OREGON WATER RESOURCE DEPARTMENT
WATER CONSERVATON, REUSE AND STORAGE
FEASIBILTY STUDY GRANT PROGRAM

I. Grant Information

Study Name: *Juniper Flats District Improvement Company Water Conservation Feasibility Study*

Type of Feasibility Study: ☒ Water Conservation ☐ Reuse ☐ Above-Ground Storage
☐ Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]

Program Funding Dollars Requested: $ $40,000
Note: Request may not exceed $500,000

Total Cost of Feasibility Study: $ $80,000

II. Applicant Information

Applicant Name: ***Juniper Flats District Improvement Company (JFDIC)***		**Co-Applicant Name:** ***Wasco County Soil and Water Conservation District***	
Address:	*82529 Highway 216*	Address:	*USDA Service Center 2325 River Rd. Ste. 3*
	Maupin, OR 97037		*The Dalles, OR 97058*
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Principle Contact: ***Timothy Morelli***	
Address:	*82529 Highway 216*
	Maupin, OR 97037
Phone:	*541-993-3600*
Fax:	
Email:	*tim.j.morelli@gmail.com*

Certification:

I certify that this application is a true and accurate representation of the proposed work for a project feasibility study and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements of an Oregon Water Resources Department grant, have read and agree to all conditions within the sample grant agreement and are prepared to conduct the feasibility study if awarded.

Applicant Signature: Timothy J Morelli Date: 1-28-2016

Print Name: *Timothy Morelli* Title: *President, JFDIC*

III. Feasibility Study Summary

Please give a brief summary of the feasibility study using no more than 150 words.

The 2,105-acre Juniper Flats District Improvement Company (JFDIC) is located in Tygh Valley, Wasco County. JFDIC serves approximately 24 farms that grow alfalfa and high value hay crops. The irrigation system includes approximately 50 miles of main channels and 50 miles of laterals. Constructed in the 1960s, this system includes natural drainages and stream areas that transition to open ditches and numerous areas where significant water loss occurs. It is estimated that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the expansive nature of the irrigation system, a comprehensive evaluation complete with mapping and conservation feasibility analysis is needed to develop high-impact, cost-effective projects to improve the system and conserve water in the

drought-prone region. The goal of this Feasibility Study is to assess the irrigation system and develop strategies and solutions to reduce water loss and support water conservation.

IV. Grant Specifics

Section A. Common Criteria

Instructions: Please answer all questions contained in this section. It is anticipated that completed applications will result in additional pages.

1. Describe your goal and how this study helps to achieve the goal.

   The 2,105-acre Juniper Flats District Improvement Company (JFDIC) is located in Tygh Valley, Wasco County. JFDIC serves approximately 24 farms that grow alfalfa and high value hay crops. The JFDIC irrigation system, constructed in the 1960s, includes sections of natural drainages and stream areas that transition to open ditches. See Figure 1, Location and Vicinity Maps. The 50 miles of main channel coupled with 50 miles of dendritic laterals have been maintained by JFDIC. JFDIC is in desperate need of a Feasibility Study to determine the location, nature, and quantity of water loss at various points in the system. Approximately 55 cubic feet per second (cfs) of water is diverted from Clear Lake Dam each year into the irrigation water conveyance system. Less than half of this water reaches the fields for irrigation. Seventy-five percent of the water is used for sprinkler irrigation and 25 percent is used for flood irrigation. The irrigated area is covered by 3 feet of water; therefore, the need is 6,300 acre-feet of water. The Clear Lake Reservoir, located approximately 25 miles west of Tygh Valley, holds 8,000 acre-feet of water. If such a large volume of water were not lost through inefficient water conveyance methods, there would be sufficient flow for the seasonal irrigation requirements. A 2008 study by Oregon State University (OSU) students estimated that in the first half of the water conveyance system (from the existing diversion to Pine Grove, see Figure 1), approximately one-half of the available water is lost during transmission to irrigators. It is anticipated that there are significant additional losses in the second half of the water conveyance system. The goal of this Feasibility Study is to complete an improved map of the water conveyance system, quantify water loss in different segments of the conveyance system, identify the areas of greatest water loss, develop strategies and solutions to reduce water loss and support water conservation, and identify cost-effective projects to improve the system and conserve water.

   The overall goal of projects developed as a result of a Feasibility Study is to reduce water loss. The 1960s infrastructure, lack of mapping, and numerous extensions of ditch laterals over the years are conditions that have raised questions about the exact nature of flow, water loss, water use, and system infrastructure as a whole. This Feasibility Study is a critical first step in gaining a more complete understanding of the existing ditch conditions prior to developing solutions to reduce water loss and support water conservation. When complete, the Feasibility Study will provide a prioritized outline of solutions that will provide the best return for any capital investments in the system.

   This Feasibility Study will map the irrigation system, collect flow data, and identify potential sites that will be suitable for improvement projects to reduce water loss. This Feasibility Study will consider the location, size, soil quality, water supply needs, community support, and financial feasibility of project options. After this Feasibility Study is complete, JFDIC will seek to obtain funds to complete the design and construction of the improvements identified in the Study.

2. Describe the water supply need(s) that the proposed project addresses. Identify any critical local, regional, or statewide water supply needs that implementation of the project associated with the feasibility study will address. **Responses should rely upon solid water availability and needs data/analysis.** For examples of water supply needs see "Criteria and Evaluation Guidance Document."

   JFDIC is located in the northern portion of the Deschutes Subbasin in north central Oregon, which has an arid to semi-arid climate. Precipitation in the lower central locations is approximately 10 inches per year. The community's economic base is agriculture. The lack of precipitation, high evaporation, and large withdrawals of water from both groundwater and surface water sources for the irrigation of agriculture crops creates a significant water supply challenge.

JFDIC possesses a water right for the volume of water addressed in this project. This water is available to use, yet the goal of the project is to conserve this water.

Local Water Supply Needs. JFDIC requires approximately 6,300 acre-feet to irrigate the 24 farms located on the 2,105 acres that make up JFDIC. JFDIC possesses a water right for the full 8,000 acre-feet of water located in Clear Lake. The available water supply is more than sufficient to fulfill local water supply needs if water loss from the leaking conveyance system were to be addressed. This is the purpose of the Feasibility Study.

A study conducted by OSU students in 2008 noted, "Many methods were used to investigate various portions of the ditch, and the overall result confirms some hearsay suspicions: about half of the water that is diverted into the ditch from Clear Creek leaves the ditch by the time the water arrives at Pine Grove." The researchers found that, "of the 46-48 cfs entering the ditch at the diversion, 24 cfs are left in the main ditch as it passes through Pine Grove, with another 3 cfs in the south ditch. Approximately 20 cfs of water is lost in its route." This water is vital to local water supply needs, which are defined by the region's strong farming economic base.

Regional Water Supply Needs. The Deschutes Subbasin Plan, prepared by the Northwest Power and Conservation Council in 2005, identified regional water supply needs that the project will help address. The Plan identifies the Clear Creek Habitat Complex as a key area. It was noted that Clear Creek has seasonally low stream flow below irrigation diversion structures, and water is diverted from the creek year-round. Clear Creek downstream of Wasco Dam has low winter flow associated with reservoir storage, and there is also "significant water loss in the Juniper Flat Ditch." The Plan listed several goals including increasing minimum stream flow by 25 percent by 2030 and reducing fine sediment by 25 percent by 2030.

The project would support both of these goals because decreasing water loss in the ditch would increase flow, and having consistent flow in a repaired ditch would help reduce sedimentation. Additionally, through addressing water loss in the system, water storage will be improved.

Statewide Water Supply Needs. Oregon's Integrated Water Resources Strategy (2012) encourages local development of strategies to evaluate in-stream and out-of-stream needs as they relate to water quantity and quality. The Strategy lists multiple ways to address water-related concerns in the state, including improving local water planning. This locally-initiated project is an excellent example of planning at a community level. The Strategy identifies Oregon as being third of all states in the number of farms that use irrigation. A part of the Strategy includes maintenance and improvement of water-related infrastructure. The installation of a water conveyance pipeline accomplishes a much-needed upgrade to irrigation infrastructure.

3. Explain how the proposed project will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000 acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50 percent of your need will be met).

Water supply needs are estimated to be 6,300 acre-feet per year, and the Clear Lake Reservoir holds 8,000 acre-feet of water. If water loss was substantially eliminated, the proposed project could supply 100 percent of the irrigation needs for the 2,105 acres of cropland.

Currently, Clear Lake water levels are very low by the end of the irrigation season due to water lost through evaporation, seepage, and inefficiencies in the water conveyance system. Clear Lake will be more protected as less water will be needed to accomplish the same amount of irrigation after the Feasibility Study recommendations are implemented. This will result in increased reliability of the system and a reduction in water loss (approximately one-half to two-thirds) of the initial flow.

4. Describe the technical aspects of the feasibility study and why your approach is appropriate for accomplishing the specific study goals and objectives.

Large-scale improvements to water conveyance systems are expensive and can be challenging to implement. This Feasibility Study is the most appropriate and pragmatic approach because it will assess the entire water conveyance system, determine the places with the most water loss, and develop improvement projects that are

affordable, fundable, and implementable. Through assessing the entire system, the most technically feasible and cost-effective alternatives will be developed for implementation.

Because this irrigation system was developed in the 1960s and modified as JFDIC grew and added users, there is no authoritative map of the system with information about the type of conveyance system, outlets, and other features. This Feasibility Study will seek to verify the extent of the irrigation system, identify the areas with the most water loss, and evaluate a range of solutions to address the water loss. Improvement projects will be evaluated based on a cost/benefit analysis of water conservation and efficiency alternatives, potential environmental impacts, and evaluation of the project's local and regional water conservation priorities.

Technical aspects of this Feasibility Study include:

- *Existing Data Review - Water resources engineers will evaluate all existing data associated with this project to create a preliminary conceptual site model.*
- *Study Plan - Data gaps will be addressed with a study plan that will guide fieldwork.*
- *Fieldwork (General) - The Study will likely focus on the ditched portions of the main irrigation system (the natural stream area and laterals will likely be mapped, but not modeled for flow).*
- *Fieldwork (Mapping) - A Trimble global positioning system (GPS) unit will be used to create a georeferenced, accurate map of the system features.*
- *Fieldwork (Flow Measurement) - Flow will be measured in the canal at critical junctures to determine water loss in individual sections of the system.*
- *Fieldwork (Condition Evaluation) - The conveyance system will be inspected, photos will be taken, and the general condition of the system will be reviewed. Employing established data collection and analysis procedures will ensure that conclusions are meaningful and defensible.*
- *Data Analysis - Flow loss will be calculated and modeled, if necessary, to quantitatively determine areas of highest loss potential.*
- *Feasibility Study - Recommendations will be presented with the associated costs and benefits of each. A strategy for funding each recommended improvement will also be supplied.*

5. Describe how the feasibility study will be performed. Include:
    a. General summary statement that describes the study progression.
    b. When the feasibility study will begin.
    c. Listing of key tasks to be accomplished with each task having:
        i. Title
        ii. Timeline for completion
        iii. Description of the activities to be performed in this key task
        iv. Description of the resources necessary for accomplishing the key task

    Example:

    (i) Streamflow measurement;
    (ii) September-April;
    (iii) Weekly streamflow measurements will be performed to gather hydrographic data for the hydrologic analysis to take place in May;
    (iv) A technician will be hired to perform the streamflow measurements.

    (Key tasks listed here are to be placed in <u>Section VI. Project Feasibility Study Schedule</u> for a quick reference "graphical" representation of the schedule.)

a. Once funding is secured, a contract for engineering services will be obtained. Wasco County Soil and Water Conservation District (SWCD) has agreed to act as the grant administrator.

The first step in this Study will be to gather and analyze all existing data including any basin plans, studies, system drawings, flow/temperature data, landowner interviews, and any other information that will facilitate the mapping and analysis of the irrigation system. Next, the project engineer will develop a study plan and fieldwork plan. These efforts will fill data gaps with existing data. This will likely include geographic information system (GIS) and GPS mapping of the physical ditch location as well as environmental conditions influencing the ditch and collecting flow measurements in key locations along the main ditch to gain an accurate portrait of where water loss is most significant. After data collection is complete, the data will be analyzed and incorporated into the Feasibility Study. The engineering team will develop a range of alternatives to improve the system, cost estimates, recommendations for funding programs, and a prioritization of activities. After this Study is complete, final grant documentation and applications will be submitted for design and construction of the prioritized improvement alternatives.

b. The Study is anticipated to begin in August 2016, immediately after funding has been obtained from the Oregon Water Resources Department (OWRD) and Oregon Watershed Enhancement Board (OWEB). The majority of the fieldwork will be completed in late fall 2016 and early summer 2017.

i. Secure Funding and Contract for Engineering Services

ii. August 2016

iii. Receive notice of OWEB and OWRD grant success, sign relevant Contract documents

iv. Wasco County SWCD, JFDIC, and engineering team staff time

i. Review Existing Data

ii. September to December 2016

iii. Gather and analyze existing data including any basin plans, studies, system drawings, flow/temperature data, landowner interviews, and any other information that will facilitate the mapping and analysis of the irrigation system

iv. Engineering team staff time, flow model software, landowner contact information

i. Draft Study Plan

ii. January to March 2017

iii. Develop study plan to fill data gaps uncovered by the existing data review. This is likely to include mapping using a Trimble GPS to map the physical ditch location as well as environmental conditions influencing the ditch, and collecting flow measurements in key locations along the main ditch to gain an accurate portrait of where water loss is most significant

iv. Engineering team staff time

i. Conduct Fieldwork (Mapping/Flow Measurements)

ii. March to April 2017

iii. Site visit for mapping, flow measurements, and general data collection

iv. Trimble, GIS, four flowmeters, engineering team staff time, JFDIC staff time to conduct site visit

i. Analyze Data and Complete Feasibility Study

ii. April to June 2017

iii. Accurate description of existing conditions including a range of alternatives to improve the system, cost estimates, recommendations for funding methods, and prioritization of activities

iv. Engineering team staff time

i. Close Out Grant and Final Paperwork

ii. July to September 2017

iii. Submit final grant documentation and applications to fund the design and construction of the prioritized improvement alternatives

iv. Engineering team, Wasco County SWCD, and JFDIC staff time

6. Please provide the following data and information for the proposed project and the project's sources of water supply:

a. The location of the proposed project. Include the basin, county, township, range and section. Attach a **map** that identifies the project's implementation area to this application.

The JFDIC is located in central Oregon in the northern part of the Deschutes River Basin (HUC 170703), Wasco County, Township 4-5 South, Range 9-15 East, Willamette Meridian. The ditch begins at Clear Lake Dam, located on the western boarder of Wasco County, and ends between the cities of Tygh Valley and Maupin after crossing U.S. Highway 197. The study area to be examined within this Feasibility Study is shown on Figure 1, Location and Vicinity Maps. Waterbodies in the project area flow east to the Deschutes River.

b. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable.

The waterbody flowing from Clear Lake is Clear Creek, which is a tributary to the Deschutes River. The irrigation system begins at approximately river mile (RM) 2.5 of Clear Creek and ends where Clear Creek meets Clear Lake Reservoir at approximately RM 33.

c. Whether the project will be off-channel or on-channel (for above-ground storage only).

This is not an aboveground storage project.

d. Water availability to meet project storage. For above-ground storage the Department typically evaluates availability using a 50 percent exceedance water availability analysis.

JFDIC's existing water rights will be retained for this project. It is anticipated that water conservation from Feasibility Study proposed projects will enable all water demands to be met.

e. Proposed purposes and/or uses of conserved or stored water.

Conserved water is proposed to be used for a variety of needs including keeping additional supply in the Clear Lake Reservoir to provide redundancy in water supply and habitat for aquatic species, using the water for irrigation needs, and allowing some to remain in the watershed.

This conserved water may enable more water to enter the Deschutes River by allowing water currently lost from the irrigation conveyance system to be available for in-stream use.

f. Environmental flow needs and water quality requirements of supply source water bodies.

Part of this Feasibility Study will identify the environmental flow needs and water quality requirements of Clear Lake and associated tributary waterbodies. This Study will use previously developed data for this Study. It is estimated that Clear Lake can hold up to 8,000 acre-feet of water and that farmers require approximately 6,300 acre-feet of water each year. Clear Creek suffers from low flow issues in the late summer and fall due to the large amount of water loss in the current conveyance system. By addressing system needs and improving water retention, flow in Clear Creek may increase and cause water temperatures to decrease. Cool, flowing water is essential for aquatic life in Clear Creek. By improving flows to Clear Creek, this project may help increase flows to the Deschutes River during low flow periods of the year.

7. What local, state or federal project permitting requirements/issues/approvals do you anticipate in order for the feasibility study to be conducted? If approvals are required, indicate whether you have obtained them. If you have not obtained the necessary permits/governmental approval, describe the steps you have taken to obtain them. If no permits are needed, please provide explanation.

   The Feasibility Study will involve physically surveying and collecting flow data in select locations in the water conveyance system. No state, federal, or local permits are required for this level of data collection. Landowner permission will be obtained from the JFDIC if needed.

A thorough review revealed that no government approval and/or permits are necessary to conduct the Feasibility Study.

8. Describe the level of involvement, interest and/or commitment of local entities associated with the feasibility study. Describe how the feasibility study and/or proposed project will benefit/impact these entities. Attach letters of support if available.

   This Feasibility Study is widely supported by local community members. The Wasco County SWCD has agreed to be a co-applicant and administer grants associated with this project. Also, the JFDIC will support this project through field and office assistance during the data collection and analysis phase. This project will benefit groups in the region through defining the problem and clarifying strategies to meet conservation goals. The Study will make it easier for local entities to apply for funding to implement improvements.

This Study is the first step to develop projects that will benefit the irrigators and regional economy by allowing more water for beneficial use. Additionally, this effort is in line with the state-wide priority to increase water conservation. This Feasibility Study is the first of its kind in the area, and it is a key step to obtaining the trust and buy-in of the irrigators.

This project is supported by the community and local and regional officials. Please see the attached letters of support from the following entities:

- *Oregon Department of Fish and Wildlife (Rod French, District Fish Biologist)*
- *Wy'East Resource Conservation and Development (Robert Wallace, Executive Director)*
- *U.S. Forest Service - Mt. Hood National Forest (Lisa Northrop, Forest Supervisor)*
- *White River Watershed Council (Pat Davis, Co-Chair)*
- *Wasco County SWCD (Josh Thompson, Conservation Planner)*

9. Identify when matching funds will be secured, from whom, and the dates of matching funds availability.

Matching funds are anticipated to be secured from OWEB's technical assistance grant program. OWEB will announce its list of successful applicants in July 2016, and funding is typically made available in August. It is anticipated that the matching funds will be secured by fall 2016. The Study could begin this fall, with flow measurements and field data collected in spring 2017. It is anticipated that the Study will be completed in early summer 2017 to allow adequate time for improvement funding to be sought. Depending on funding awards, design for improvements could be completed in early 2018, with construction beginning after the 2018 irrigation season. Depending on the type and significance of improvements, construction could be phased over several years.

It is anticipated that matching in-kind support will be supplied by JFDIC to help with fieldwork and local conditions research.

10. Provide a description of the relevant professional qualifications and/or experience of the person(s) that will play key roles in performing the feasibility study. If the personnel have not been decided upon, include a description of the professional qualifications and/or experience of the person(s) you anticipate will play key roles in performing the feasibility study.

Anderson Perry & Associates, Inc. (AP) is a full-service civil engineering, surveying, and natural resources firm that has provided services to eastern Oregon governments, municipalities, agricultural users, and resource agencies since 1975. AP's La Grande office has a diversified staff of 45 engineers, biologists, resource scientists, graphic designers, and communication professionals.

The primary author will be an experienced water resources engineer from AP. Additional technical support personnel will include AP staff experienced with water resources management and flow measurement.

AP has over 40 years of experience in central and eastern Oregon accomplishing all steps of this process, including conducting feasibility studies, designing improvement projects, securing funding for improvement projects, and overseeing project construction. AP has visited the JFDIC and met with its members to determine the scope of the Feasibility Study. AP has completed dozens of water-related planning projects and feasibility studies throughout the region, including irrigation system studies, water system plans, water and wastewater system improvement projects, drinking water projects, storage reservoirs, well drilling, and aquifer storage and recovery.

AP regularly works with landowners to improve fish passage, conserve water, restore riparian habitat, and improve the efficiency and long-term viability of irrigation and livestock watering systems. AP has a history of finding solutions that are mutually beneficial to the environment and the landowner.

11. If the project concept is ultimately deemed feasible, describe how the project will be implemented. Response should include a tentative funding plan for project implementation (e.g. other state or federally sponsored grant or loan programs) and the project proponent's track record in implementing similar projects.

The Study could begin this fall with flow measurements and field data collected in spring 2017. It is anticipated that the Study will be completed in early summer 2017 to allow adequate time for improvement funding to be sought. It is anticipated that improvement funding would be sought through OWRD implementation grants,

OWEB restoration grants, and U.S. Bureau of Reclamation (BOR) WaterSmart grants. Depending on funding awards, design for improvements could be completed in early 2018, with construction beginning after the 2018 irrigation season. Depending on the type and significance of improvements, construction could be phased over several years.

In the past, JFDIC has successfully formed teams to identify conveyance system weaknesses and implement recommendations. The 2008 OSU study recommended cleaning and patching the ditch in some areas. These small projects were implemented successfully; however, for more substantial improvement projects, JFDIC will require technical and funding assistance.

The project proponent has retained AP to conduct this Study, if funding is successful. AP has a track record of implementing similar irrigation and water resources projects. The following are examples of Feasibility Studies completed by AP that have led to successful projects. Copies of these studies are available upon request.

Cold Springs Drop Structure Improvements - Hermiston Irrigation District

The Hermiston Irrigation District (HID) operates and maintains an inlet facility to the Cold Springs Reservoir that includes a drop structure that conveys water into the reservoir. The reservoir serves as the primary source of irrigation water for local agriculture and is important to the livelihood of local farmers and communities. In addition, the reservoir is part of the 3,117-acre Cold Springs National Wildlife Refuge.

The BOR, the regulatory agency, deemed the structure in need of replacement due to the significant amount of wear and degradation it had experienced since its construction in 1907. The structure was falling apart and it was possible to see through the walls. If the structure had not been replaced soon, it would have collapsed and led to the erosion of the entire bank, which would have undermined the Feed Canal and gauging station.

In the interest of determining the level of improvements required at the drop structure, HID contracted with AP to prepare a Feasibility Study for the drop structure in 2004. The Feasibility Study outlined improvement alternatives to partially and fully replace the structure and recommended cost-effective and efficient alternatives. Upon completion of the Study in 2006, AP worked with the BOR and HID to receive their endorsement of the selected solution.

After the solution was approved, AP continued to work with HID to design the improvements and oversee construction. AP provided funding and permitting assistance, surveying, natural resources work, design and construction engineering, construction administration, and project inspection for this project. The work for this project involved removing, replacing, and rehabilitating portions of the existing drop structure.

The design of the structure included innovative stepped foundations in order to cost-effectively construct the stepped structure without a lot of temporary shoring. The stepped foundation (geotextile fabric rock walls) also provided subsurface drainage, which helped reduce piping of materials below the structure. The advanced concrete technology allowed for high-strength and durable concrete to be placed, which should mitigate the surface erosion by the fast-moving water and allow for a longer structure life.

Irrigation Pressurization Preliminary Plan - Dee Irrigation District

In 2009, AP partnered with the Dee Irrigation District (DID) and Farmers Conservation Alliance (FCA) to develop the preliminary design for DID's pressurized irrigation system and a new diversion. In the early stages of the project, consideration was given to moving the diversion closer to the District. AP explored this and other options with DID and ultimately developed a solution that will save DID money in the short and long terms. During this effort, AP also demonstrated the ability to perform work in a timely and cost-effective manner. Working through the preliminary design process, AP was able to save enough project funds from the preliminary design to also complete a topographic survey of the main canal to be used in the final design.

During the preliminary design, AP determined with the District manager the location of turnouts for the proposed system, subsequent location of irrigation main lines, and the location of the centralized 16 cfs booster pump station. Main line pipe sizes ranged from 2-inch to 30-inch, including 23,000 lineal feet of 30-inch gravity lines for replacing the main canal and 34,000 lineal feet of 2- to 24-inch distribution system piping. AP developed

cost estimates for the main canal replacement, the booster pump station, and distribution system improvements. The main canal replacement project was completed and has resulted in significant water conservation.

Section B. Unique Criteria

Instructions: Address the set of items below that applies to the type of feasibility study that this grant will fund.

☒ Water Conservation or ☐ Reuse

1. Water Conservation or Reuse projects that are identified by the Department in a statewide water assessment and inventory receive a preference in the scoring process. Contact the Department's Grant Specialist to include your project on the inventory.

Jon Unger, the Department's grant specialist, was contacted; the project inventory form is attached to this application.

2. Explain how the associated project will either: (a) mitigate the need to develop new water supplies and/or (b) use water more efficiently. Reference documentation and/or examples of the success of similar or comparable water conservation/reuse projects that would be available upon request.

This Feasibility Study will examine ways to reduce the need to develop new water supplies and use water more efficiently.

By identifying and implementing improvements to prevent seepage and evaporation that contribute to a significant amount of water lost from the ditch, the irrigators will not need to look into developing a new water source.

Additionally, by repairing the ditch, water will be used more efficiently for irrigation.

There are numerous examples of effective water conservation projects that have been completed by AP. See Question 11 for additional examples of projects that have been planned from the Feasibility Study phase to final design. Copies of these studies are available upon request.

Farmers Ditch Elimination - Wallowa County SWCD

Located six miles northeast of Enterprise, this project replaced the open earthen ditch providing irrigation water to 688 acres of cropland on five ownerships. By installing a pipe in lieu of a ditch, consistent water volume is supplied to the pumps, eliminating evaporative and seepage loss and improving water quality. Previously, a spur ditch diverted excess water from the Farmers Ditch, which diverted water from Wallowa Lake. Water flowing through the spur ditch needed to maintain a constant supply to the five pumps and then the excess tailwater flowed into Prairie Creek. Tailwater flowing into Prairie Creek was sediment and nutrient-laden and adversely impacted water quality for Endangered Species Act listed fish habitat in Prairie Creek and downstream in the Wallowa River. Piping the ditch reduced the amount of water diverted from Farmers Ditch and allowed for significant water conservation.

Low Line Canal Improvements - Farmers Irrigation District (FID)

FID selected AP to prepare Plans and Technical Specifications for the conversion of the Low Line Canal to an underground pipeline. The majority of the canal is located on a hillside with a winding alignment and minimal access. The design included determining the alignment, pipe size (42-inch and 30-inch diameter), exact location of deflection points, vertical profile, and backfill requirements. This project consisted of approximately 14,000 feet of pipeline improvements within a flat slope canal and converting the canal to an access road. The project was completed in fall 2012, with all 14,000 feet of pipe installed in a 15-day window. Through reducing water loss in this canal, water conservation was achieved.

There are numerous examples of irrigation districts in Oregon that have conserved water through repairing leaky, open irrigation canals. Examples from Oregon's Integrated Water Resources Strategy (2012) include:

- *"North Unit Irrigation District piped and lined more than 22 miles of canals, returning conserved water to the Crooked River and helping prevent fine sediments from discharging to sensitive habitats.*
- *Three Sisters Irrigation District piped a large portion of its district, conserving water and enhancing anadromous fish flows in Whychus Creek, a tributary of the Deschutes River.*
- *Central Oregon Irrigation District has installed a 2.5-mile pipeline that serves multiple benefits, including the conservation of 20 cfs, and the placement of water into the Deschutes River.*
- *Tumalo Irrigation District enclosed four miles of its Bend Feed Canal, conserving approximately 20 cfs of water, with more than 17 cfs of the conserved water protected instream in Tumalo Creek.*
- *Swalley Irrigation District piped 5 miles of canal, conserving 30 cfs of water to benefit the Deschutes River."*

3. Provide a description of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area. If permitting or other approvals are not needed please indicate and provide an explanation.

   Because the project takes place on land managed by the federal government, compliance with the National Environmental Policy Act will be required. This may include:
   1. A biological assessment or determination that the project can be covered by a programmatic agreement.
   2. Wetland determination/delineation and associated permitting, as needed (removal/fill permit, mitigation plan, etc.).
   3. Section 106 consultation with the Oregon State Historic Preservation Office and relevant tribes will be required before construction on federal lands.
   4. Endangered Species Act review and clearance.

   Property ownership status in the implementation area has been reviewed. JFDIC has an easement for the ditch and can conduct improvements and modification to it. All of the property on the eastern half of the ditch is private, and the laterals going from the main ditch to individual properties will be discussed as part of the reconnaissance activities in the Study.

☐ Above-Ground Storage

Please answer the following three questions **BEFORE** proceeding:

Will the project divert more than 500 acre-feet of surface water annually?	☐ Yes	☐ No
Will the project impound surface water on a perennial stream?	☐ Yes	☐ No
Will the project divert water from a stream that supports sensitive, threatened or endangered species?	☐ Yes	☐ No

If you answered "Yes" to any of these questions, by signature on this application, you are committing to include the following required elements in your feasibility study.

Describe how you intend to address the required elements in your feasibility study:

a) Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.

b) Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.

c) Analyses of environmental harm or impacts from the proposed storage project.

d) Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.

Is the proposed storage project for municipal use?

☐ Yes ☐ No

If "Yes," then please describe how you intend to address the following required element in your feasibility study:

e) For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.

Proceed in addressing the following items:

1. Describe to what extent the project associated with the feasibility study includes provisions for using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life or other ecological values. Projects that include the above provisions receive preference in the scoring process.

2. Provide a review of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area.

☐ Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]

Please answer the following three questions **BEFORE** proceeding:

Will the project divert more than 500 acre-feet of surface water annually?	☐ Yes	☐ No
Will the project impound surface water on a perennial stream?	☐ Yes	☐ No
Will the project divert water from a stream that supports sensitive, threatened or endangered species?	☐ Yes	☐ No

If you answered "Yes" to any of these questions, by signature on this application, you are committing to include the following required elements in your feasibility *study.*

Describe how you intend to address the required elements in your feasibility study:

a) Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.

b) Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.

c) Analyses of environmental harm or impacts from the proposed storage project.

d) Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.

Is the proposed storage project for municipal use?

☐ Yes ☐ No

If "Yes," then please describe how you intend to address the following required element in your feasibility study:

e) For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project's relationship to existing and planned water supply projects.

Proceed in addressing the following items:

1. Underground storage projects that are identified by the Department in a statewide water assessment and inventory receive a preference in the scoring process. Contact the Department's Grant Specialist to include your project on the inventory.

2. Provide a review of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area.

V. Match Funding Information

Applicants must demonstrate a minimum dollar-for-dollar match based on the total funding request. The match may include a) secured funding commitment from other sources, b) pending funding commitment from other sources, and/or c) the value of in-kind labor, equipment rental, and materials essential to the feasibility study. For secured funding, you must attach a letter of support from the match funding source that specifically mentions the dollar amount shown in the "Amount/Dollar Value" column. For pending resources, documentation showing a request for the matching funds must accompany the application.

In the "type" column below matching funds may include:	**In the "status" column below matching funds may have the following status:**
• **Cash** - Cash is direct expenditures made in support of the feasibility study by the applicant or partner*.	• **Secured** - Secured funding commitments from other sources.
• **In-Kind** - The value of in-kind labor, equipment rental and materials essential to the feasibility study provided by the applicant or partner.	• **Pending** - Pending commitments of funding from other sources. In such instances, Department funding will not be released prior to securing a commitment of the funds from other sources. Pending commitments of the funding must be secured within 12 months from the date of the award.

*"Partner" means a non-governmental or governmental person or entity that has committed funding, expertise, materials, labor, or other assistance to a proposed project planning study. OAR 690-600-0010.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	**Type** (✓ One)	**Status** (✓ One)	**Amount/ Dollar Value**	**Date Match Funds Available** *(Month/Year)*
OWEB Technical Assistance Grant	☒ cash ☐ in-kind	☐ secured ☒ pending	*$36,000*	*August 16*
JFDIC Field Assistance Time	☐ cash ☒ in-kind	☒ secured ☐ pending	*$4,000*	*January 16*
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		

VI. Feasibility Study Schedule

Estimated Study Duration: <u>August 1, 2016</u> to <u>September 1, 2017</u>

Place an "X" in the appropriate column to indicate when each Key Task of the project will take place.

	2016			2017				2018 & Beyond
Feasibility Study Key Tasks	**2nd Qtr**	**3rd Qtr**	**4th Qtr**	**1st Qtr**	**2nd Qtr**	**3rd Qtr**	**4th Qtr**	
Secure Funding and Contract for Engineering Services		X						
Review Existing Data			X					
Draft Study Plan				X				
Conduct Field Work (mapping/flow measurements)				X	X			
Analyze Data and Complete Feasibility Study					X			
Closeout Grant and Final Paperwork						X		

- **Please Note**: Successful grantees must include all invoices and identify which key tasks are associated with each invoice when requesting financial reimbursement.

VII. Feasibility Study Budget

Section A

Please provide an estimated line item budget for the proposed feasibility study. Examples would include: labor, materials, equipment, contractual services and administrative costs.

Line Items	Number of Units* *(e.g. # of Hours)*	Unit Cost *(e.g. hourly rate)*	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Staff Salary/Benefits	*40*	*$100.00*	*$4,000*			*$4,000*
Contractual/Consulting	*618*	*$110.00*		*$32,000*	*$36,000*	*$68,000*
Equipment (must be approved)						
Supplies						
Other:						
Administrative Costs**	*80*	*100*		*$4,000*	*$4,000*	*$8,000*
Total for Section A			*$4,000*	*$36,000*	*$40,000*	*$80,000*
Percentage for Section A			***5%***	***45%***	***50%***	***100%***

** Note: The "Unit" should be per "hour" or "day" – not per "project" or "contract."* *Units x Unit Costs = Total Cost*
*** Administrative Costs may not exceed 10 percent of the total funding requested from the Department*

Section B

If grant amount requested is $50,000 or greater, you MUST complete Section B. Key Tasks in Section B should be the same as the Key Tasks in Section VI (Feasibility Study Schedule).

Feasibility Study Key Tasks	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Total for Section B				

Totals in Section B must match the totals in Section A

APPLICATION CHECKLIST

Instructions: Use this checklist to ensure that your application is complete. An incomplete application will jeopardize your application's review. **This form does not need to be included in your application packet.**

General

If submitting electronically, the preferred format is either a Microsoft word or Adobe pdf

- ☐ Only one application is included with the packet (other applications must be sent separately).

Paper submissions only

- ☐ The application and attachments are on 8 ½" x 11" paper.
- ☐ The application and attachments are single-sided.
- ☐ The application and attachments are not stapled or bound.

Section I – Grant Information

- ☐ All questions in this section have been answered.
- ☐ The Grant Dollars Requested and the Total Project Cost mirror the totals shown in Section VII.

Section II – Applicant Information

- ☐ All contact information for the applicant(s) and fiscal officer is complete and current.
- ☐ The certification is signed by an authorized signer.

Section III – Feasibility Study Summary

- ☐ A brief summary, of no more than 150 words, is complete.

Section IV – Grant Specifics

- ☐ All questions in Section A have been answered.
- ☐ If the type of feasibility study is water conservation, reuse or storage other than above-ground, you have contacted the Department and requested project be added to the Oregon Water Resources Department's statewide water assessment and inventory.
- ☐ All applicable questions for the type of grant requested have been answered.

Section V – Match Funding Information

- ☐ Applicant has identified that at least 50 percent match has been sought, secured or expended.
- ☐ Letters of support are included for "secured" match funding sources.
- ☐ Documentation is included for "expended" match funds.
- ☐ Documentation is included for "pending" match funds.

Section VI – Feasibility Study Schedule

- ☐ Estimated project duration dates have been supplied.
- ☐ All Key Tasks of the project are listed.

Section VII – Feasibility Study Budget

- ☐ Section A is complete.
- ☐ Administration costs do not exceed 10 percent of the requested OWRD Grant Funds.
- ☐ If grant amount requested is $50,000 or greater, Section B has been completed.
- ☐ All Key Tasks listed in Section B mirror the Key Tasks listed in Section VI.

Request to be added to the Oregon Water Resources Department's

Inventory of Potential Conservation Opportunities

The purpose of this inventory is to catalogue potential conservation projects that water users themselves have identified but not yet pursued because of financial, institutional, or other barriers. For the purpose of this application, water storage other than above-ground are included as conservation opportunities and are most likely capital conservation projects.

As a water provider or user, you know your water demands and water conservation opportunities better than anyone. We would appreciate your assistance with this important data collection effort by completing this survey. Your participation will help provide the building blocks we need to begin to identify and achieve potential future water supplies. Please answer the questions as completely as possible, to the best of your ability. We appreciate your help with this important effort.

This inventory of already-identified, potential conservation projects includes both capital and programmatic projects. Capital projects are defined as one-time, large investments resulting in water savings. Examples include reclaimed water plants, reservoir covering, transmission line upgrades reducing leaks, or industrial engineering modifications to re-use process water. Programmatic projects are defined as ongoing investments resulting in water savings. Examples include facilitating upgrades to more efficient water using devices (e.g., distributing free showerheads, toilet rebates) and distribution system leak detection programs. The conservation inventory is primarily intended to include "planned" projects rather than projects that are currently being implemented. However, currently active programmatic projects may be listed if they will continue or expand in future years. The inventory of projects submitted will be compiled by county or basin.

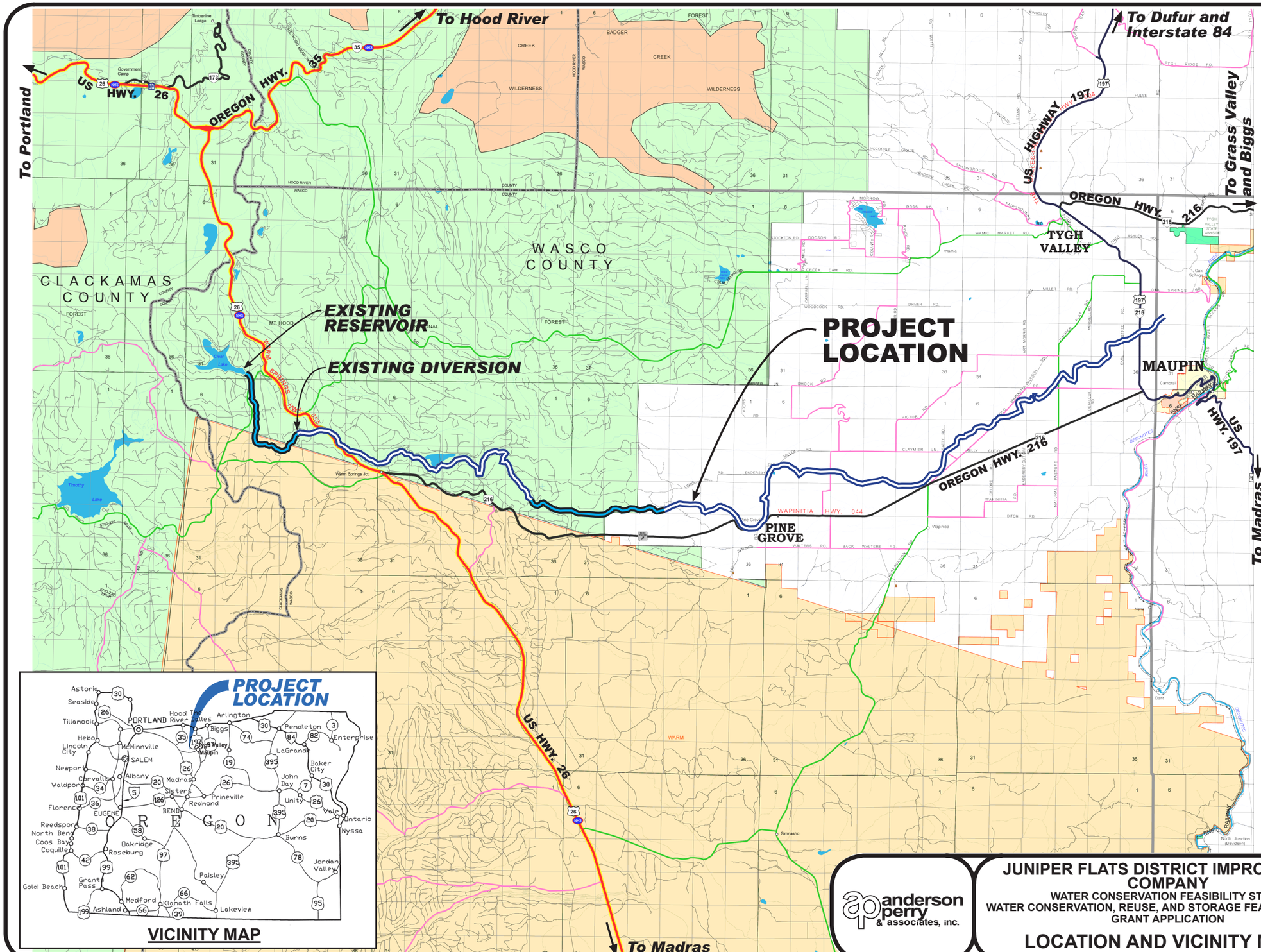
Examples are provided below.

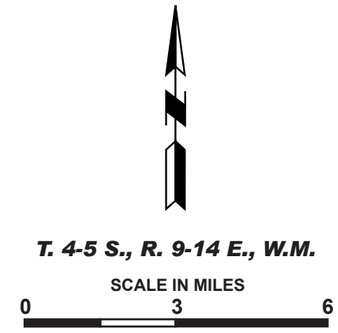
	Example **Capital Conservation Project**	**Example** **Programmatic Conservation Project**
Project Description Provide brief sentence	Line 3 miles of unlined ditch.	Toilet rebate program for residential customers
Estimated Future Savings Provide brief sentence, including information regarding savings seasonality.	20 acre feet of water per year	If we spend our full budget each year, we estimate 50,000 gallons of water save per year
Seasonality Indicate what part of the year savings are generated (e.g. year-round; summer only; etc.).	Peak (irrigation) season savings.	Savings should occur throughout the year.
Estimated Future Costs Provide brief sentence.	$500,000 total project costs.	$40,000 a year.
Implementation Schedule Provide brief sentence.	Not set. Have conducted cost and savings estimate, but still seeking funding.	We started the program in 2005 and plan to implement until 2015.
Project Funded? Designate either "yes", "no", or provide brief sentence if necessary	No. Pursuing grant funding.	Yes. IN our CIP through the next 5 years.

To add a project to the inventory of potential conservation opportunities, please provide the following information for each conservation project.

This is a ☒ Capital Conservation Project ☐ Programmatic Conservation Project	
Project #/Name	**Juniper Flats District Irrigation Company Water Conservation Feasibility Study**
Project Description	Feasibility study to evaluate ways to reduce water loss through improvements to the Juniper Flats Canal
Estimated Future Savings	To be determined by the feasibility study, approximately 50-66% of water to be conserved.
Seasonality	Yes
Estimated Future Costs	To be determined by the feasibility study.
Implementation Schedule	Collect field measurements spring of 2017, complete the study summer 2017, apply for implementation funding and begin construction after the 2018 irrigation season.
What are the barriers to implementation, e.g. funding?	Funding
This is a ☐ Capital Conservation Project ☐ Programmatic Conservation Project	
Project #/Name	
Project Description	
Estimated Future Savings	
Seasonality	
Estimated Future Costs	
Implementation Schedule	
What are the barriers to implementation, e.g. funding?	

- Include this form with your application -





LEGEND

- NATURAL STREAM
- MAIN DITCH

VICINITY MAP

anderson perry & associates, inc.

JUNIPER FLATS DISTRICT IMPROVEMENT COMPANY

WATER CONSERVATION FEASIBILITY STUDY
WATER CONSERVATION, REUSE, AND STORAGE FEASIBILITY STUDY
GRANT APPLICATION

LOCATION AND VICINITY MAPS

FIGURE

1

Job# 1199-625-001 Jan. 28, 2016 lbauer

Existing Diversion (see Figure 1)

Ditch downstream and east of the existing diversion

Ditched portion of system north of Warm Springs Junction (see Figure 1)

Debris causing flow reduction in the ditch

Bank erosion and sedimentation in the ditch

Culverts in the ditch

Natural stream portion of the system

Oregon
Kate Brown, Governor

Department of Fish and Wildlife
The Dalles District Office
3701 West 13th Street
The Dalles OR 97058
541-296-4628
(fax) 541-298-4993

January 18, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

The Oregon Department of Fish and Wildlife (ODFW) supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Tygh Valley, Wasco County, Oregon. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of approximately 50 miles of main channels and 50 miles of laterals. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir each year. This irrigation system was constructed in the 1960s and includes open ditches, natural drainages, and numerous areas where significant water loss occurs. Water loss in the system has gradually worsened over time; irrigators estimate that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

This Study is the first step in developing a plan and a series of projects to upgrade the irrigation system and decrease water lost through seepage, evaporation, and irrigation inefficiencies.

The ODFW supports this Study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Rod A. French
Mid-Columbia District Fish Biologist

WY'EAST

January 26, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

WyEast Resource Conservation and Development supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

We work with these same Agriculture Producers on energy efficiency and irrigation efficiency projects. We've see the numerous water losses that this study could help resolve. A combination of this important work with additional On-Farm improvements will make a big impact in this critical area.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

WyEast RC&D supports this Study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Robert Wallace, C.E.M
Executive Director
Wy'East Resource Conservation and Development

Wy'East employs strategies that protect, restore, enhance and sustain both communities and natural resources.

USDA United States Department of Agriculture
Forest Service
Mt. Hood National Forest
16400 Champion Way
Sandy, OR 97055-7248
503-668-1700
FAX: 503-668-1641

File Code: 2700
Date: January 25, 2016

Jon Unger
Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

Dear Oregon Water Resources Department Review Team:

The Mt. Hood National Forest supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Tygh Valley, Wasco County, Oregon. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of approximately 50 miles of main channels and 50 miles of laterals. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir each year. This irrigation system was constructed in the 1960s and includes open ditches, natural drainages, and numerous areas where significant water loss occurs. Water loss in the system has gradually worsened over time; irrigators estimate that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

This study is the first step in developing a plan and a series of projects to upgrade the irrigation system and decrease water lost through seepage, evaporation, and irrigation inefficiencies.

The Mt. Hood National Forest supports this study and will continue to participate in the planning process as this project moves forward.

Sincerely,

for LISA A. NORTHROP
Forest Supervisor

cc: Scott Kaden, Mary Ellen Fitzgerald, Kameron Sam, Janeen Tervo

January 18, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

The White River Watershed Council supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Tygh Valley, Wasco County, Oregon. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of approximately 50 miles of main channels and 50 miles of laterals. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir each year. This irrigation system was constructed in the 1960s and includes open ditches, natural drainages, and numerous areas where significant water loss occurs. Water loss in the system has gradually worsened over time; irrigators estimate that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

This Study is the first step in developing a plan and a series of projects to upgrade the irrigation system and decrease water lost through seepage, evaporation, and irrigation inefficiencies.

The White River Watershed Council supports this Study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Pat Davis
White River Watershed Council Co-Chair

cc: OWRD, Jon.J.Unger@wrd.state.or.us

G:\Clients\Juniper Flats District Improvement Co\Correspondence\Letter of Support-Agency.doc

Wasco County Soil & Water Conservation District

2325 River Road, Suite 3
The Dalles, OR 97058-3551
Tel: (541)296-6178 ext. 3, Fax: (541) 296-7868, E-mail: wasco.swcd@oacd.org

Monday, January 25, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team,

The Wasco County Soil and Water Conservation District supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Southern Wasco County, Oregon, bordering the northern end of the Warm Springs Indian Reservation. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of over 100 miles of open ditches. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir and Frog Creek each year. In the past losses in excess of 15 CFS have been measured.

The best time to address water conservation is always in the past, the next best time is now. America's future will bring increased demand on agriculture, and a decrease in agricultural lands. We are going to have to do more, with less. With this future ahead of us, we cannot afford to have grossly inefficient systems like the JFDIC.

This Irrigation District is one of the largest conservation opportunities in Wasco County. I urge you to support this study with full funding.

Sincerely,

Josh Thompson

Conservation Planner

Executive Summary

Ditch Flow Assessment June 2008

Contents

The annotated map located in the document folder details many points of interest along the Clear Creek Ditch. The labels a-q correspond to flow data that is recorded in the file 'JFDIC Measurement Data 062708.xls'. The labels 1-12 correspond to losses that Jorma and Evan discovered in their research, and are detailed within the file 'JFDIC Log of Losses.xls'. These two charts note the important numerical information for each point of interest, and contain additional information in a comments column. Also, photos relevant to each of these sites are contained within the 'Photos' file and are organized by the same labels that are on the map.

Several additional files are included as supplemental data. The raw data from each use of the Aquacalc unit is stored in a separate folder for future reference. A log of Gage Height readings at the US26 Flume is also included to ensure relatively consistent flow. The Daily Activity Log provides a summary of the activities and schedule we followed. Finally, detailed Travel Logs are included for each of the two vehicles which were used for travel.

Results

Many methods were used to investigate various portions of the ditch, and the overall result confirms some hearsay suspicions: about half of the water that is diverted into the ditch from clear creek leaves the ditch by the time the water arrives at Pine Grove. To best illustrate these water losses, this summary will track the water along its course and point out the key losses and potential problems.

At the time of our data collection, a flow of approximately 46.0 ft^3/s (cfs) was being diverted from Clear Creek. This was measured just downstream of the diversion. Inspection of the diversion did reveal a hole in the concrete structure at the diversion, through which a significant amount of water was leaking (captured in photo folder 'a'). Therefore there is potential to divert more than the 46.0cfs that was measured. About a mile downstream, the ditch passes below US26. The analysis indicated that there was no water lost on this length of ditch, so no additional effort was expended to find problems in this area.

At the US26 bridge there is an old flume which needs calibration. The gages present are difficult to read, and significant sediment buildup has occurred in the pool just before the flume. Several simple improvements could be made here to accurately monitor future water flow.

A small distance below the highway we discovered a small seepage leak that we estimated at 0.5cfs of visible lost water. Although no water was visibly leaving the ditch, 30-40 ft down-slope wetted areas with trickles of water emerging from the ground can be seen. Many of the small leaks reenter the ground thereafter, indicating more significant submerged flow as well. By the time you are ¾ of a mile downstream from US26, we measured a net loss of 2.1cfs.

At ¾ mile away from US26 a more significant area of seepage was discovered. Several streams emerge just below the ditch and the water is clearly not from any defined springs. Some streams converge and flow on the surface downhill to Clear Creek (500 ft down-slope) while others submerge

again. We measured above and below this section and determined that at least 3.7cfs are lost along this ¼ mile stretch. The ditch bottom is sandy and gravelly here, which is a likely reason for so much water seeping away. Just below our last measurement (e) on this stretch, the two unnamed seasonal springs enter the ditch with their flow.

Several small seepage losses occur over the next mile or so, totaling perhaps 3cfs lost over the entire stretch. About a mile before the Barkley Bridge, however, we discovered another concentrated zone of seepage. Just 40ft downhill from the ditch, in a natural draw, we found 2 areas of seepage whose water converges to form a strong stream. That stream flows downhill to cross forest road 2130 through a culvert and continues downhill. We measured a net loss of 2.7cfs through this area, although there is a small spring feeding into the ditch here as well, indicating that more water is lost than was measured. No other losses were discovered before Barkley Bridge, where the flow was measured to be 36.3cfs.

A short distance downstream from Barkley Bridge we discovered a small seepage leak of not more than 1cfs. About halfway between Barkley Bridge and McCubbins Bridge, we discovered a slightly wetted area with significant vegetation where we expect that some water is leaking. However, no water was visible. At McCubbins Bridge we measured 34.8cfs.

Hiking from McCubbins Bridge to The Cut we thought it unlikely that any water be lost, since forest road 2120 follows the ditch closely. However, we did notice a small seepage leak about ¼ mile away from the bridge, and ½ mile thereafter we discovered a very large hole in the ditch bank on the downward side. Water was visibly gushing out through a root cluster, forming a good-sized stream. However, the visible water sinks back into the ground before it reaches the road. The water is audible from both the road and the ditch. Measurements indicated a loss of 3.6cfs directly through the hole.

About ¼ mile before the cut, another small loss of not more than 1cfs was noted, leaving the ditch with about 30cfs as it enters the protected environment of McCubbins Gulch. Although we did not take any flow measurements or hike through the gulch, we were able to hike to a few spots and observe the flow's conditions. In general the flow is shallower, and many logs have fallen into the stream everywhere. Several photos of the Gulch are included. Surprisingly, only about 1cfs of water is lost according to our measurement at the Dodges' Campground, leaving 28.6cfs in the ditch before the game ditch and south ditch diversions.

Although the game ditch was closed, the south ditch had been open for some time, and we were able to take a measurement just below its diversion. Although we were not able to get a good reading at this site, the instruments indicated about 5cfs entering the south ditch. As it meanders towards Hwy 216, the south ditch takes one sharp turn on the Dodges' property, and at this hairpin corner we noted a large hole leaking about 2cfs into a draw. That leaves about 3cfs in the south ditch when it crosses Hwy 216. Meanwhile, since the game ditch was not open, the remaining water in the main ditch (about 24 cfs) flows into Pine Grove, which we measured at the flume.

Results

Our data indicate that of the 46-48cfs entering the ditch at the diversion, 24cfs are left in the main ditch as it passes through Pine Grove, with another 3cfs in the south ditch. Approximately 20cfs of water is lost in its route. There are 4 major leak areas that could be addressed: the slope upstream of the two unnamed springs (3.7cfs seeping), the large hole along forest road 2120 (3.6cfs), the seepage area whose stream crosses 2130 (2.6cfs), and the large hole at the south ditch's hairpin corner (2.5 cfs).

In addition, we noted many logjams that led to silt buildup along the ditch's banks, as well as some significant erosion processes (in The Cut, especially), that have led to the flow speeding up in some areas and slowing down in others. The previous leak patches that we found (angle-iron siding and black plastic tarp) seem to have held up as we found no evidence of continued leaking problems in those areas. However, it should be noted that without removing the brush that is built up in many areas of the ditch, plugging up the 4 major leaks at once may simply cause a new leak in a new area.

Please feel free to contact us with questions regarding our findings.

Jorma Henson and Evan Miles

• measure point (a-q)
· small loss (1-11)
• large loss
/ log jam

Juniper Flat District Improvement Co. Inc.

82529 Hwy 216
Maupin, Or. 97037
541-395-9705

2/5/2016

RE: Water Conservation, Reuse and Storage Feasibility Study Grant Program: Juniper Flats District Improvement Company Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

I, Tim Morelli, the President of the Juniper Flats District Improvement Company, am pleased to offer a secured in-kind match of $4,000 of staff time to be used to assist with the water conservation feasibility study. The $4,000 amount specified will be used solely for the feasibility study.

This feasibility study is the first step to developing a plan and a series of projects to upgrade the irrigation system, and decrease water lost through seepage, evaporation, and irrigation inefficiency. The Juniper Flats District Improvement Company supports this feasibility study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Timothy J. Morelli (Feb 5, 2016)

Tim Morelli

President, Juniper Flats District Improvement Company

There are $36,000 of matching funds that are anticipated to be made available from an Oregon Watershed Enhancement Board (OWEB) Technical Assistance Grant. These funds are not currently secured, but based on the success of similar studies, it is anticipated that there is a high likelihood of obtaining funding from this source. The Draft OWEB Application is attached and will be submitted by the deadline which is April 19th, 2016.

TECHNICAL ASSISTANCE GRANT APPLICATIONS

Revised: **April 2016**

OWEB's Mission

To help protect and restore healthy watersheds and natural habitats that support thriving communities and strong economies.

All sections of applications, including the new budget form, must be completed using the application forms currently posted online by OWEB. Applications submitted using previous forms will not be accepted.

GENERAL INSTRUCTIONS

1. **OWEB requested amount cannot exceed $50,000 on any technical assistance application.**
2. Read the "Instructions for Completing Technical Assistance Grant Applications" before beginning your application.
3. Complete Sections I, II and III.
4. Complete the required forms and attachments: Section IV and Attachments A, B, C and D.
5. Read and sign the Technical Assistance Grant Application (Section I Certification).
6. Please follow these instructions for PDF application submittal, **paper applications are no longer accepted.**
   - Compatible with Adobe Acrobat XI
   - Maximum file size 20 MB
   - Please make your PDF OCR recognizable if possible. For more information, click here: http://computers.tutsplus.com/tutorials/how-to-ocr-text-in-pdf-and-image-files-in-adobe-acrobat--cms-20406
   - Attach PDF application as **one document**, using the current application posted online
   - If you have supplemental information that does not fit on an 8½ x 11 size page and is integral to the review of the Project, contact your OWEB Program Representative.
   - Pages with signatures should be a scan of the originals
7. If submitting more than one application, send each application as one PDF by separate email to: oweb.grant.app@oweb.state.or.us
8. When OWEB receives your email, the system will send confirmation of receipt. Applicants are responsible for checking whether they received confirmation of receipt by OWEB. *If you did not receive a confirming email, please contact Katy Gunville 503.986.0058 or katy.gunville@state.or.us*

* **IMPORTANT:** Submit **a detailed project location map**. The required color map will be used to track project locations, and a color map provides the identifying features that are not legible in black and white.
OWEB is no longer accepting paper applications.

SUBMISSION OF GRANT APPLICATIONS

Email PDF of application and all attachments to: oweb.grant.app@oweb.state.or.us

Oregon Watershed Enhancement Board
775 Summer Street NE Ste 360
Salem Oregon 97301-1290
Phone: (503) 986-0178

Section I
APPLICANT INFORMATION

Type the information for Sections I and II.

Name of project: Juniper Flats District Improvement Company Water Conservation Feasibility Study

OWEB funds requested: $36,000.00 **Total cost of project**†: $80,000.00

† *This dollar amount refers only to the total cost of the technical assistance activity, and does not include the subsequent planned restoration work.*

PROJECT LOCATION:

This project occurs in one region only. Region 1 ☐ **Region 2** ☐ **Region 3** ☐ **Region 4** ☒ **Region 5** ☐ **Region 6** ☐

This project occurs in multiple regions. Check all that apply. Region 1 ☐ **Region 2** ☐ **Region 3** ☐ **Region 4** ☐ **Region 5** ☐ **Region 6** ☐

This project occurs statewide / in all regions. ☐

This project occurs at (check one): ☐ **Site unknown at this time** ☒ **A single site** ☐ **Multiple sites**

Watershed Name(s)	County or Counties
Deschutes	Wasco County

Township, Range, Section(s) (e.g., T1N, R5E, S12)	Longitude, Latitude (e.g., -123.789, 45.613) (required for federal/state reporting)	Watershed code(s) – Please note the 10-digit hydrologic unit code, previously 5th Field HUC
T4 and 5S, R9 through 15E	-121.702, 45.188	1707030609 (White River)

Applicant	Project Manager
Organization: Juniper Flats District Improvement Company (JFDIC)	**Name:** Brett Moore
Address: 82529 Highway 216	**Organization:** Anderson Perry & Associates, Inc.
Maupin, Oregon 97037	**Address:** 1901 N. Fir Street
Phone: 541-993-3600	La Grande, Oregon 97850
Fax:	**Phone:** (541) 963-8309
Email: tim.j.morelli@gmail.com	**Fax:** (541) 963-5456
Contact Person: Tim Morelli	**Email:** bmoore@andersonperry.com

Payee

Organization: Wasco County Soil and Water Conservation District (SWCD)
Address: 2325 River Road, Suite 3
The Dalles, Oregon 97058
Phone: (541) 296-6178 x116
Fax:
Email: josh.thompson@or.nacdnet.net
Contact Person: Josh Thompson

CERTIFICATION:

I certify that this application is a true and accurate representation of the proposed work for watershed restoration and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements (***see Application Instructions***) of an OWEB grant and are prepared to implement the project if awarded.

Applicant Signature: _____ Date: _____

Print Name: Tim Morelli Title: President, JFDIC

Co-Applicant Signature: _____ Date: _____

Print Name: _____ Agency: _____

Section II
PROJECT SUMMARY

1. **Summary.** Give a brief summary (max. 150 words) of the proposed technical assistance activity *only* (do not confuse the technical assistance with planned restoration). Be sure to mention partners and how OWEB funds will be used.

   The 2,105-acre JFDIC is located in Tygh Valley, Wasco County, and serves 24 farms. The irrigation system includes approximately 50 miles of main channels and 50 miles of laterals. Constructed in the 1960s, this system includes natural drainages and stream areas that transition to open ditches and numerous areas where significant water loss occurs. Approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

   Due to the expansive nature of the system, a technical evaluation with mapping and conservation feasibility analysis is needed to develop high-impact, cost-effective projects to improve the system and conserve water. The goal of this Feasibility Study is to assess the irrigation system and develop strategies to reduce water loss and support water conservation.

   The SWCD is a partner in this project. The Oregon Watershed Enhancement Board (OWEB) funds will be used for site evaluation, project management, data analysis, and project development.

2. **What type of technical assistance are you applying for (see Instructions first):**

   ☐ TA#1 Project Design ☒ TA#2 Implementation ☐ TA#3 Landowner Recruitment

3. **What type of support are you seeking? (select only one)**

   ☐ Part-time or full-time in-house support ☒ Part-time or full-time outside contract support ☐ Both

4. **Was this application submitted previously?** ☐ **Yes** ☒ **No**
   If yes, what was the month and year, or application number?

5. **Does this application propose a grant for a property in which OWEB previously invested funds for purchase of fee title or a conservation easement; or is OWEB currently considering an acquisition grant for this property?** ☐ **Yes** ☒ **No**

   If yes, what is the grant number(s)?

6. **Is this project a continuation of a previously OWEB-funded project(s)?** ☐ **Yes** ☒ **No**
   If yes, what was the month and year, or application(s) number?

7. **Do you plan to submit a restoration grant application to OWEB as a result of this technical assistance project?** ☒ **Yes** ☐ **No**

8. **What are the proposed start and end dates for the technical assistance project?**
   Start: August 1, 2016 End: September 1, 2017

9. **Is this project related to a proposed or funded Oregon State Weed Board grant application(s)?** ☐ **Yes** ☒ **No**
   If yes, list the month and year, or grant application(s) number, and briefly describe how this project is related to the Weed Board application or grant.

10. Project Partners. Show all anticipated funding sources, and indicate the dollar value for cash or in-kind contributions. Be sure to provide a dollar value for each funding source. If the funding source is providing in-kind contributions, briefly describe the nature of the contribution in the Funding Source Column. Check the appropriate box to denote if the funding status is secured or pending. In the Amount/Value Column, provide a total dollar amount or value for each funding source. Match should be directly related to the technical assistance project and not for the restoration phase.

Funding Source **Name the Partner and what their contribution is.**	**Cash**	**In-Kind**	**Secured** **(x)**	**Pending** **(x)**	**Amount/Value**
OWEB	$36,000.00	$	☐	☒	$36,000.00
Landowner(s) or other partners: JFDIC (Field Assistance)	$	$4,000.00	☒	☐	$4,000.00
OWRD (Water Conservation, Reuse, and Storage Feasiblity Study Grant)	$40,000.00	$	☐	☒	$40,000.00
	$	$	☐	☐	$
	$	$	☐	☐	$
	$	$	☐	☐	$
	$	$	☐	☐	$
	$	$	☐	☐	$
	$	$	☐	☐	$
	$	$	☐	☐	$
Total Estimated Funds (add all amounts in the far-right Column):					*$80,000

*The total should equal the total cost of the project on page 1 of the application.

11. Have any conditions been placed on match funds from other sources that may affect project completion?
☐ **Yes** ☒ **No**

If yes, explain:

12. Salmon/Steelhead Populations Targeted and Expected Benefits to Salmon/Steelhead

The information provided will be used to by OWEB to better meet federal and state reporting requirements. Completion of this section is required but will not be used to evaluate this application for funding.

☐ This project is **NOT** specifically designed to benefit salmon or steelhead.

► **If you check this box, STOP here and GO TO Section III – Project Desciption.**

12(a) Targeted Salmon/Steelhead Populations: Select one or more of the salmon ESUs (Evolutionary Significant Unit) or steelhead DPSs (Distinct Population Segment) that the project will address/benefit. For species where the ESU/DPS name is not known or determined, use the species name with unidentified ESU (e.g., Chinook salmon – unidentified ESU). Additional information on the designation and location of the salmon/steelhead populations can be found at http://www.westcoast.fisheries.noaa.gov/maps_data/species_population_boundaries.html.

Chinook Salmon (*Oncorhynchus tshawytscha*)		**Coho Salmon** (*O. kisutch*)	
☒	Deschutes River summer/fall-run ESU	☐	Lower Columbia River ESU
☐	Lower Columbia River ESU	☐	Oregon Coast ESU
☐	Mid-Columbia River spring-run ESU	☐	Southern Oregon/Northern California ESU
☐	Oregon Coast ESU	☐	unidentified ESU
☐	Snake River Fall-run ESU	**Steelhead** (*O. mykiss*)	
☐	Snake River Spring/Summer-run ESU	☐	Klamath Mountains Province DPS
☐	Southern Oregon and Northern California Coastal ESU	☐	Lower Columbia River DPS
☐	Upper Klamath-Trinity Rivers ESU	☐	Middle Columbia River DPS
☐	Upper Willamette River ESU	☐	Oregon Coast DPS
☐	unidentified ESU	☐	Snake River Basin DPS

Chum Salmon (*O. keta*)		☐	Washington Coast DPS (SW Washington)
☐	Columbia River ESU	☐	Upper Willamette River DPS
☐	Pacific Coast ESU	☐	Steelhead/Trout unidentified DPS
☐	unidentified ESU		

12(b) <u>Expected Benefits</u>: Write a brief description of the goals and purpose of the project and how it is expected to benefit salmon/steelhead or salmon/steelhead habitat. This answer should be no longer than 2000 characters which is approximately 330 words) **See Application Instructions for examples and ideas on how to calculate the number of words or characters in your answer.**

This goal of this Feasibility Study is to map the water conveyance system and locate the points of greatest water loss. Once identified, solutions will be proposed for each location with the goal of reducing water loss, therefore increasing stream flow and reducing fine sediment load in Clear Creek. Clear Creek is located in the Deschutes River Subbasin, and the Clear Creek Habitat Complex is listed as a key area in the management plan. Because this project will restore flows and reduce fine sediment in Clear Creek, a tributary of the Deschutes River, it will subsequently improve Chinook salmon habitat in the Deschutes River. Reducing water loss from the Juniper Flats irrigation canal would equate to several thousand acre-feet (AF) of water being avaliable for beneficial instream use.

◆◆

Section III
PROJECT DESCRIPTION

Check one box only and answer the set of questions that applies to the type of technical assistance for which you are applying. **Refer to the Application Instructions for clarification and helpful examples.**

Use this application form to respond to the questions, using additional sheets of paper as necessary.

All PDF pages should be 8½″ x 11″ page size. Do not use color highlights for text emphasis or in tables as the highlight turns black when the application is scanned. If the project involves multiple sites, be specific for each. If the question is in parts (e.g., "a" and "b"), make sure you answer in parts. **Refer to the Application Instructions for clarification and helpful examples.**

☐ TA#1 PROJECT DESIGN

Technical Assistance Activity

1. Describe the problem (not the solution). The technical assistance for which you are seeking support will address which specific watershed priority(ies) or limiting factor(s) and benefit which specific resource(s)? If the technical assistance need is identified in an existing watershed-scale assessment or action plan, or in a subbasin plan, identify the plan and page number.

2. Describe the solution (not the problem). What is the technical *design* solution (not the *restoration* solution)? What range of alternatives will be evaluated?

3. What specific technical assistance expertise will you need? How will the technical assistance provider be selected?

4. Who will provide guidance for and supervise the technical assistance provider? How will this guidance and supervision be ensured?

5. How will the success of the completed technical assistance phase be determined? What technical review and design criteria will you employ to evaluate success?

Resulting Restoration Project

6. Briefly (a) describe the proposed restoration project practice(s) and priorities to result from the technical assistance grant; (b) state measurable objective(s); (c) provide a brief but detailed description of the project; and (d) specify the expected ecological benefits from the project.

7. Provide evidence of the commitment to implement a restoration project(s) resulting from the project design/development of the technical assistance grant (e.g., what sites and are landowners committed to project implementation?).

8. Discuss in general terms the process and schedule for implementing the restoration project design(s) that will result from the technical assistance grant. Be sure to include whether permits are required.

☒ TA#2 IMPLEMENTATION

1. Describe the problem (not the solution). The technical assistance for which you are seeking support will address which specific watershed priority(ies) or limiting factor(s) and benefit which specific resource(s)? If the technical

assistance need is identified in an existing watershed-scale assessment or action plan, or in a subbasin plan, identify the plan and page number.

The JFDIC is located in Tygh Valley, Wasco County. JFDIC is 2,105 acres and serves 24 farms that grow alfalfa and high-value hay crops. This irrigation system, constructed in the 1960s, includes sections of natural drainages and stream areas that transition to open ditches (see Figure 1, Location and Vicinity Maps). The 50 miles of main channel, coupled with 50 miles of dendritic laterals, have been maintained by the JFDIC, but they are in desperate need of a Feasibility Study to determine the location, nature, and quantity of water loss at various points in the system. Each year, approximately 55 cubic feet per second of water is diverted from Clear Lake Dam to the irrigation water conveyance system. Less than half of this water reaches fields for irrigation. Seventy-five percent of the water is used for sprinkler irrigation and 25 percent is used for flood irrigation. The irrigated area is covered by 3 feet of water; therefore, is 6,300 AF of water is needed. The Clear Lake Reservoir, located approximately 25 miles west of Tygh Valley, holds 8,000 AF of water. If such a large volume of water were not lost through inefficient water conveyance methods, there would be sufficient flow for seasonal irrigation requirements. A 2008 study by Oregon State University students estimated that in the first half of the water conveyance system (from the existing diversion to Pine Grove, see Figure 1, Location and Vicinity Maps), approximately one-half to two-thirds of available water is lost during transmission to irrigators. It is anticipated that there are also significant losses in the second half of the water conveyance system.

This water loss problem in the JFDIC ditch was identified in the Deschutes Subbasin Plan prepared by the Northwest Power and Conservation Council in 2005. This project will help address water conservation. The Deschutes Subbasin Plan identifies the Clear Creek Habitat Complex as a key area (see Section 3.4.3 in the Management Plan, page MP-39-40). It was noted that Clear Creek has seasonally low stream flow below irrigation diversion structures, and water is diverted from the creek year-round. Downstream of Wasco Dam, Clear Creek has low winter flow associated with reservoir storage, and there is also "significant water loss in the Juniper Flat Ditch" (Deschutes Subbasin Plan, 2005).

The Plan listed several goals including increasing minimum stream flow by 25 percent by 2030 and reducing fine sediment by 25 percent by 2030. This project would support both of these goals, because decreasing water loss in the ditch would increase flow and having consistent flow in a repaired ditch would help reduce sedimentation. Additionally, by addressing water loss in the system, water storage, as well as in-stream water availability, will be improved. Currently, water storage in Clear Lake Dam is nearly depleted by the end of the irrigation season because of inefficiencies in the water conveyance system. By addressing system needs and improving water retention, flow in Clear Creek may increase, which would cause water temperatures to decrease. Cool, flowing water is essential for aquatic life in Clear Creek. By improving flows to Clear Creek, this project may also help increase flows to the Deschutes River during low-flow periods of the year.

2. Describe the project to be developed and how specific sites and/or activities will be selected, and what form of analysis will be conducted.

Large-scale improvements to water conveyance systems are expensive and can be challenging to implement. A Feasibility Study is the most appropriate and pragmatic approach, because it will assess the entire water conveyance system, determine the places with the most water loss, and develop improvement projects that are affordable, fundable, and implementable. By assessing the whole system, the most technically feasible and cost-effective alternatives will be developed for implementation.

Because this irrigation system was developed in the 1960s and modified as the JFDIC grew and added users, there is no authoritative map of the system with information about the type of conveyance system, outlets, and other features. This Feasibility Study seeks to verify the extent of the irrigation system, identify the areas with the most water loss, and evaluate a range of solutions to address water loss. Improvement projects will be evaluated based on a cost/benefit analysis of water conservation and efficiency alternatives, potential environmental impacts, and evaluation of the project's local and regional water conservation priorities.

Technical aspects of this Feasibility Study will include:

- Existing Data Review - Water resource engineers will evaluate all existing data associated with this project to create a preliminary conceptual site model.

- Study Plan - Data gaps will be addressed with a study plan that will guide fieldwork.

- Fieldwork (General) - The Feasibility Study will likely focus on the ditched portions of the main irrigation system (the natural stream area and laterals will likely be mapped but not modeled for flow).

- Fieldwork (Mapping) - A Trimble global positioning system (GPS) unit will be used to create a georeferenced, accurate map of the system features.

- Fieldwork (Flow Measurement) - Flow in the canal will be measured at critical junctures to determine water loss in individual sections of the system.

- Fieldwork (Condition Evaluation) - The conveyance system will be inspected, photos will be taken, and the general condition of the system will be reviewed. Technical process in data collection and analysis will ensure conclusions are meaningful and defensible.

- Data Analysis - Flow loss will be calculated and modeled, if necessary, to quantitatively determine areas of highest loss potential.

- Feasibility Study - Recommendations will be presented with the associated costs and benefits of each. A strategy for funding each recommended improvement will also be supplied.

3. What specific technical assistance expertise will you need? How will the technical assistance provider be selected?

This Feasibility Study will require technical assistance from local land managers and water resource engineers. Specific technical assistance required includes experience in conducting feasibility studies, GPS mapping systems, irrigation systems, flow measurements, water conservation, design of budget-appropriate projects for a given situation, and strategic fundraising planning skills.

The provider of technical assistance for local knowledge will a member of the JDFIC, and the selection will be based on a volunteer process.

Technical advice will also be solicited from supporters of this project. This project is supported by the community and local and regional officials. Please see the attached letters of support from the following entities:

- Oregon Department of Fish and Wildlife (Rod French, District Fish Biologist)
- Wy'East Resource Conservation and Development (Robert Wallace, Executive Director)
- U.S. Forest Service - Mt. Hood National Forest (Lisa Northrop, Forest Supervisor)
- White River Watershed Council (Pat Davis, Co-Chair)
- Wasco County SWCD (Josh Thompson, Conservation Planner)

The water resources engineers will be selected in a way that concurs with Oregon Administrative Rule 137-48 under the direct appointment procurement. It is anticipated that the JFDIC will retain the services of Anderson Perry & Associates, Inc. (AP). AP is a full-service civil engineering, surveying, and natural resources firm that has provided services to eastern Oregon governments, municipalities, agricultural users, and resource agencies since 1975. AP's La Grande office has a diversified staff of 45 engineers, biologists, resource scientists, graphic designers, and communication professionals.

The primary author of the Feasibility Study will be an experienced water resources engineer from AP. Additional technical support personnel will include AP staff experienced with water resources management and flow measurement.

AP has over 40 years of experience in central and eastern Oregon accomplishing all steps of this process, including conducting feasibility studies, designing and securing funding for improvement projects, and overseeing project construction. AP has visited the JFDIC and met with its members to determine the scope of the Feasibility Study. AP has completed dozens of water-related planning projects and feasibility studies throughout the region, including irrigation system studies, water system plans, water and wastewater system improvement projects, drinking water projects, storage reservoirs, well drilling, and aquifer storage and recovery.

AP regularly works with landowners to improve fish passage, conserve water, restore riparian habitat, and improve the efficiency and long-term viability of irrigation and livestock watering systems. AP has a history of finding solutions that are mutually beneficial to the environment and the landowner.

4. Who will provide guidance for and supervise the technical assistance provider? How will this guidance and supervision be ensured?

The Wasco County SWCD will provide fiscal management of this grant and will supervise the technical assistance provider through reviews of the Feasibility Study. The Wasco County SWCD has facilitated numerous water conservation and restoration projects. This supervision will be ensured through a contractual agreement.

A review team made up of Wasco County SWCD and JDFIC members will provide guidance and supervision for this project. Partner's roles and responsibilities are as follows:

- Wasco County SWCD: Project co-sponsor, funding administration, contract supervision, and assurance that the goals of the project are being met.
- JFDIC: As a representative of the landowners JFDIC will provide project review throughout the process to ensure needs are met and the project alternatives meet landowner objectives.
- Agency Reviews: Potential project designs will be vetted through local agency contacts, who have expressed willingness to assist in this project through letters of support. These technical resources include:
    - Oregon Department of Fish and Wildlife (Rod French, District Fish Biologist)
    - Wy'East Resource Conservation and Development (Robert Wallace, Executive Director)
    - U.S. Forest Service - Mt. Hood National Forest (Lisa Northrop, Forest Supervisor)
    - White River Watershed Council (Pat Davis, Co-Chair)

A timeline with benchmarks will be established and reviewed regularly by members of the review team. The engineer will be required to meet those benchmarks and provide the committee with regular updates. The committee will review the existing data analysis, study plan, and project alternatives.

5. How will the success of the completed technical assistance project be determined? What technical review will you employ to evaluate success?

A successful project will generate helpful maps and a Feasibility Study with a roadmap for high-impact, cost-effective projects. The projects will be technically reviewed by the design engineers, landowners, and the Wasco County SWCD.

Success of the project will be determined when stakeholders choose project alternatives that they feel will successfully addresses the limiting factors of the watershed and they are able to use that design and related cost estimate to seek funding for the implementation of a project that will resolve those limiting factors.

Technical review will be provided by the internal review process within the engineering firm. Once the alternatives have been reviewed by the engineering firm, the stakeholder committee, and other appropriate agencies will provide

review. Based on comments and recommendations from the stakeholder committee, the engineer will revise and finalize the documents.

6. What specific result do you expect from the successful completion of this technical assistance grant, and what do you anticipate doing about it in the future? If possible, provide a tentative timeline for future action.

   Deliverables will include Feasibility Study with three robust sections:

   a. Existing Conditions Assessment - This unmapped, unevaluated water conveyance system will be studied and mapped so high-quality locational flow and environmental data are available.

   b. Water Loss Analysis - Existing conditions data will be analyzed to determine the areas where the most water is lost.

   c. Feasibility Analysis and Preliminary Project Development - Projects to improve the system through the reduction of water loss will be developed, reviewed, and designed to the concept level, and costs will be developed.

      The timeline for this project described below:

      i. August 2016 - Secure Funding and Contract for Engineering Services.

      ii. September to December 2016 - Review Existing Data. This includes gathering and analyzing existing data including any basin plans, studies, system drawings, flow/temperature data, landowner interviews, and any other information that will facilitate the mapping and analysis of the irrigation system.

      iii. January to March 2017- Draft Study Plan. This includes developing a study plan to fill data gaps uncovered by the existing data review. This is likely to include mapping using a Trimble GPS to map the physical ditch location as well as environmental conditions influencing the ditch, and collecting flow measurements in key locations along the main ditch to gain an accurate portrait of where water loss is most significant.

      iv. March to April 2017 - Conduct Fieldwork (Mapping/Flow Measurements). This includes a site visit for mapping, flow measurements, and general data collection.

      v. April to June 2017 - Analyze Data and Complete Feasibility Study. This includes creating an accurate description of existing conditions including a range of alternatives to improve the system, cost estimates, recommendations for funding methods, and prioritization of activities.

      vi. July to September 2017 - Close Out Grant and Final Paperwork. This includes submitting final grant documentation and applications to fund the design and construction of the prioritized improvement alternatives.

☐ TA#3 LANDOWNER RECRUITMENT

1. Describe the <u>problem</u> (not the solution). The technical assistance for which you are seeking support will address which specific watershed priority(ies) or limiting factor(s) and benefit which specific resource(s)? If the technical assistance need is identified in an existing watershed-scale assessment or action plan, or in a subbasin plan, identify the plan and page number.

2. Describe the method(s) of landowner recruitment. How will recruiting landowners address the watershed priority(ies)/limiting factor(s) described in #1 above?

3. Which watershed restoration program or landowner assistance program are you seeking to enroll landowners in? Have you identified targets for numbers of landowners and acres (or stream miles, etc.)? If so, what are the targets and how many are they? Provide a tentative timeline for enrolling landowners.

4. What specific technical assistance expertise will you need? How will the technical assistance provider be selected?

5. Who will provide guidance for and supervise the technical assistance provider? How will this guidance and supervision be ensured?

6. How will the success of the completed technical assistance phase be determined? What technical review will you employ to evaluate success?

Section IV
TECHNICAL ASSISTANCE BUDGET

IMPORTANT: Read the application instructions and Budget Categories Definitions and Policy Document.

Add additional lines, if necessary.

Totals automatically round to the nearest dollar

A	B	C	D	E	F	G
Itemize projected costs under each of the following categories:	**Unit Number**	**Unit Cost**	**OWEB Funds**	**Cash Match***	**In-Kind Match***	**Total Costs**
	(e.g., # of hours)	(e.g., hourly rate)				(add columns D, E, F)
SALARIES, WAGES AND BENEFITS. List position titles, include only costs of employees charged to this grant.						
President, JFDIC (field work assistance)	40	100			4,000	4,000
						0
SUBTOTAL (1)			0	0	4,000	4,000
CONTRACTED SERVICES. Labor, supplies, and materials to be provided by *non-staff* for project implementation.						
Survey, data collection, data analysis, Feasibility Study design	594.4	110	29,387	36,000		65,387
						0
SUBTOTAL (2)			29,387	36,000	0	65,387
TRAVEL. Mileage, per diem, lodging, etc. Must use current State of Oregon rates.						
Travel (two site visits @ 500 miles round trip)	1000	0.54	540			540
Per diem ($51/day)/lodging($89/day) (two people, 10 days)	20	140	2,800			2,800
SUBTOTAL (3)			3,340	0	0	3,340
MATERIALS/SUPPLIES. Refers to items that are "used up" in the course of the project. Costs to OWEB must be directly related to the implementation of this grant.						
						0
						0
SUBTOTAL (4)			0	0	0	0
EQUIPMENT/SOFTWARE. List portable equipment costing **$300** or more per unit. Must remain property of a governmental entity, tribe, watershed council, SWCD, institution of higher learning or school district.						
						0
						0
SUBTOTAL (5)			0	0	0	0
OTHER. Costs must be necessary and reasonable for successful completion of this grant.						
						0
						0
SUBTOTAL (6)			0	0	0	0
[Add subtotals above] MODIFIED TOTAL DIRECT COSTS (7)			32,727	36,000	4,000	72,727
GRANT ADMIN. Select one of the methods below. Fill in the requested rate. Compute by multiplying MTDC (6) line by this rate.						
Federally Negotiated Indirect Cost Rate	☐		0			0
Federally Accepted 10% *de minimis*	☐	10%	3273	4000		7273
OWEB Negotiated Indirect Cost Rate	☐		0			0
SUBTOTAL (7)			3273	4000	0	7273
GRANT BUDGET TOTAL (8) **[Add Modified Total Direct Costs (6), Grant Admin Subtotal (7)]**			36,000	40,000	4,000	80,000

* The totals for these two columns must mirror the match totals provided in Section II(5) of the application and on the Match Funding form (Attachment A).

ATTACHMENT A

MATCH FUNDING FORM

Document here the match funding shown on the budget page of your grant application

OWEB accepts all non-OWEB funds as match. An applicant may not use *another OWEB grant* to match an OWEB grant; this includes ODA Weed Board projects because they are funded through OWEB grants. However, an applicant who benefits from a pass-through OWEB agreement with another state agency, by receiving either staff expertise or a grant from that state agency, may use those benefits as match for an OWEB grant. (Example: A grantee may use as match the effort provided by ODFW restoration biologists because OWEB funding for those positions is the result of a pass-through agreement).

At the time of application, match funding for OWEB funds requested does not have to be *secured*, but you must show that at least 25% of match funding has been *sought*. On this form, you do not necessarily need to show authorized signatures ("secured match"), but the more match that is secured, the stronger the application. Identify the type of match (cash or in-kind), the status of the match (secured or pending), and either a dollar amount or a dollar value (based on local market rates) of the in-kind contribution.

If you have questions about whether your proposed match is eligible or not, see Allowable Match document in OGMS http://apps.wrd.state.or.us/apps/oweb/fiscal/nologin.aspx under Technical Assistance application or contact your local OWEB regional program representative (contact information available in the instructions to this application).

Project Name: Water Conservation Feasibility Study

Applicant: Juniper Flats District Improvement

Match Funding Source	Type (√ one)	Status (√ one)*	Dollar Value	Match Funding Source Signature/Date*
JFDIC	☐ cash ☒ in kind	☒ secured ☐ pending	$4,000.00	
OWRD	☒ cash ☐ in kind	☐ secured ☒ pending	$40,000.00	
	☐ cash ☐ in kind	☐ secured ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ pending		
	☐ cash ☐ in kind	☐ secured ☐ pending		

* **IMPORTANT:** If you checked the "Secured" box in the Status Column for any match funding source, you must provide either the signature of an authorized representative of the match source in the final Column, or attach a letter of support from the match funding source that specifically mentions the dollar amount you show in the Dollar Value Column.

ATTACHMENT B

Technical Assistance Project - Proposed Metrics Form

OWEB receives a portion of its funds from the federal government and is required to report how its grantees have used both federal and state funds. The information you provide in the following form will be used for federal and state reporting purposes.

Please provide specific values, do not enter values like "2-3" or "<100". Enter your best approximation of what the project will accomplish.

If you have any questions, please contact Ginger Lofftus, PCSRF Reporting Assistant at 503-986-5372, ginger.lofftus@state.or.us or Cecilia Noyes, OWEB Federal Reporting Coordinator at 503-986-0204, cecilia.noyes@state.or.us.

Step 1 – Use the type of Technical Assistance (TA#1, TA#2, or TA#3) selected for this application to determine the sections of this metrics form to complete.

Section II (Project Summary) – question 2 and Section III (Project Description) of this application show the type of Technical Assistance selected for this application. The Application Instructions for Section II, Question 2 provide descriptions of the three types of technical assistance.

TA#1 Project Design applications must complete metrics questions in Sections ***A, B,*** & ***C*** of this form.

TA#2 Implementation applications must complete metrics questions in Sections ***A, B***, & ***C*** of this form.

TA#3 Landowner Recruitment applications must complete metrics questions in Section D of this form.

Section A

TA#1 or TA#2 Technical Assistance Project: Restoration Planning/Coordination Activities

1. Will this technical assistance project conduct one or more of the restoration planning/coordination activities listed below for question 2?

   ☒ **Yes** ☐ **No** If you answer No, skip to Section B.

2. Select the ***primary*** restoration planning/coordination activities to be conducted by this project. Do not select activities that will result from the planning/coordination activities. For example, a project will conduct a habitat restoration scoping/feasibility study to be used in developing engineering/designs for restoration, but the project itself will not produce the designs; for this example you would not report engineering/design work.

3. For each of the selected activities indicate whether the project will be implementing an existing plan and provide the name and description of the plan.

Restoration Planning/Coordination Activity	Name of Plan (Author, date, title, name, source, source address.	Description and scope of Plan to be implemented or developed, including extent, purpose and application of the plan (limited to 4000 characters).
☒ Engineering/design work for restoration projects. This includes developing information necessary for permits or other requirements to implement restoration projects.	*Existing Plan to be Implemented by this Project: Northwest Power and Conservation Council, March 25, 2005, Deschutes Subbasin Plan (https://www.nwcouncil.org/fw/subbasinplanning/deschutes/plan)	This Feasibility Study will work toward the goal of reducing water loss in the Juniper Flats irrigation ditch. This goal is listed in the Plan, and the specific design work will be outlined at the conceptual level as a result of the Feasibility Study.
☒ Habitat restoration scoping and feasibility studies. This includes analysis and consideration of alternatives or recommendations for future restoration.	*Existing Plan to be Implemented by this Project: Northwest Power and Conservation Council, March 25, 2005, Deschutes Subbasin Plan (https://www.nwcouncil.org/fw/subbasinplanning/deschutes/plan)	This Feasibility Study will work toward the goal of reducing water loss in the Juniper Flats irrigation ditch. This goal is listed in the Plan, and multiple alternative project ideas, along with feasibility and cost analysis will be presented in the Feasibility Study,
☒ Develop a restoration/action plan	Not Required at Proposed	Not Required at Proposed
☐ Develop monitoring plans or sampling protocols	Not Required at Proposed	Not Required at Proposed
☐ Evaluate/analyze restoration plans and projects. This includes technical reviews and selection processes to ensure priority restoration projects are implemented.	*Existing Plan to be Implemented by this Project: _____	_____
☐ Design/maintain restoration data systems	*Existing Plan to be Implemented by this Project: _____	_____
☐ Other Planning/Coordination Activities. This can be used if a significant planning /coordination activity to be conducted by this project is not defined by any of the activities listed above. Description: _____	New Plan to be Developed by this Project :_____ or *Existing Plan to be Implemented by this Project: _____	_____

***List the existing restoration plan under which this project is being implemented (e.g., Recovery Plan, Subbasin Plan, Restoration Plan, Watershed Assessment, Limiting Factor Analysis, etc.). If no plan exists, enter 'None.' If this project provides technical assistance related to salmon/steelhead populations, listing the associated Recovery Plan is suggested.**

Section B

TA#1 or TA#2 Technical Assistance Project: Assessment/Survey Activities

4. Assessment Document/Report: Will this project assess or evaluate salmonids and/or their habitat (e.g., by completing a limiting factors analysis or an evaluation of past restoration measures) and summarize the results in a document or report?

   ☐ **Yes** ☒ **No**

5. Will this project conduct salmonid surveys or assess/survey streams or habitat?

   ☐ **Yes** ☒ **No** If you answer No skip to Section C.

6. Check all of the stream assessment/survey activities to be conducted

☐ Salmonid presence/absence survey	☐ Habitat use by salmonids assessed/surveyed
☐ Instream habitat condition assessment	☐ Rapid Bioassessment
☐ Fish passage impediments assessed/inventoried	☐ Other (explain):_____

7. _____ Estimated total miles of stream(s) assessed/surveyed (to nearest 0.01 mile) [*do not double count areas of overlap]*

8. _____ Estimated number of fish passage impediments/barriers to be assessed/surveyed/inventoried.

9. Will this project conduct habitat assessments or surveys?

   ☐ **Yes** ☐ **No** If you answer No skip to Section C.

10. Check all of the habitat assessment/survey activities to be conducted

☐ Riparian condition	☐ Conducting LiDAR surveys
☐ Road condition/inventory	☐ Landscape mapping
☐ Upland habitat conditions	☐ Floodplain mapping
☐ Wetland habitat conditions	☐ Forest inventories
☐ Estuarine/nearshore habitat conditions	☐ Overall watershed condition assessment or mapping
☐ Invasive species	☐ Stream typing
	☐ Other (explain):_____

11. _____ Estimated total acres of habitat to be assessed/surveyed (to nearest 0.1 acre) [*do not double count areas of overlap]*

Section C

TA#1 or TA#2 Technical Assistance Project: Summary Metrics

These summary metrics apply to ***all*** of the restoration planning/coordination, and assessment/survey activities reported for this technical assistance project under Sections A and B (above).

12. 2,105 Estimated acres of habitat encompassed or affected by this technical assistance project (to nearest 0.1 acre)

13. 7 Estimated miles of stream encompassed or affected by this technical assistance project (to nearest 0.01 mile)

14. 0 Estimated number of fish passage barriers expected to be addressed by this technical assistance project.

15. Report the percentages of the total project cost for the activities reported in Section A and for activities reported in Section B; ***the two percentages should sum to 100%.***

    a. 50% Estimated percentage of the total project cost for the Restoration/Planning activities reported in Section A.

    b. 50% Estimated percentage of the total project cost for Assessment/Survey activities reported in Section B.

Section D

TA#3 Technical Assistance Project: Landowner Recruitment.

16. _____ Estimated number of landowners/managers to be contacted for the purpose of assisting them in future watershed conservation, protection or restoration projects

17. _____ Estimated cost of the habitat restoration to be applied as a result of this TA#3 Landowner Recruitment Technical Assistance project.

18. Select one or more of the following types of habitat restoration expected to be applied as a result of this landowner recruitment project. If you do not expect habitat restoration to result from this project select 'None'

☐ Fish Screening	☐ Riparian Habitat	☐ Urban-Impact Reduction
☐ Fish Passage	☐ Upland Habitat	☐ Other (explain):_____
☐ Instream Flow	☐ Wetland	☐ None
☐ Instream Habitat	☐ Estuarine/Nearshore	

ATTACHMENT C

Racial and Ethnic Impact Statement

This form is used for information purposes only and must be included with the grant application.

Chapter 600 of the 2013 Oregon Laws require applicants to include with each grant application a racial and ethnic impact statement. The statement provides information as to the disproportionate or unique impact the proposed policies or programs may have on minority persons[1] in the State of Oregon if the grant is awarded to a corporation or other legal entity other than natural persons.

1. ☐ The proposed grant project policies or programs could have a disproportionate or unique positive impact on the following minority persons:

   Indicate all that apply:

   ☐ Women
   ☐ Persons with Disabilities
   ☐ African-Americans
   ☐ Hispanics
   ☐ Asians or Pacific Islanders
   ☐ American Indians
   ☐ Alaskan Natives

2. ☐ The proposed grant project policies or programs could have a disproportionate or unique negative impact on the following minority persons:

   Indicate all that apply:

   ☐ Women
   ☐ Persons with Disabilities
   ☐ African-Americans
   ☐ Hispanics
   ☐ Asians or Pacific Islanders
   ☐ American Indians
   ☐ Alaskan Natives

3. ☐ The proposed grant project policies or programs will have no disproportionate or unique impact on minority persons.

If you checked numbers 1 or 2 above, on a separate sheet of paper, provide the rationale for the existence of policies or programs having a disproportionate or unique impact on minority persons in this state. Further provide evidence of consultation with representative(s) of the affected minority persons.

I HEREBY CERTIFY on this day of , 20 , the information contained on this form and any attachment is complete and accurate to the best of my knowledge.

Signature: _____

Printed Name: Tim Morelli

Title: President, JFDIC

[1] "Minority persons" are defined in SB 463 (2013 Regular Session) as women, persons with disabilities (as defined in ORS 174.107), African-Americans, Hispanics, Asians or Pacific Islanders, American Indians and Alaskan Natives.

ATTACHMENT D
GRANT ADMINISTRATION
AND INDIRECT COST SELECTION FORM

To comply with the Federal Uniform Administrative Requirements (2 CFR) OWEB requires all applicants to complete this form. Part One will certify the applicant is a legal entity. Part Two selects the type of indirect rate the applicant is requesting in the application. Part Three applies only if you select an OWEB Negotiated Indirect Cost Rate.

PART ONE:

Sub-recipients or grantees must be legal entities. Identify your organizational type as one of the following:

☐ State or local government: FEIN _____ DUNS:_____

☒ Non-profit organization: FEIN 930719204 DUNS: 012012571

☐ Institution for Higher Education: FEIN _____ DUNS:_____

☐ Individual (not eligible for indirect or administrative costs)

If you do not have a DUNS number, please see http://fedgov.dnb.com/webform/index.jsp to obtain one.

PART TWO:

Applicant must select one of the following indirect rates. This rate will apply for the life of this grant, including any future extensions for time, and cannot be changed.

☐ **Federally Negotiated Indirect Cost Rate.** We have an approved indirect cost rate with a Federal (cognizant) agency. A copy of our most recently approved rate agreement is attached; if necessary, we will provide a more current rate once it is approved. No additional receipts will be required for this indirect cost rate.

Our current Federally Negotiated Indirect Cost Rate is _____%.

☒ **Federally Accepted *de minimis* Indirect Rate.** We have never received a federally negotiated indirect cost rate. We request, as a condition of this grant, to charge a flat *de minimis* indirect cost rate of 10% of modified total direct costs (MTDC). No additional receipts will be required for this indirect cost rate.

☐ **OWEB Negotiated Indirect Cost Rate.** We do not currently plan to obtain a federally negotiated indirect rate. We would like to negotiate an indirect rate of modified total direct costs (MTDC). Receipts for our indirect cost pool will be required for rates above 10%.

We request an indirect rate of _____% (not over 15%) Fill out Part Three.

PART THREE:

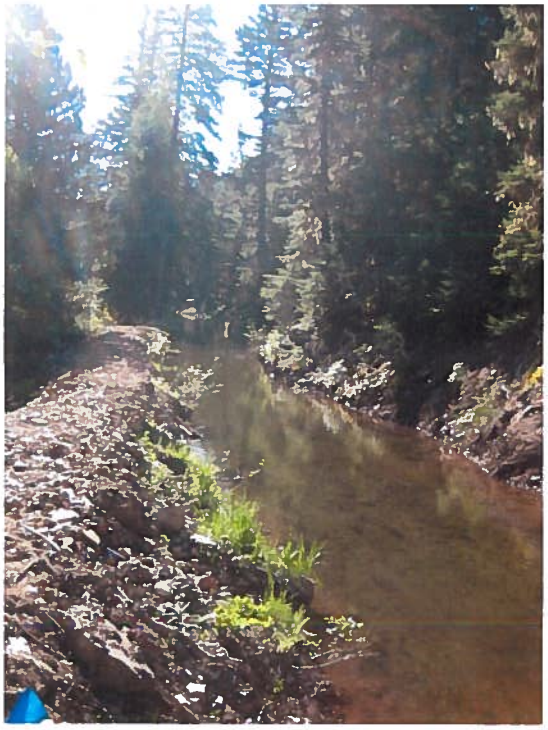
Applicants who select an OWEB Negotiated Indirect Cost Rate must select a cost allocation plan.

☒ **Less than 10%, no receipts required.** If the rate is below 10%, OWEB will allow the billing to follow the *de minimis* rules (no receipts.)

☐ **Receipt billing.** Grant administration costs are charged to grants on an item-by-item basis. Receipts for items $250 and over must be submitted. All receipts must be kept and provided to OWEB on request.

☐ **Cost allocation.** The applicant has accounting practices in place that support charging costs to a cost allocation pool and must submit cost allocation supporting documentation for allocations $250 and over. Most agencies divide administration costs either on FTE, time worked, or as a percentage of their modified total direct costs (MTDC).

Existing Diversion (see Figure 1).



Ditch downstream and east of the existing diversion.

Ditched portion of system north of Warm Springs Junction (see Figure 1).

Debris causing flow reduction in the ditch.

Bank erosion and sedimentation in the ditch.

Culverts in the ditch.

Natural stream portion of the system.

Oregon
Kate Brown, Governor

Department of Fish and Wildlife
The Dalles District Office
3701 West 13th Street
The Dalles OR 97058
541-296-4628
(fax) 541-298-4993

January 18, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

The Oregon Department of Fish and Wildlife (ODFW) supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Tygh Valley, Wasco County, Oregon. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of approximately 50 miles of main channels and 50 miles of laterals. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir each year. This irrigation system was constructed in the 1960s and includes open ditches, natural drainages, and numerous areas where significant water loss occurs. Water loss in the system has gradually worsened over time; irrigators estimate that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

This Study is the first step in developing a plan and a series of projects to upgrade the irrigation system and decrease water lost through seepage, evaporation, and irrigation inefficiencies.

The ODFW supports this Study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Rod A. French
Mid-Columbia District Fish Biologist

Wasco County Soil & Water Conservation District

2325 River Road, Suite 3
The Dalles, OR 97058-3551
Tel: (541)296-6178 ext. 3, Fax: (541) 296-7868, E-mail: wasco.swcd@oacd.org

Monday, January 25, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team,

The Wasco County Soil and Water Conservation District supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Southern Wasco County, Oregon, bordering the northern end of the Warm Springs Indian Reservation. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of over 100 miles of open ditches. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir and Frog Creek each year. In the past losses in excess of 15 CFS have been measured.

The best time to address water conservation is always in the past, the next best time is now. America's future will bring increased demand on agriculture, and a decrease in agricultural lands. We are going to have to do more, with less. With this future ahead of us, we cannot afford to have grossly inefficient systems like the JFDIC.

This Irrigation District is one of the largest conservation opportunities in Wasco County. I urge you to support this study with full funding.

Sincerely,

Josh Thompson

Conservation Planner

January 18, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

The White River Watershed Council supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Tygh Valley, Wasco County, Oregon. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of approximately 50 miles of main channels and 50 miles of laterals. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir each year. This irrigation system was constructed in the 1960s and includes open ditches, natural drainages, and numerous areas where significant water loss occurs. Water loss in the system has gradually worsened over time; irrigators estimate that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

This Study is the first step in developing a plan and a series of projects to upgrade the irrigation system and decrease water lost through seepage, evaporation, and irrigation inefficiencies.

The White River Watershed Council supports this Study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Pat Davis
White River Watershed Council Co-Chair

cc: OWRD, Jon.J.Unger@wrd.state.or.us

G:\Clients\Juniper Flats District Improvement Co\Correspondence\Letter of Support-Agency.doc

WY'EAST

January 26, 2016

Jon Unger, Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

RE: Juniper Flats District Improvement Company - Water Conservation, Reuse, and Storage Feasibility Study Grant Program - Water Conservation Feasibility Study

Dear Oregon Water Resources Department Review Team:

WyEast Resource Conservation and Development supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

We work with these same Agriculture Producers on energy efficiency and irrigation efficiency projects. We've see the numerous water losses that this study could help resolve. A combination of this important work with additional On-Farm improvements will make a big impact in this critical area.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

WyEast RC&D supports this Study and will continue to participate in the planning process as this project moves forward.

Sincerely,

Robert Wallace, C.E.M
Executive Director
Wy'East Resource Conservation and Development

Wy'East employs strategies that protect, restore, enhance and sustain both communities and natural resources.

USDA United States Department of Agriculture
Forest Service
Mt. Hood National Forest
16400 Champion Way
Sandy, OR 97055-7248
503-668-1700
FAX: 503-668-1641

File Code: 2700
Date: January 25, 2016

Jon Unger
Water Resources Grant Administrator
Oregon Water Resources Department
725 Summer Street N.E., Suite A
Salem, Oregon 97301

Dear Oregon Water Resources Department Review Team:

The Mt. Hood National Forest supports the Juniper Flats District Improvement Company's (JFDIC) application for grant funding to conduct a Water Conservation Feasibility Study. The goal of this Study is to complete an assessment of the JFDIC's irrigation system and find options to reduce water loss and support water conservation in the JFDIC.

The JFDIC is located in Tygh Valley, Wasco County, Oregon. The JFDIC consists of 2,105 acres and serves 24 landowners, who irrigate their farms with a water conveyance system composed of approximately 50 miles of main channels and 50 miles of laterals. Approximately 55 cubic feet per second of water is diverted from the Clear Lake Reservoir each year. This irrigation system was constructed in the 1960s and includes open ditches, natural drainages, and numerous areas where significant water loss occurs. Water loss in the system has gradually worsened over time; irrigators estimate that approximately one-half to two-thirds of available water may be lost because of water conveyance inefficiencies.

Due to the immense size of the irrigation system, a comprehensive evaluation, complete with mapping and feasibility analysis, is needed to develop high-impact, cost-effective projects to improve the system and conserve water in this drought-prone region.

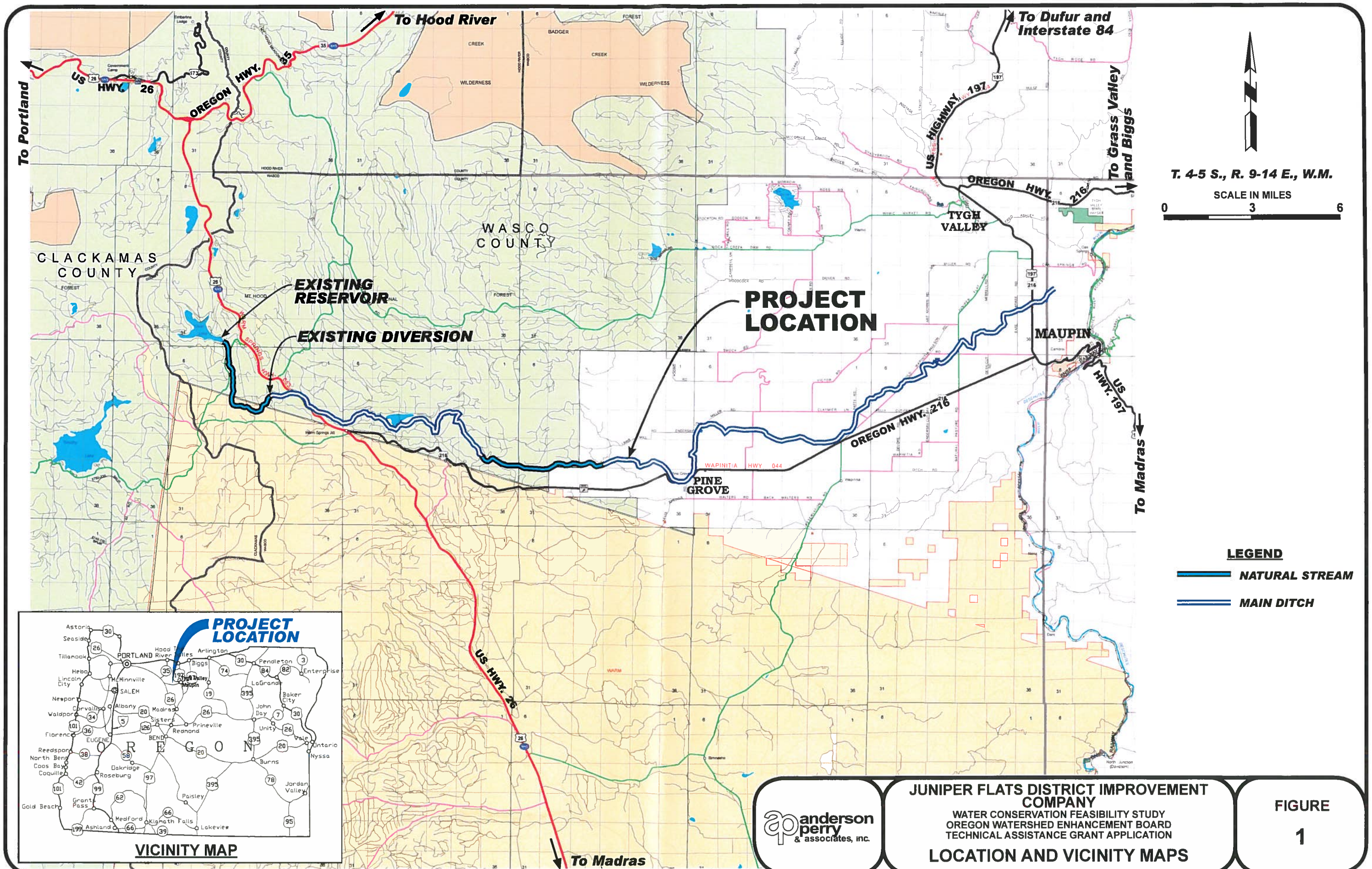
This study is the first step in developing a plan and a series of projects to upgrade the irrigation system and decrease water lost through seepage, evaporation, and irrigation inefficiencies.

The Mt. Hood National Forest supports this study and will continue to participate in the planning process as this project moves forward.

Sincerely,

for LISA A. NORTHROP
Forest Supervisor

cc: Scott Kaden, Mary Ellen Fitzgerald, Kameron Sam, Janeen Tervo



anderson perry & associates, inc.

JUNIPER FLATS DISTRICT IMPROVEMENT COMPANY

WATER CONSERVATION FEASIBILITY STUDY
OREGON WATERSHED ENHANCEMENT BOARD
TECHNICAL ASSISTANCE GRANT APPLICATION

LOCATION AND VICINITY MAPS

FIGURE 1

Job# 1199-625-030 Feb. 4, 2016 lbauer