

Recent Successes/Projects

- C Siphon – replaced a failing flume, paid for by the District
- C-G Drop – replaced a structure that failed in 2016, concrete lining
- Stasney Check – replaced a failing structure

Pending Grants

- None known

Questions/Topics to Focus On

- Clarity on the District's major goals/objectives

Main Partnerships

- Through its contract with Reclamation, Klamath ID delivers water to:
    - Enterprise Irrigation District
    - Pine Grove Irrigation District
    - Van Brimmer Ditch Co.
    - Shasta View Irrigation District
    - Malin Irrigation District
    - Klamath Basin Improvement District
    - Sunnyside Irrigation District
    - Poe Valley Improvement District
    - Tulelake Irrigation District
    - individual Warren Act contractors
    - miscellaneous annual flat rate and temporary annual contracts
- The District works closely with the other Klamath Project water users. It is a member of the Klamath Water Users Association.

FCA Contact Information

- Lead Contact: Scott McCaulou; scott.mccaulou@fcasolutions.org; (503) 318-7116