

Project Title

Developing a Water Transactions Program Strategy in the Upper Deschutes Basin of Central Oregon

Applicant

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Technical Proposal and Evaluation Criteria

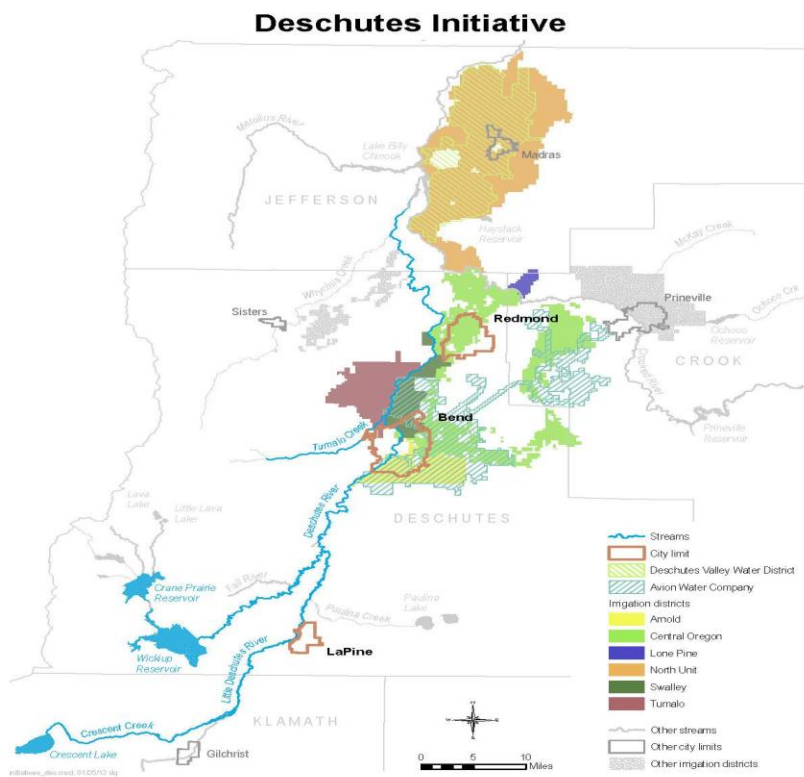
Executive Summary

Central Oregon Irrigation District (COID), a quasi-municipal special district headquartered in the city of Redmond, Oregon in Deschutes County, seeks Bureau of Reclamation (Reclamation) WaterSMART Water Marketing Strategy grant funds to develop a water transactions programs to facilitate the scale-able trading of water between districts and to the Deschutes River. The development of such a program is key to restoring Upper Deschutes flows in a way that continues to support our agricultural communities. Previous studies in the Deschutes Basin assessing projected water supplies and demands through 2050 indicate an overall 230,000 acre-foot unmet annual average demand, including agricultural, instream flow, and groundwater (municipal) needs. Stakeholders are in the midst of a Reclamation Basin Study evaluating strategies to reduce this gap, including irrigation district efficiencies, water transactions, storage optimization, and legal/policy pathways to facilitate the movement of water between users and uses. While the Basin Study ends in 2018, recent legal and regulatory issues associated with the ESA-listed Oregon spotted frog have accelerated the need to restore flows in the Upper Deschutes River. Basin Study stakeholders are dedicated to finding ways to restore flows in a way that continues to support Central Oregon’s agricultural community. A recent Basin Study report identified a significant volumetric opportunity to develop water transactions at relatively low cost, but implementation of these programs cannot begin without additional evaluation and strategy development. Two Reclamation facilities—Wickiup and Crane Prairie Reservoirs—provide flood control and irrigation water to four basin irrigation districts.

Background Data



Map 1. Locator map of Deschutes Basin, Oregon.



Map 2. Map of Upper Deschutes Basin and Major Water Users.

Overview

The proposed Project focuses on Oregon’s Upper Deschutes Basin in Central Oregon, and specifically, the Deschutes River upstream of Lake Billy Chinook. Several existing studies, supported by BOR WaterSMART grants, document an imbalance in supply and demand of water in the Deschutes Basin in excess of 230,000 acre-feet (Newton 2013). Demand numbers are currently being updated as part of the Upper Deschutes River Basin Study and are estimated to increase significantly due to new demands on the system and climate change. Since the early 1900s, surface water in the upper Deschutes Basin has been almost fully allocated, primarily for agriculture. Many stream reaches experience altered flows and water quality issues at different critical times of the year. Furthermore, hydraulic connectivity between surface water and groundwater restricts new groundwater appropriations in the region. Consequently, the State of Oregon requires mitigation for any new non-exempt groundwater rights in the upper Deschutes Basin. In most cases, this mitigation is in the form of instream transfers and leases of existing irrigation water rights.

The largest unmet demand for water is instream flow in the Upper Deschutes River, where restoration opportunities are the most complex due to shared reservoirs and diversions by multiple irrigation districts. Recent regulatory pressures to accelerate flow restoration leave junior water rights users increasingly vulnerable to water supply issues.

Summary of Water Use in the Deschutes Basin

A summary of water use in the basin, broken out by the three major water uses follows. For more extensive documentation of water rights and water use in the Deschutes Basin, see Attached Basin Study Task 1A Draft Final Memo– Water Right Assessment: Historical Diversions and Instream Water Rights in the Deschutes Basin (GSI 2017b).

Irrigated Agriculture

The major user of surface water in the Deschutes Basin is irrigated agriculture. The irrigation water rights in the Upper Deschutes Basin have a combined maximum authorized rate of diversion of up to approximately 4,797 cfs, and authorize the irrigation of a total of 220,073 acres. The average annual demand from 2006 through 2014 for the major irrigation water providers listed was 724,200 acre-feet.

Table 1. Irrigation water rights in the Upper Deschutes Basin - acres & maximum authorized rate

<i>DBBC Irrigation Districts</i>	Acres	Maximum Authorized Rates (cfs)	Source
Central Oregon	44,500	985	Deschutes River
North Unit	59,000	1099	Deschutes and Crooked Rivers
Ochoco	20,061	286.88	Crooked, Ochoco Creek, McKay Creek
Tumalo	8,110	207.57	Tumalo Creek, Crescent Creek
Arnold	4,384	150	Deschutes River
Three Sisters	7,925	139.27	Whychus Creek
Swalley	4,331	87.217	Deschutes River
Lone Pine	2,369	38.8	Deschutes River
Sub-total	150,680	3,003.35	
<i>All Other Irrigators</i>			
Peoples	2,048	42.6	Crooked River
Walker Basin	1,138	26.87	Little Deschutes River
All Others	66,207	1,684.14	Various
Sub-total	69,393	1,753.62	
Total	220,073	4,756.96	

(GSI 2017b)

Table 2: Surface water and groundwater irrigation rights - acres and maximum authorized rates

Source	Water Right Acres	Combined Maximum Authorized Rate (cfs)
Surface Water	188,482	3,632.37
Groundwater	31,591	184.88
Total	220,073	4756.96

(GSI 2017b)

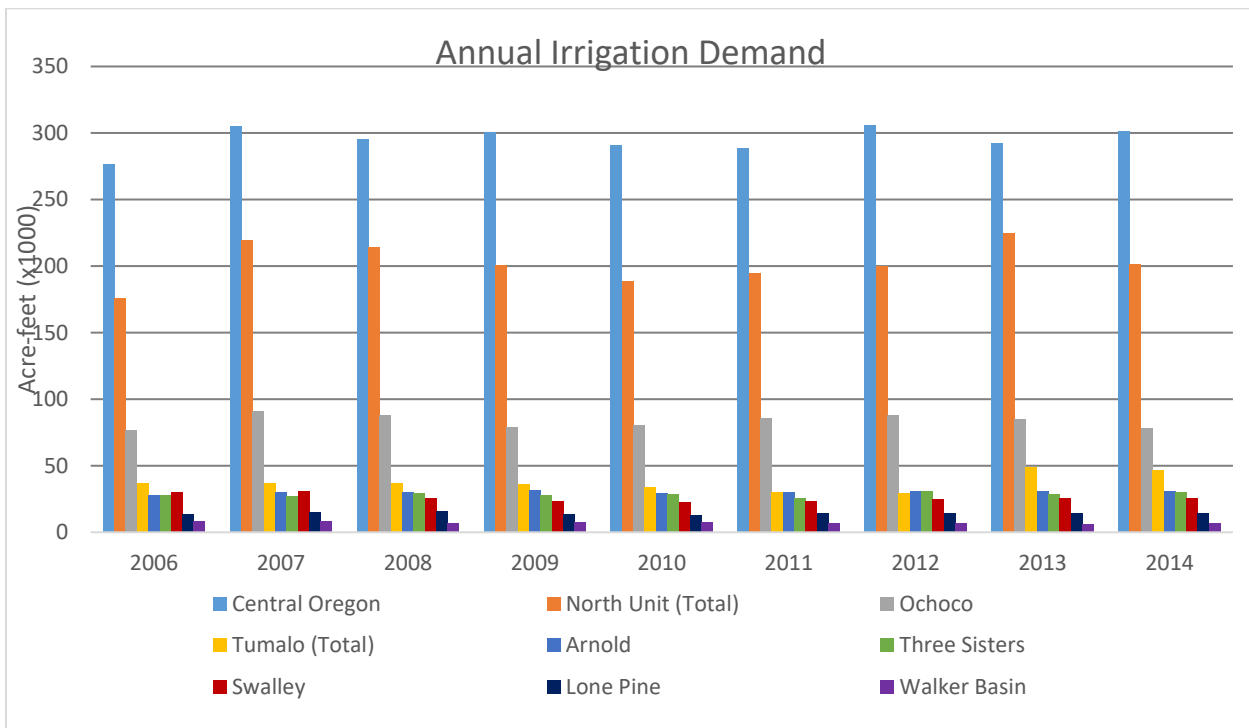


Figure 1. Annual Irrigation Demand by District, 2006-2014 (GSI 2017b)

This Project focuses on the irrigation districts that divert from the mainstem Deschutes River, which includes Central Oregon Irrigation District, North Unit Irrigation District, Tumalo Irrigation District, Swalley Irrigation District, Arnold Irrigation District and Lone Pine Irrigation District.

Senior irrigation districts on the Deschutes system generally receive reliable water, with the senior districts having opportunities to be a water supply source for the basin, through water conservation and water transactions. The majority of unmet agricultural demand comes from unreliable junior water rights associated with North Unit Irrigation District (part of Reclamation’s Deschutes Project). NUID depends on storage in Wickiup Reservoir for supply to irrigate 59,000 acres of agriculture in Jefferson County. Increasing water demands related to reservoir management and instream flow restoration needs for the

Oregon spotted frog will increase shortages in dry years. Climate change poses additional risk to NUID’s water supply.

Major crops grown in the basin include hay, alfalfa, pasture, and, in the northern part of the basin, specialty crops like carrot seed, garlic seed, seed potatoes, and mint.

Groundwater

Nearly all future water supplies for municipal, industrial, domestic and some new agricultural demands will be met with groundwater. The Deschutes Basin Groundwater Mitigation Program requires new groundwater users to mitigate for the impacts of their non-exempt use on streamflows.

Table 3 identifies water rights held by municipal providers in the Deschutes Basin.

Table 3. Water Rights held by Municipal Providers.

<i>Water Right held by Municipal Providers</i>	<i>Combined Maximum Authorized Rates (cfs)</i>
City of Bend (Groundwater)	68.24
City of Bend (Surface water)	36.1
City of Redmond	46.87
City of Prineville	24.56
City of Sisters	7.12
City of La Pine	2.23
<i>Water Rights held by Quasi-Municipal Providers</i>	
Avion Water Co.	58.36
Roats Water System, Inc.	4.1
Agate Water Co.	3.59
Deschutes Valley Water District	41.2
Sunriver Water, LLC	7.3
Cline Butte Utility Co.	6.34
Other	56.1
Total Combined Rate on Water Rights	359.70

(GSI 2017a)

The Basin Study updated groundwater demands over the next fifty years, estimating the need to generate approximately 20,000 acre-feet in additional groundwater mitigation credits.

Table4. Groundwater Mitigation Summary - Projected Supply and Demand

Permanent Mitigation Credits	
20-Year Projected Demand (2016—2035)	13233
50-Year Projected Demand (2036—2065)	6,280.9 – 8165.7
Total Projected Demand through 2065	19,513.9 – 21,398.8

Projected Mitigation Supply	551.2
Total Projected Mitigation Need (2016–2065):	18,962.7 – 20,847.6

(GSI 2017a)

Instream Flows

Although irrigators have reduced their diversions and made significant infrastructure improvements in the last 40 years, the cumulative impacts of irrigation storage and diversion operations have altered winter and summer stream flows from pre-development levels. Past studies estimated that the Deschutes River and its tributaries in the upper Deschutes Basin require an additional 160,000 AF annually to meet minimum flow targets set by the Oregon Department of Fish and Wildlife (ODFW) (Aylward and Newton 2006; Newton 2013). ODFW based its instream flow demands on twenty year-old studies that are less relevant to the current conditions; physical conditions have changed in some reaches and there are new priorities due to the reintroduction of anadromous fish and the listing of the Oregon spotted frog as threatened under the Federal Endangered Species Act (ESA).

As part of the Deschutes Water Planning Initiative in 2013, Reclamation modeled shortages associated specifically with meeting the instream water right of 300 cfs in the Upper Deschutes River. Shortages ranged up to 110,000 acre-feet based on water year. Additional flows associated with habitat needs for the ESA-listed Oregon spotted frog increase this shortfall substantially, exceeding 200,000 acre-feet. Currently in the Upper Deschutes River Basin Study, using updated models and incorporating climate change projections, Reclamation is modeling shortages associated with releasing 100, 300 and 600 cfs in the Upper Deschutes River. The Basin Study will generate these updated shortage numbers within the month. The need to consider restoring 600 cfs to the Upper Deschutes River over the long-term is real. Currently, the Upper Deschutes River channel is 20% overfit and experiences a loss of overall function including bank erosion, lack of permanent riparian vegetation, straightening, meander cutoffs and sedimentation issues. The river requires flows around 600 cfs to enable access to riparian vegetation, allowing for meaningful active habitat restoration that can begin to restore function, reconnect floodplains and restore habitat. Associated regulatory and legal concerns related to the frog elevate this as a critical and ‘time is of the essence’ need. For a more extensive description of flow issues in the Upper Deschutes River, see *Upper Deschutes River Background Paper* (Deschutes River Conservancy 2012, attached).

Summary of Supply and Demand Imbalance

The imbalances of water supply and demand are well documented in the Upper Deschutes Basin. These imbalances are cause for concern for agricultural, municipal, and environmental water users, with the biggest unmet demand being for instream use. Climate change conditions will exacerbate these imbalances. Modeling done currently in the Upper Deschutes Basin Study is updating specific shortage numbers under existing conditions and climate change scenarios.

The failure to address existing and future imbalances will affect all basin stakeholders:

- Inadequate instream water supplies jeopardize restoration efforts, impair ecosystem functions, and limit recreational and economic opportunities including angling and other water dependent activities.
- Inadequate agricultural water supplies would affect landowners within, and beyond, the basin, and limit existing in-conduit hydropower production.

- Inadequate potable water supplies (municipal and quasi-municipal water supplies) will limit economic development and threaten public health and safety.

History of Collaborative Water Management Planning

There is a strong history of collaborative water management planning in the Deschutes Basin, positioning the stakeholders well for developing an innovative water marketing strategy to help resolve the most challenging long-standing issues in the Deschutes Basin. A summary of this history follows:

- The Deschutes River Conservancy was formed in 1996 with a mission to restore streamflow and water quality using collaborative voluntary methods. The DRC was set up to operate by consensus of a multi-stakeholder board of directors and was federally-authorized by the Bureau of Reclamation.
- The Deschutes Water Alliance (DWA) was formed to engage all related governing bodies in regional water management planning. The DWA completed a set of studies in 2006 funded by Reclamation's WaterSmart program. These studies assessed basin water supply and demand issues and evaluated tools to reduce the gap.
- The 2006 DWA studies led to increased collaborative implementation of:
 - Water conservation projects that protected water instream
 - DRC's Annual Instream Leasing Program and the DRC's operation of a temporary groundwater mitigation bank
 - Operation of the DWA Water Bank that systematically governed the permanent transfer of water from urbanizing acres within irrigation districts to instream protection in the Middle Deschutes River, both for restoration and to generate groundwater mitigation credits for the Cities of Bend and Redmond
- These projects and programs have made significant progress restoring flows to the Middle Deschutes River, Tumalo Creek, Whychus Creek and the Lower Crooked River. These tools in and of themselves, however, do not restore flows in the Upper Deschutes River, an emerging priority. Thus, in 2012, the DRC and DWA launched the Deschutes Water Planning Initiative (DWPI) to specifically develop solutions to restore flows in the Upper Deschutes River. This effort was supported by a Reclamation Collaborative Water Management Planning grant.
- Due to the complexity of the tools necessary to restore the Upper Deschutes River, and the desire to incorporate more sophisticated modeling and climate change analysis, the DWPI became the Basin Study Work Group (BSWG) and successfully obtained a Reclamation Basin Study grant in 2015.
- The Upper Deschutes River Basin Study (Basin Study) is refining water management strategies to restore flows in the basin while meeting agricultural and municipal needs. Restoring the Upper Deschutes River requires combining traditional flow restoration tools with the innovative movement of water between districts and to the river. Flow scenario modeling, incorporating climate change projections, is currently underway. The Basin Study will be complete in May 2018.
- The Basin Study's draft evaluation of water markets as a water supply strategy (Summit Conservation Strategies 2017) identifies significant opportunity to implement water transactions at relatively low-cost to solve a material portion of water supply issues in the basin.
- This Project proposes to develop the water trading programs necessary to facilitate the scale-able trading of water between districts and to the river, the key to restoring Upper Deschutes flows in a way that continues to support our agricultural communities.

The BSWG members, and the Deschutes Basin as a whole, have demonstrated the ability to work together to develop and implement agreed upon goals. Within the BSWG, stakeholders have the ability to discuss contentious issues to find collaborative solutions. The basin partners intend to use previous work, and analysis produced in the Basin Study, as the foundation for developing a water marketing strategy that is a key component of the long-term water management solution in the basin.

A set of legal and regulatory issues associated with Oregon spotted frog make this work critical right now. The irrigation districts are seeking an Incidental Take Permit from the Federal Services through a Habitat Conservation Plan that will commit to specific instream restoration goals in the Upper Deschutes at specific timeframes. Threat of litigation, temporarily eased by a one-year settlement agreement, provides the context for an accelerated commitment to change. The district and basin partners are highly motivated to start developing and implementing strategies now. Water transactions provide an important tool in the toolbox as well a bridge to help satisfy critical instream needs for the Oregon spotted frog while the districts implement longer-term higher-price infrastructure projects over decades.

Reclamation Nexus and History

Please see Eval Criteria on p. 13

[Project Description](#)

Summary

Central Oregon Irrigation District, other irrigation districts, and basin partners are actively engaged in developing projects and programs that reduce the gap in water supply and demand in the Deschutes Basin. The priority focus of this work is to restore instream flows in the Upper Deschutes River, while supporting irrigated agriculture. Where projects align with the Deschutes Groundwater Mitigation Program rules, opportunities to generate groundwater mitigation credits to help meet municipal demand will be evaluated. The legal and regulatory issues associated with the Oregon spotted frog identify an urgent need to restore a large volume of flow to the Upper Deschutes River, accelerating the need to develop and implement these programs. The Upper Deschutes Basin Study, a Bureau of Reclamation WaterSmart study co-funded by Reclamation and the State of Oregon, is evaluating a suite of strategies, including district piping, storage optimization and trading water between districts and to the river. Preliminary information suggests that up to 135,000 acre-feet of marketable water exists in the basin to increase the reliability of junior water rights holders and simultaneously restore flows instream in the Upper Deschutes River. Water transactions, including temporary and permanent, that move water from senior districts to junior districts, and then protect flows in the upper Deschutes River, are an adaptive, cost-effective and voluntary approach, and can work well alongside capital-intensive infrastructure upgrades. This Project will build on the Basin Study and past water transactions work in the Deschutes Basin to develop a robust water marketing strategy focused on restoring flow needs in the Upper Deschutes River while meeting agricultural and municipal needs.

The major focus of this water marketing strategy is to move water between irrigation districts to increase reliability of junior users, and provide assurances to restore and protect flows in the Upper Deschutes River. Increasing the availability of live flow for junior users reduces the need for reservoir storage and enables the restoration of instream flows below the reservoir. This Project will focus on developing the mechanisms to move water between these uses and users and to create the programs necessary to efficiently facilitate these trades.

This Proposal is for Funding Group II, and will further evaluate the opportunities and constraints to optimize water transactions in the Deschutes Basin, and will develop a strategy to facilitate water transactions to meet agricultural, instream and municipal needs.

Major workplan components include:

- Evaluating the legal and financial structures available to implement a water marketing program, and investigating what kind(s) of marketplace mechanism(s) would best meet goals.
- Evaluating supply issues, including understanding infrastructure and urbanization issues associated with transactions and prioritizing areas where transactions can occur or where infrastructure issues can be efficiently remedied.
- Assessing temporary and permanent transactions.
- Assessing opportunities to generate groundwater mitigation credits from transactions where opportunities align with the Deschutes Groundwater Mitigation Program rules.

Element 1. Outreach and Partnership Building

To launch the Project, we will develop a communication and outreach plan that conducts extensive multi-tiered outreach in the basin. The Basin Study Work Group, the collaborative multi-stakeholder group co-managing the Upper Deschutes Basin Study, will serve as the “big tent” for communicating and gathering input about the development of a water transactions strategy in the basin, as well the Deschutes River Conservancy (DRC) Board of Directors (of which COID is a member) that provides strategic leadership on water management efforts to restore instream flows in the basin. We will then focus our efforts on engaging the irrigation district boards and patrons in a series of meetings and workshops. The Project will focus on COID, as the major water supplier, and North Unit Irrigation District, as the major source of demand for water trading, but will also engage Swalley Irrigation District, Tumalo Irrigation District, Lone Pine Irrigation District and Arnold Irrigation District. We will hold board workshop sessions and subsequent workshops with district patrons to gather input and feedback.

The workshops will:

- Provide an overview of the context/need for water transactions
- Provide an overview of activities and findings to-date related to water transactions
- Provide an overview of barriers and opportunities as currently identified
- Gather input and feedback on concerns, interests, and preferences related to strategy development

We will document each workshop, with minutes and outcomes distributed to all participants and relevant district boards. We will plan subsequent workshops, as necessary, to provide more in-depth focus on topics of interest or concern. Feedback will inform any revisions to the Project work plan necessary to provide a specific roadmap for Elements 2 and 3 below.

Element 2. Scoping and Planning Activities

Preliminary information generated in the Basin Study provides a solid foundation to build further scoping and planning activities associated with water market strategy development. Specifically, the draft Basin Study memo on water markets (Summit Conservation Strategies, 2017, attached) determined substantial quantities of water exist at relatively low costs through market-based approaches. Through analyses of information on current and past water transactions and markets employed in the basin, a survey of irrigation district patrons, and evaluation of tiered pricing, the memo identifies nearly 135,000 AF of potential total supply available (not including decreed transmission losses). The memo extrapolates data from the DRC’s Annual Water Leasing Program to determine the average cost for purchasing instream water at \$45,660 per permanent cfs, compared to the forecasted cost of water from piping and other efficiency projects at \$500,000 to \$2,000,000 per permanent cfs. The memo states “[r]ather than being a niche opportunity, leases,

sales, and incentive pricing could provide water in quantities that contribute materially to the overall supply objectives of the [basin] study, and could do so at very competitive costs.” The memo, however, also points out that this opportunity is not without challenges. “[L]ay[ing] the legal, institutional, and physical foundation needed to reap the benefits of market-based opportunities often require major policy changes. This proposal seeks to build on the work of this memo and further evaluate these challenges and opportunities.

The Study Team will work closely with district boards to build on this foundation to further scope the development of a water marketing strategy specifically:

- Evaluating and implementing, as necessary, additional targeted survey work or focus groups with patrons to gather additional information on demand and economic analysis of the market.
- Research and evaluate different structures and platforms for water transaction program implementation.
- Research and evaluate pricing and valuation strategies for market implementation, if information beyond that already identified in the Basin Study is needed.
- Research and evaluate governance, administrative, and institutional requirements for implementation of a water market/water marketing activities.
- Research and evaluate administrative and other transaction costs associated with water market/water marketing and strategies for paying these costs, as deemed necessary.
- Evaluate remaining legal/policy issues and approaches associated with expediting temporary transfers between irrigation districts.
- Evaluate remaining legal/policy issues and approaches for structuring management agreements that protect restored flows in the Upper Deschutes River.
- Water rights, consumptive use, diversions and return flows are well-documented in the basin. All evaluations, however, will consider the impacts of moving water from senior districts to junior districts or other irrigation districts in the basin.
- Economic, social, community, and environmental impacts of potential market/transactions are fairly well-understood in the basin, but we will document economic and social benefits of sustaining agricultural rights and restoring instream flows.
- Assessment of infrastructure issues associated with increased water marketing. One of the major barriers identified with accelerating water transactions within and between irrigation districts is the carry water issue associated with delivering water on various canals and laterals. Conveyance systems in Central Oregon are built in porous volcanic basalt, and lose on average 50% of their water through seepage. The districts have operational concerns that further reducing the amount of water conveyed down some canals and laterals through trading will create delivery issues for other users on the system. This Project would use information generated through a recent Water Conservation Assessment to prioritize favorable sections of the district for increased transactions in the near-term, and to identify problem areas that can then be targeted for improvements/lining/piping to facilitate future water marketing. The districts have long-term goals of piping large portions of their conveyance systems. Pairing water marketing strategies with phased piping will optimize both opportunities. This evaluation will help spatially inform the specific water marketing strategy for each district.

Element 3. Development of a Water Marketing Strategy

The outreach, scoping and planning completed in Elements 1 and 2 will directly inform Element 3, the development of a water marketing strategy. Major components of developing a water marketing strategy will include the following:

- Develop an implementation plan for one or more water market/water marketing activities, including how the water market will operate, addressing long term project management and financial sustainability, the administrative structure and institutional components, the participants, water rights and infrastructure involved, and how transactions will be tracked.
- Formulate the rules and requirements needed to make the water market/water marketing activities function and meet needs of the district and other stakeholders.
- Formulate the specific contracts or agreements supporting water marketing including intra-district agreements, inter-district agreements, and minimum flow agreements.
- Develop a monitoring plan to monitor water marketing activities. The Deschutes Basin is a highly-measured and gaged system. There may be, however, additional measurement requirements related to ensuring accountable movements of water between districts and to the river. These considerations would all be included in the monitoring plan. The monitoring plan will also include financial and economic components as well as a plan to track community and ecosystem benefits.
- Assess applicability of a “Smart Market” (a computer-optimized trading algorithm) for facilitating water transactions/water markets in the basin. If a software platform proves useful for facilitating water transactions, trading rules based on outcomes of the infrastructure assessment and other considerations will be input into the software. This would enable the market to operate efficiently while ensuring district operations and water delivery continue to run smoothly.

Evaluation Criteria

Evaluation Criterion A: The water marketing strategy will address specific shortfalls associated with water supply for instream flow in the Deschutes River, for agricultural producers in the Deschutes Basin, and for growing municipalities that need to secure groundwater mitigation credits in order to provide water for growing communities. Past studies quantified the gap in supply and demand for each sector, and the Upper Deschutes Basin Study will update these numbers.

Specifically:

- The 2006 DWA Studies and the 2013 Update on DWA Accomplishments (Newton 2013) identified a remaining 160,000 acre-feet shortage in meeting instream water rights in the Upper Deschutes Basin. In 2013, Reclamation modeled shortages associated with specifically meeting the instream water right of 300 cfs in the Upper Deschutes River (Reclamation 2013), the focus of this Project. Shortages ranged up to 110,000 acre-feet based on water year. Additional flows associated with habitat needs for the ESA-listed Oregon spotted frog increase this shortfall substantially, in excess of 200,000 acre-feet. Currently in the Basin Study, using updated models and incorporating climate change projections, Reclamation is modeling shortages associated with releasing 100, 300 and 600 cfs in the Upper Deschutes River. The Basin Study will generate these updated shortage numbers within the month. The need to consider restoring 600 cfs to the Upper Deschutes River over the long-term is real. Currently, the Upper Deschutes River channel is 20% overfit and experiences a loss of overall function including bank erosion, lack of permanent riparian vegetation, straightening, meander cutoffs and sedimentation issues. The river requires flows around 600 cfs to enable access to riparian vegetation, allowing for meaningful active habitat restoration that can begin to restore function, reconnect floodplains and restore habitat. Associated regulatory and legal concerns related to the frog elevate this as a critical and ‘time is of the essence’ need.

- North Unit Irrigation District (NUID), the junior user on the Deschutes River and the most economically-productive agricultural user, is heavily reliant on Wickiup Reservoir (up to 75% of their water supply comes from supplemental stored water). NUID already utilizes water very efficiently to make use of scarce supplies (using 1.8 acre-foot/acre on average). The listing of the Oregon spotted frog under the Endangered Species Act is driving regulatory requirements to increase releases below Wickiup Reservoir, greatly increasing NUID's water supply vulnerability. Recent minimum flow releases below Wickiup Reservoir, as agreed to under a one-year Settlement Agreement related to the Oregon spotted frog, further reduced certainty for NUID's water supply in 2016. It is expected that future release requirements will increase to 300 cfs and *up to* 600 cfs. The Basin Study is currently modeling the shortages associated with these flow scenarios, which are expected to be in excess of 200,000 acre-feet in dry years, essentially the storage capacity of Wickiup Reservoir. Increasing NUID's access to more senior natural flow rights from the Deschutes River – reducing their reliance on storage, is the key to restoring flows while maintaining viable production agriculture in NUID. The development of a water marketing strategy that moves water from senior districts to NUID is central to the continued viability of agriculture in the basin.
- The Basin Study has identified 18,000-20,000 acre-feet of additional demand for groundwater mitigation credits to meet needs of growing municipalities over the next 50 years (GSI Water Solutions 2017a).

The collective shortages associated with meeting agricultural, municipal and instream needs in the Upper Deschutes, while being updated right now in the Basin Study, are estimated to be in excess of 260,000 acre-feet. The water marketing work in the Basin Study has identified up to 135,000 acre-feet of water that could be accessible through water marketing, with additional supply possible through permanent transactions associated with urbanization and increased outreach in the districts (Summit Conservation Strategies 2017). This water supply is available largely within COID and other more senior irrigation districts that enjoy reliable live flow rights from the Deschutes River. There are a variety of mechanisms that can generate available water supply (fallowing, transferring water from urbanizing lands/remnant parcels, voluntary demand reduction, incentive-based pricing) and a variety of transactional mechanisms that can move this water temporarily or permanently to North Unit Irrigation District. More reliable live flow rights reduce NUID's need for reservoir storage, enabling flow restoration in the Upper Deschutes River. Transactions would be linked so that water marketed to NUID would be accompanied by agreements to protect flows in the river. The Basin Study is evaluating the legal/policy pathways available to accomplish this now. Where aligned with requirements under the Deschutes Basin Groundwater Mitigation Program, opportunities to generate groundwater mitigation credits from water transactions would be evaluated. The full long-term groundwater mitigation demand of up to 20,000 acre-feet can be addressed through this water marketing strategy, specifically through permanent transfers between districts and to the river that generate groundwater mitigation credits. This innovative movement of water achieves multiple benefits for multiple types of water use (instream, agricultural, municipal). These movements of water would be designed to optimize existing hydropower projects within COID where possible, providing additional energy and economic benefits (Central Oregon Irrigation District, 2016. *Executive Summary, Preliminary System Improvement Plan*. Available at <http://coid.org/system-improvement-plan/#book2/13>). If the water marketing strategy can facilitate 135,000 acre-feet of trades, this would satisfy over 50% of the unmet demand in dry years.

Parallel water conservation assessments within the districts estimate in excess of 256 cfs additional water that can be saved by piping canals and laterals, at an estimated cost of \$408 million (COID 2016).

Water marketing can provide a shorter-term bridge while longer-term funding plans roll out to implement conservation, and can also provide a more cost-effective tool alongside large infrastructure projects to generate more cost-effective water on a shorter timeframe. In summary, water marketing can provide over 50% of the long-term water needs in the basin associated with meeting anticipated regulatory requirements for instream flow needs in the upper Deschutes River. Using of a relatively-small portion of these water transactions to generate groundwater mitigation credits could satisfy 100% of long-term groundwater demand specific to the Deschutes zone of impact.

A major strength of the proposed water marketing strategy is the use of both permanent and temporary transactions. Permanent transactions can provide a base of assurance for water users and instream flows. Because flow restoration needs vary by water year, temporary transactions can be mobilized in drier years to increase availability to junior users and the river. This gives the districts and patrons maximum flexibility to respond to both the agricultural economy, market conditions and variable water years to meet multiple needs.

Because instream flow needs in the Upper Deschutes River vary by hydrologic water year, a water marketing strategy that enables adaptive and flexible movements of water between districts and to the river increases resiliency in droughts and with projected climate change impacts. Employing a strategy that includes permanent and temporary transactions enables trades to occur on an as-needed basis with low-risk for voluntary, temporary participants. Permanent transactions alongside permanent water conservation can provide a solid base of flow in all years. In dry years, when additional water is needed, temporary water marketing can be employed flexibly to fill in gaps.

This water marketing strategy sets a framework for establishing a culture where water moves easily to where it is needed based on water year and market conditions. Restoring flows in the Upper Deschutes will provide greater resiliency to a system that the community relies on for water quality, recreation and fish and wildlife resources. Achieving flow restoration through voluntary collaborative approaches will mitigate the threat of conflict and lawsuits that the basin has already started experiencing. The timing is critical to develop and implement a collaborative approach that provides real results to stave off continued litigation. Accomplishing this while continuing to provide water for agricultural communities and providing assurances for the most productive and vulnerable producers in the basin has widespread benefits for the culture and economics of our community. Demonstrating a water marketing approach that moves water between multiple uses and users to provide benefits for three different sectors can provide a model for other communities struggling to balance instream and out of stream needs amidst scarcity. Innovations around simultaneously creating assurances for instream and out of stream outcomes while maintaining adaptability with a flexible pool of water, particularly while facing a future of uncertainty and potential climate change, can contribute to charting a new course in water management.

Basin partners are ready to implement the strategy immediately upon completion. Due to the time-critical nature of the need to restore flows in the Upper Deschutes River, partners will be exploring pilot projects in the interim to begin to test out mechanisms to trade water. Because of the complex nature of the system, however, a comprehensive strategy is critical for long-term resolution of these issues. The 2014 listing of the Oregon spotted frog under the Endangered Species Act set into play complex legal and regulatory issues that are underway right now. Specifically, the irrigation districts are seeking an Incidental Take Permit through a Habitat Conservation Plan (HCP) that will reduce their risk under the ESA. Two environmental groups sued the districts and Reclamation in 2016 on issues related to water management and the spotted frog. The districts, Reclamation and the Services are working with tight timelines, operating under a Settlement Agreement until July 2017, completing a Biological Opinion and

subsequently seeking to complete a successful HCP. Simultaneously, the Basin Study is generating a suite of strategies that resolves long-term water management issues in the basin and is expected to be complete in May of 2018. Although threat of continued litigation is real, the goal of COID and partners is to leverage the collaborative development of information being generated in the Basin Study, and to obtain a successful HCP that lays out milestones for restoration on the Upper Deschutes River that basin stakeholders can achieve along a reasonable timeframe. All these factors point to a need to start implementing projects, including a water marketing strategy, as soon as possible. In summary, basin partners have reached a significant level of readiness to implement this Project. Please see p. 9 for a description of previous planning efforts, outreach and water marketing that set us up well for this next phase of innovative water marketing that resolves the most challenging long-standing issues in the Deschutes Basin.

Evaluation Criterion B: The Deschutes Basin has a strong culture of collaboration, as indicated by the history of collaborative planning processes above, and expects that the full suite of stakeholders will be involved in the planning process to develop the water marketing strategy. The Deschutes River Conservancy will play a leadership role in convening the planning process in partnership with COID. The DRC's mission is to restore instream flow and improve water quality in the Deschutes Basin. It is governed by a multi-stakeholder board of directors that includes representation from irrigated agriculture, the environment, the Confederated Tribes of Warm Springs, hydropower, federal, state and local agencies. The DRC operates by consensus and solicits and incorporates input from diverse interests around water to forge implementable water management solutions that carry the weight and durability of broad support.

This planning process is a logical outgrowth of results generated in the Upper Deschutes Basin Study that identify scale-able and cost-effective opportunities to use water markets in the Deschutes to solve a significant part of the gap in supply and demand. The Basin Study is co-managed by the Reclamation and the Basin Study Work Group (BSWG). The BSWG is a thirty-eight member diverse decision-making body that helped develop the Plan of Study for the Basin Study and that is managing its implementation (BSWG Charter and Membership Attached). The BSWG meets monthly and has several associated working groups including a leadership team and working groups associated with each technical Study Element. COID will engage the BSWG in this planning effort to solicit feedback on the strategy. The development of the water marketing strategy builds on, and does not duplicate, the water market information generated in the Basin Study.

The Basin Study memo on water markets includes the following conclusions:

- *Market-based approaches have the potential to provide water supply to meet Basin needs.*
- *The quantity of water available through these approaches is substantial relative to total Basin needs; depending on the assumptions made, market-based reallocation could meet on the order of 50% or more of supply requirements.*
- *Policy barriers would need to be addressed prior to implementation of some of the market-based approaches identified; other approaches could be implemented immediately.*
- *Much of the potential water supply identified could be available at relatively low cost; despite the intrinsic uncertainty in this analysis, the conclusion that market-based approaches provide large volumes of cost-competitive water is evident. Market-based approaches and voluntary economic tools offer a source of significant, low cost water supply that merits inclusion in Basin Study water resource scenarios.*

The memo provides sufficient information to include water marketing at a certain volume and price in the water resources scenarios that will be modeled in the Basin Study. The mechanics of how the water marketing will best work to realize its full potential, however, demands further evaluation. Reclamation support in developing the water management strategy is the complementary and necessary next step.

Letters of support are included from key members of the BSWG including the Deschutes River Conservancy, North Unit Irrigation District, the Confederated Tribes of Warm Springs, the US Forest Service, the Oregon Water Resources Department, and Trout Unlimited, in addition to the Oregon Department of Fish and Wildlife

There is no known opposition to the proposed strategy. There are many perspectives, however, on how water markets should work. One of the more critical pieces of this planning project will be engaging the full suite of perspectives in Project outreach to ensure that we develop a broadly-supported strategy.

As discussed above, the proposed water marketing strategy will complement all the past planning efforts in the basin and will provide a concrete roadmap forward for developing a tool that can meet well-documented and extremely time-sensitive water needs in the basin.

Please describe any relevant planning efforts, including who is undertaking these efforts and whether they support or are complemented by the proposed water marketing strategy. Explain how the proposed water marketing strategy will avoid duplication or complication of other ongoing planning efforts.

See discussion above. In addition to the efforts mentioned above, each irrigation district is generating a System Improvement Plan that identifies and prioritizes water conservation opportunities within each district. This information will be summarized in the Basin Study Water Conservation Assessment, expected to be complete by August 2016. We expect that implementation of water conservation efforts and water marketing efforts will complement each other and will be implemented hand-in-hand to generate water supply and meet water needs.

In addition to engaging the DRC board and the Basin Study Work Group, we will work with all of our partners to engage their constituencies, potentially bringing new perspectives into the planning effort. This will include working with the Coalition for the Deschutes, a BSWG member, who focuses on public education and awareness of water management issues in the Upper Deschutes River.

E.1.3. Evaluation Criterion C: The following table and Gantt chart illustrate an estimated project schedule showing the stages and duration of the proposed work including major tasks, milestones, and dates.

Element	Task	Description	Starting quarter	Ending quarter
1	A	Develop project workplan	Q1 2018	Q1 2018
1	B	Develop a communication and outreach plan	Q1 2018	Q1 2018
1	C	Develop outreach and communications materials	Q1 2018	Q1 2018
1	D	Attend Basin Study Work Group meeting with basin stakeholders to communicate and gather input about the development a water transactions strategy in the basin	Q1 2018	Q1 2019

1	E	Host meetings and workshops with irrigation district boards and patrons to provide an overview of: the need for water transactions, activities and findings to-date related to water transactions, and identified barriers to and opportunities for water transactions; gather input and feedback on concerns, interests, and preferences related to strategy development; focus primarily on Central Oregon Irrigation District and North Unit Irrigation District	Q1 2018	Q2 2018
1	F	Revise and update work, communication and outreach plans based on information gathered in meetings and workshops	Q1 2018	Q1 2018
1	G	Conduct ongoing outreach with basin stakeholders and irrigation district boards and patrons	Q1 2018	Q4 2020
2	A	Understanding basin water rights and water supply/demand (using existing data)	Q2 2018	Q4 2018
	i	Review and incorporate water right information (including consumptive use, diversions and return flows) from existing information drafted as part of the Upper Deschutes Basin Study Work Group (e.g. xxx) to consider the impacts of moving water from senior districts to junior districts in the basin	Q2 2018	Q 3 2018
	ii	Assess infrastructure issues associated with increased water marketing using information generated through a recent Water Conservation Assessment	Q2 2018	Q4 2018
2	B	Market structure alternatives analysis	Q2 2018	Q4 2018
	i	Research and evaluate different structures and platforms for water transaction program implementation	Q2 2018	Q4 2018
	ii	Review and incorporate existing pricing and valuation strategies for market implementation using existing study entitled xxx drafted as part of the larger Upper Deschutes Basin Study Work Group	Q2 2018	Q4 2018
	iii	Research and evaluate administrative and other transaction costs associated with water market/water marketing strategies for paying these costs	Q2 2018	Q4 2018
2	C	Legal and policy analysis	Q3 2018	Q3 2019
	i	Evaluate legal and policy issues and approaches associated with expediting temporary transfers between irrigation districts	Q3 2018	Q3 2019
	ii	Evaluate legal and policy issues and approaches for structuring management agreements that protect restored flows in the upper Deschutes River.	Q3 2018	Q3 2019
	iii	Research and evaluate governance, administrative, and institutional requirements for implementation of a water market/water marketing activities	Q3 2018	Q3 2019
2	D	Attend/host meetings related to scoping and planning activities	Q2 2018	Q3 2019

3	A	Market design/implementation plan	Q2 2019	Q4 2020
	i	Select one or more market structures/marketing activities based on outcome of outreach/scoping/planning to develop a design and implementation plan	Q2 2019	Q3 2019
	ii	Formulate eligibility, trading, and other rules and requirements for the selected market structure(s) needed to make the water market/water marketing activities function and meet needs of the district and other stakeholders.	Q3 2019	Q2 2020
	iii	Develop institutional, governance, and administrative guidelines for how the selected market structure(s) would function within the districts and also how they would interact with other basin stakeholders, water users and water managers (such as the Oregon Department of Water Resources)	Q3 2019	Q2 2020
	iv	Develop a financial plan for how the selected market structure(s) would be funded or financed over time to ensure long-term viability and to prevent negative impacts to district finances	Q4 2019	Q3 2020
	v	Formulate the specific contracts or agreements supporting the selected market structure(s) intra-district agreements; inter-district agreements; minimum flow agreements	Q1 2020	Q3 2020
	vi	Develop a monitoring plan to monitor water marketing activities	Q1 2020	Q3 2020
3	B	Develop “Smart Market” platform for facilitating water transactions in the basin	Q3 2019	Q4 2020
	i	Determine which rules, laws, policies and other restrictions are required for developing a trade matching algorithm	Q1 2020	Q1 2020
		Program trading algorithm	Q1 2020	Q2 2020
		Run test transactions through platform and analyze outcomes for consistency with market rules, laws, and other restrictions	Q2 2020	Q 3 2020
3	C	Develop technical project report summarizing market design and implementation plan	Q3 2020	Q4 2020

	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
Element/Task												
1A												
1B												
1C												

1D												
1E												
1F												
1G												
2A												
2Ai												
2Aii												
2B												
2Bi												
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3Av												
3Avi												
3B												
3Bi												
3Bii												
3Biii												
3C												

Through the Upper Deschutes Basin Study, Reclamation and partners refined and/or accumulated the latest and best data and models, including GSFlow, a refined hydrologic-groundwater model, the latest climate change projections from the CMIP5 dataset, and updated and refined Riverware, the Water Resources Model. This model is now available to run water resources scenarios in the Deschutes Basin. Additional information related to flow-temperature and flow-habitat relationships was generated to inform the outcomes of Riverware modeling.

As part of the Basin Study’s economic and water marketing analysis, an evaluation of existing and potential water marketing in the basin was completed (Summit Conservation Strategies 2017). Water demands were updated as well (including instream and municipal), framing the scale of water marketing we would like to develop (GSI 2017a, GSI 2017b).

The Basin Study is also producing a Water Conservation Assessment that will detail seepage loss within each irrigation district distribution system. This information will help inform infrastructure and operational issues associated with increasing water transactions and can help inform trading rules in the subsequent water marketing strategy. This information should be available by August 2017.

Identify staff with appropriate technical expertise and describe their qualifications. Describe any plans to request additional technical assistance from Reclamation, or by contract.

Central Oregon Irrigation District Staff

Craig Horrell is the Manager of Central Oregon Irrigation District. He has 28 years of experience in the engineering field, managing businesses in the water, real estate development, construction and sustainability fields. Craig is the Chair of the Basin Study Work Group and is intimately involved in collaborative water planning in the Deschutes Basin.

Rick Nichols is the Project Manager for COID. He has been with COID for 1 year and has 22 years of engineering experience in both the public and private sectors. He manages and oversees the District's Capital Projects.

Leslie Clark is the Water Rights Manager at COID. She has worked for COID for 16 years managing water rights including, beneficial use, permanent and temporary transfers, conserved water transfers, and instream leasing.

Kelly Hamby is the Assistant Water Master and has worked for the district for six years. He has direct experience as a ditchrider managing COID's system on-the-ground and now assists the COID water master with water measurement/management, water transactions, and, patron and delivery issues.

Jenny Hartzell-Hill is the Executive Assistant at COID. She has been with the District for 12 years. She assists with special projects and supports the management staff at COID.

Attorneys

David Filippi is a partner Stoel Rives practicing in the areas of natural resources, environmental and land use law, and concentrates his practice on water rights and water quality, fish and wildlife law, hydropower relicensing and project facility siting and permitting. David's water law practice encompasses regional water supply planning, water management and conservation planning, and compliance with water basin programs.

Matthew Singer is a litigation attorney in Holland & Knight's Anchorage and Portland offices. Mr. Singer serves as general counsel to a prominent irrigation district in central Oregon, providing advice and counsel on water rights, Endangered Species Act compliance, property law, environmental disputes and commercial matters.

Deschutes River Conservancy has worked over the last twenty years developing and implementing collaborative flow restoration in the Deschutes Basin. The staff have both technical expertise in water rights, project management experience, and extensive experience convening and facilitating collaborative planning efforts.

Tod Heisler, Executive Director, has over 30 years of experience engaging diverse partners in strategic development and implementation, and has led the DRC for twelve years. Tod will provide the leadership to forge consensus between Basin Study partners involved in water marketing strategy development.

Kate Fitzpatrick, Program Director, has a graduate degree in collaborative natural resources management, and twelve years of experience with project and program management and stakeholder engagement at the DRC. Kate led the collaborative process throughout the Deschutes Water Planning Initiative, coordinates the Basin Study Work Group and will ensure diverse participation and input into water marketing strategy development.

Natasha Bellis, Program Manager, has nine years of experience in water right transactions in Oregon. She will provide strategic input into the water marketing strategy development, assist in negotiating agreements and convening and facilitating stakeholder processes. Natasha has a MS in Environmental Studies from the University of Montana with a focus on collaborative conservation and JD from Lewis and Clark Law School with certificate in Environmental and Natural Resources Law

Gen Hubert, Water Leasing Program Manager, has twelve years of experience managing DRC's Water Leasing Program, Instream Transfers, the Groundwater Mitigation Bank, and the Blue Water Fund Raising

Program. Gen coordinates with 8 irrigation districts and up to 200 landowners to protect up to 90 cfs annually through the instream leasing program.

Marisa Chappell Hossick, Outreach Manager, has seven years of experience as DRC's Outreach Manager. She works on DRC's Social Media campaign, event coordination, newsletters and website maintenance. Marisa will help develop and coordinate the project's outreach and communications plans as well as outreach meetings and workshops.

Kelsey Wymore, Program Associate, assists DRC's water rights leasing, transfers, and conserved water applications. Kelsey also conducts water rights research, evaluates stream flow and water rights data, identifies and pursues funding opportunities, and prepares reporting materials. She provides research assistance to DRC in developing a water transactions program strategy under this grant.

AMP Insights (AMP), headquartered in Portland, Oregon with staff in Portland, Bend, Tucson and Seattle, is a consulting firm with unique expertise and experience in water transactions and water markets. AMP provides strategic advice and analytical support for water and other natural resource management programs to agencies, non-profits, irrigation districts, cities and foundations.

David Pilz, JD is a Director at AMP Insights. He has more than a decade of professional experience in water law, water rights and water policy with a focus on water transactions. David's recent work includes groundwater mitigation bank design in Arizona and the Skagit River basin in Washington, water transactions program strategy and assessment in the Colorado River Basin (US and Mexico), and drought and shortage response planning and strategy in the Lower Colorado River Basin. David is a member of the Oregon State Bar with a JD from Lewis and Clark Law School and a BA from Colorado College. He lives in Bend, Oregon.

Bruce Aylward, PhD is the Managing Director at AMP. Bruce has over twenty-five years of experience in the US and overseas in economic and policy analysis, and project/program implementation. At AMP, he provides strategic advice and economic, hydrologic and water rights expertise to a range of clients. Bruce currently leads AMP's support to NFWF's Walker Basin Restoration Program, capacity-building efforts with the Colorado River Delta Water Trust (Mexico), and mitigation banking, flow restoration and agricultural water banking efforts in Washington and Arizona. Bruce has an MA and PhD from the Fletcher School of Law and Diplomacy at Tufts University and a BA from Stanford University.

Evaluation Criterion D:

Is there a Reclamation project, facility, or activity within the planning area?

The Deschutes Project is a Reclamation facility and is the primary focus of this work. Principal features include Wickiup Dam and Reservoir, Crane Prairie Dam and Reservoir, Haystack Dam and Reservoir, North Unit Main Canal and lateral system, and the Crooked River Pumping Plant. The project furnishes a full supply of irrigation water for about 50,000 acres of land within the North Unit Irrigation District, and a supplemental supply for more than 48,000 acres in the Central Oregon Irrigation District, Arnold Irrigation District and Lone Pine Irrigation District.

COID and basin partners have worked extensively with Reclamation in the past including:

- Cooperating closely over the years to operate the Deschutes Project
- Reclamation has had major involvement with the Deschutes River Conservancy as a founding board member and through DRC's federal authorization through Reclamation.
- 2006 Deschutes Water Alliance Studies funded by Reclamation's Water 2025 Program
- Reclamation investment in conservation projects throughout the Deschutes Basin through WaterSmart grants and field services support including:

- COID’s Juniper Ridge Project
- COID/NUID’s I-Lateral Piping Project
- Tumalo Irrigation District Bend Feed Canal and Tumalo Feed Canal Piping Projects
- Swalley Irrigation District’s Main Canal Piping Project
- Reclamation support of the Deschutes Water Planning Initiative through a WaterSmart Collaborative Water Management Planning grant.
- Award of and co-management of the Upper Deschutes River Basin Study currently underway

Is the planning area in the same basin as a Reclamation project, facility, or activity?

See above.

In what way will the proposed Project benefit a basin where a Reclamation project, facility, or activity is located?

This Project is designed to mitigate supply shortfalls that are central to the Deschutes Project. Crane Prairie and Wickiup Reservoirs drive management of the Upper Deschutes River, which experiences significant flow restoration issues. Reclamation manages these reservoirs to supply irrigation water to four irrigation districts in the basin. The proposed water marketing strategy will develop programs to move water between irrigation districts, reduce reliance on stored water, and allow flows to be restored to the Upper Deschutes River. Recent lawsuits brought against Reclamation and the districts related to the ESA-listed Oregon spotted frog create an urgency to develop and implement solutions to restore flows while maintaining agriculture. The development of a water marketing strategy will directly benefit Reclamation and the Deschutes Project by providing tangible solutions to water supply shortfalls that reduce conflict and threats of further litigation. The Deschutes Project has the opportunity to model how collaborative and voluntary flow water management solutions can be successful throughout the West.

Will the Project help Reclamation meet trust responsibilities to any tribe(s)?

The Deschutes Project includes ceded lands of the Confederated Tribes of the Warm Springs Reservation. The tribes have a primary interest in protecting water quality and quantity in the Deschutes Basin and are intimately involved in the DRC and the BSWG. The tribes strongly support collaborative water management solutions that restore instream flows.

Does the proposed Project support implementation of an Interior initiative (e.g., the National Drought Resiliency Partnership or the Colorado River System Conservation Program, for example)? Or, does the Project support a complementary initiative of another Interior agency (e.g., a U.S. Fish and Wildlife Service wildlife refuge)?

The Project will support outcomes of a Habitat Conservation Planning Process underway with the US Fish and Wildlife Service and National Marine Fisheries Service, and will support designated critical habitat for the ESA-listed Oregon spotted frog.

Project Budget

Funding Plan and Letters of Commitment

COID is prepared to provide \$100,000 of in-kind contributions in the form of salaries, wages, and fringe benefits of COID staff working on the scope of work as well as \$30,000 of cash contributions towards legal costs over the three-year grant period to provide match. In addition, the Deschutes River Conservancy, a consulting non-profit selected to perform a substantial portion of the scope of work, has committed to providing \$270,000 cash contribution over the three-year period, completing the match requirement. DRC’s contribution will be used to pay for DRC staff time as they work on the scope of work. Please find DRC’s letter of

Other

The “Other” budget category is comprised solely of legal fees. COID requires extensive legal research into any new ideas for water marketing. This Project will help COID pursue innovations in water marketing that move beyond the one-to-one transactions implemented in the basin in the past. Legal analysis is needed to understand how to move water between districts, both permanently and temporarily, as well as how to protect water instream in the Upper Deschutes in the context of federal authorizations. Legal support will also be critical to draft the governance and agreements to facilitate the water marketing strategy.

Indirect

COID elects to take the “de minimus” 10% indirect rate. We do not have a federally negotiated indirect rate and feel that 10% is adequate.

Environmental and Cultural Resource Compliance

Not applicable. Applicant is not undertaking activities involving measurement, monitoring or field work.

Required Permits or Approvals

Not applicable



2024 N.W. Beech Street
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(541) 475-3652
Fax (541) 475-3905
nuid@northunitid.com

April 17, 2017

To: U.S. Bureau of Reclamation

Re: Support for Central Oregon Irrigation District's WaterSMART Water Marketing Strategy

Dear U.S. Bureau of Reclamation,

In much of the Deschutes Basin, the geology, uneven distribution of water between users, and expanding urban areas create both water management challenges and opportunities. The residents of the basin have a long history of working together to meet water management challenges, resulting in unique achievements that demonstrate the basin's ability to come together and work constructively on matters of basin-wide importance. Since 2006, basin stakeholders, including the North Unit Irrigation District, have collaborated in a process to identify their unmet water needs and to develop and analyze water management strategies to address those needs.

These efforts continue currently under the Upper Deschutes River Basin Study, a collaborative effort that will identify alternative approaches for meeting the goals of irrigation, municipal, and instream interests. Approaches will vary across the basin but along the Deschutes River and its tributaries, preliminary planning suggests that there is currently enough water available to meet most instream and out-of-stream needs during many years. Given this availability, increased efficiency, tighter management and improved use of existing water supplies across uses could be the most effective opportunities for meeting the water needs of agriculture, municipalities and the environment in Central Oregon.

COID's water marketing strategy will explore using existing water supplies to apportion water between senior districts, junior districts, municipalities, and the river as an approach to balancing existing and future needs. This broad-based strategy will identify infrastructure issues associated with leasing, identify priority areas for leasing, evaluate the legal and financial structures available to implement a water trading and transfer program, and investigate what kind of marketplace mechanism would best meet district goals. By improving the use of existing water supplies across uses, this project will help reduce unmet needs in the basin. Furthermore, it will complement a more tailored water market strategy currently being developed by the Warm Springs Tribe in partnership with the North Unit Irrigation District. Together, these two water market strategies are important pieces of a comprehensive plan to meet significant water needs in the basin by mobilizing a full set of collaboratively designed solutions

North Unit Irrigation District supports the WaterSMART Water Marketing Strategy Grant project proposed by COID and encourages Reclamation to fund this important study.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Burt", is written over a horizontal line.

General Manager



April 18, 2017

Re: Support for Central Oregon Irrigation District's WaterSMART Water Marketing Strategy

Dear U.S. Bureau of Reclamation,

In much of the Deschutes Basin, the geology, uneven distribution of water between users, and expanding urban areas create both water management challenges and opportunities. The residents of the basin have a long history of working together to meet water management challenges, resulting in unique achievements that demonstrate the basin's ability to come together and work constructively on matters of basin-wide importance. Since 2006, basin stakeholders, including the Deschutes River Conservancy, have collaborated in a process to identify their unmet water needs and to develop and analyze water management strategies to address those needs.

These efforts continue currently under the Upper Deschutes River Basin Study, a collaborative effort that will identify alternative approaches for meeting the goals of irrigation, municipal, and instream interests. Approaches will vary across the basin but along the Deschutes River and its tributaries, preliminary planning suggests that there is currently enough water available to meet most instream and out-of-stream needs during many years. Given this availability, increased efficiency, tighter management and improved use of existing water supplies across uses could be the most effective opportunities for meeting the water needs of agriculture, municipalities and the environment in Central Oregon.

COID's water marketing strategy will explore using existing supply to temporary trade water between senior districts, junior districts and the river as an approach to balancing existing and future needs. This broad-based strategy will identify infrastructure issues associated with leasing, identify priority areas for leasing, evaluate the legal and financial structures available to implement a water trading program, and investigate what kind of marketplace mechanism would best meet district goals. By improving the use of existing water supplies across uses, this project will help reduce unmet needs in the basin. Furthermore, it will complement a more tailored water market strategy currently being developed by the Warm Springs Tribe in partnership with the North Unit Irrigation District. Together, these two water market strategies are important pieces of a comprehensive plan to meet significant water needs in the basin by mobilizing a full set of collaboratively designed solutions

The Deschutes River Conservancy supports the WaterSMART Water Marketing Strategy Grant project proposed by COID and encourages Reclamation to fund this important study.

Sincerely,

A handwritten signature in black ink, appearing to read "Tod Heisler", with a stylized, cursive script.

Tod Heisler, Executive Director



WARM SPRINGS POWER & WATER ENTERPRISES
P.O. BOX 960 · WARM SPRINGS, OR 97761
OFFICE: (541) 553-1046

April 13, 2017

To: U.S. Bureau of Reclamation

Re: Support for Central Oregon Irrigation District's WaterSMART Water Marketing Strategy

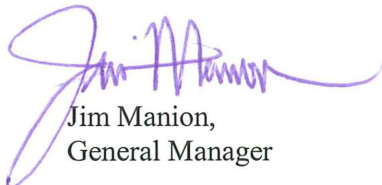
Dear Reclamation,

In much of the Deschutes Basin, the geology and expanding urban areas create both water management challenges and opportunities. The residents of the basin have a long history of working together to meet water management challenges, resulting in unique achievements that demonstrate the basin's ability to come together and work constructively on matters of basin-wide importance. Since 2006, basin stakeholders, including the Warm Springs Tribe, have collaborated in a process to identify their unmet water needs and to develop and analyze water management strategies to address those needs.

These efforts continue currently under the Upper Deschutes River Basin Study, a collaborative effort that will identify alternative approaches for meeting the goals of irrigation, municipal, and instream interests. Approaches will vary across the basin but along the Deschutes River and its tributaries, preliminary planning suggests that there is currently enough water available to meet most instream and out-of-stream needs during many years. Given this availability, increased efficiency, tighter management and improved use of existing water supplies across uses could be the most effective opportunities for meeting the water needs of agriculture, municipalities and the environment in Central Oregon.

Warm Springs Power & Water Enterprises supports the WaterSMART Water Marketing Strategy Grant project proposed by Central Oregon Irrigation District and encourages Reclamation to fund this important study.

Sincerely,



Jim Manion,
General Manager



April 17, 2017

To: U.S. Bureau of Reclamation

Re: Support for Central Oregon Irrigation District's WaterSMART Grant Application

Dear U.S. Bureau of Reclamation,

Trout Unlimited is a non-profit organization with 150,000 members nationally and 650 members in the Deschutes Chapter. Its mission is the restoration of cold water fisheries. Restoration of instream flows in the Upper Deschutes River is a current goal.

Currently the major work supporting this goal is the Upper Deschutes Basin Study. This work, supported by the Bureau of Reclamation and the Oregon Water Resources Department, is a collaborative effort supported by a large and diverse group of stakeholders including our chapter. It is entering its third year of work towards comprehensive planning for sustainable water for our farms, rivers and cities. Preliminary results from this work as well as prior studies suggest there is enough available water to meet most instream, agricultural and municipal supply demands. While conservation of agricultural water use through infrastructure modernization, management innovation and on farm efficiencies is the foundation of these solutions, work to date has revealed other challenges to moving conserved water to the locations and seasons needed. Implementation of solutions will require development of tools to meet these challenges. COID's grant proposal is for one such tool.

COID's proposal is to develop water market strategies based on existing supply to temporarily trade water between senior districts, junior districts and the river. This strategy will identify infrastructure issues associated with water leasing, priority areas for leasing and the legal and financial structures needed to implement a water trading program. This water marketing strategy should facilitate implementation of a comprehensive water management plan for the Upper Deschutes basin.

The Deschutes Chapter of Trout Unlimited supports the COID WaterSMART Water Marketing Strategy Grant proposal. It merits Reclamation funding.

Sincerely,

Michael Tripp

Past President, Deschutes Redbands Chapter of Trout Unlimited

50 SW Bond St, Suite 4, Bend Oregon, 97702



Oregon

Kate Brown, Governor

Water Resources Department
South Central Region
Watermaster District 11
231 SW Scalehouse Loop, Suite 103
Bend, OR 97702
Phone: (541) 306-6885
www.wrd.state.or.us

April 13, 2017

To: U.S. Bureau of Reclamation

Re: Support for Central Oregon Irrigation District's WaterSMART Water Marketing Strategy

Dear U.S. Bureau of Reclamation,

In much of the Deschutes Basin, the geology, allocation of water between users, and expanding urban areas create both water management challenges and opportunities. The residents of the basin have a long history of working together to meet water management challenges, resulting in unique achievements that demonstrate the basin's ability to come together and work constructively on matters of basin-wide importance. Since 2006, basin stakeholders, including Oregon Water Resources Department, have collaborated in a process to identify unmet water needs and to develop and analyze water management strategies to address those needs.

These efforts continue currently under the Upper Deschutes River Basin Study, a collaborative, broad stakeholder effort that will identify alternative approaches for meeting the goals of irrigation, municipal, and instream interests. OWRD, being a 50% funder in this study, sees approaches to achieve the goals will vary across the basin and preliminary planning suggests that there is currently enough water available to meet most instream and out-of-stream needs during many years. Given this availability, increased efficiency, tighter management and improved use of existing water supplies across uses could be the most effective opportunities for meeting the water needs of agriculture, municipalities and the environment in Central Oregon.

COID's water marketing strategy will explore using existing supply to temporary trade water between senior districts, junior districts and the river as an approach to balancing existing and future needs. This broad-based strategy will identify infrastructure issues associated with leasing, identify priority areas for leasing, evaluate the legal and financial structures available to implement a water trading program, and investigate what kind of marketplace mechanism would best meet district goals. By improving the use of existing water supplies across uses, this project will help reduce unmet needs in the basin. Furthermore, it will complement a more tailored water market strategy currently being developed by the Warm Springs Tribe in partnership with the North Unit Irrigation District. Together, these two water market strategies are important pieces of a comprehensive plan to meet significant water needs in the basin by mobilizing a full set of collaboratively designed solutions

The Oregon Water Resources Department supports the WaterSMART Water Marketing Strategy Grant project proposed by COID and encourages Reclamation to fund this important study.

Sincerely,

Kyle Gorman
Region Manager – South Central Region
Oregon Water Resources Department





File Code: 1840
Route To:

Date: April 17, 2017

Subject: Support for Central Oregon Irrigation District's WaterSMART Water Marketing Strategy

To: U.S. Bureau of Reclamation

In much of the Deschutes Basin, the geology, uneven distribution of water between users, and expanding urban areas create both water management challenges and opportunities. The residents of the basin have a long history of working together to meet water management challenges, resulting in unique achievements that demonstrate the basin's ability to come together and work constructively on matters of basin-wide importance. Since 2006, basin stakeholders, including the Deschutes National Forest, have collaborated in a process to identify their unmet water needs and to develop and analyze water management strategies to address those needs.

These efforts continue currently under the Upper Deschutes River Basin Study, a collaborative effort that will identify alternative approaches for meeting the goals of irrigation, municipal, and instream interests. Approaches will vary across the basin but along the Deschutes River and its tributaries, preliminary planning suggests that there is currently enough water available to meet most instream and out-of-stream needs during many years. Given this availability, increased efficiency, tighter management and improved use of existing water supplies across uses could be the most effective opportunities for meeting the water needs of agriculture, municipalities and the environment in Central Oregon.

COID's water marketing strategy will explore using existing supply to temporary trade water between senior districts, junior districts and the river as an approach to balancing existing and future needs. This broad-based strategy will identify infrastructure issues associated with leasing, identify priority areas for leasing, evaluate the legal and financial structures available to implement a water trading program, and investigate what kind of marketplace mechanism would best meet district goals. By improving the use of existing water supplies across uses, this project will help reduce unmet needs in the basin and is an important piece of a comprehensive plan to meet significant water needs in the basin by mobilizing a full set of collaboratively designed solutions.

The Deschutes National Forest supports the WaterSMART Water Marketing Strategy Grant project proposed by COID and encourages Reclamation to fund this important study.

Sincerely,



JOHN ALLEN
Forest Supervisor





Oregon

Kate Brown, Governor

Department of Fish and Wildlife

East Region

61374 Parrell Road

Bend, OR 97702

(541) 388-6363

FAX (541) 388-6281

April 19, 2017

To: U.S. Bureau of Reclamation

Re: Support for Central Oregon Irrigation District's WaterSMART Water Marketing Strategy

Dear U.S. Bureau of Reclamation,

The purpose of this letter is express Oregon Department of Fish and Wildlife's (ODFW) support of Central Oregon Irrigation District's (COID) proposed WaterSMART Water Marketing Strategy Grant application. ODFW's sees this as an opportunity for COID to help advance permanent restoration of instream flows in the upper Deschutes Basin essential for supporting riverine dependent fish and wildlife populations. In much of the Deschutes basin, uneven distribution of water between various needs (instream and out-of-stream), and expanding urban areas, create both water management challenges and opportunities. Since 2006, basin stakeholders, including ODFW, have participated in efforts to identify their unmet water needs and develop and analyze water management strategies to address those needs. ODFW has engaged in these efforts with the belief that a collaborative approach between multiple users in the basin will help find permanent and lasting protections for instream benefits for fish and wildlife.

These efforts currently continue under the Upper Deschutes River Basin Study, an effort that will hopefully identify and evaluate alternative approaches for meeting the goals of irrigation and municipal interests while restoring permanent instream flow needs. Approaches will vary across the basin, but along the Deschutes River and its tributaries, preliminary planning suggests that there is currently enough water available to satisfy a substantial amount of the instream and out-of-stream needs during many years. Increased efficiency, tighter management, instream transfers of water from developed parcels and improved use of existing water supplies across uses could, in-part, provide effective opportunities for meeting the water needs of agriculture, municipalities and the ultimate goal of restoring the altered and over appropriated river flows in central Oregon.

It is ODFW's understanding that COID's proposed water marketing strategy, as funded by this WaterSMART grant, will explore using existing supply to trade water between senior districts, junior districts, and the river as an approach to balancing existing and future needs and will include exploring and providing for opportunities for permanent instream conversions. This broad-based strategy should help identify infrastructure issues associated with leasing, identify instream and out-of-stream priority areas for leasing and provide mechanisms for instream transfers of water from developed parcels. It will evaluate the legal and financial structures available to implement a water trading program and investigate what kind of marketplace mechanism would help meet irrigation district needs and provide for permanent environmental flow goals necessary for the ecological needs of the Deschutes River. By improving the use of existing water supplies across uses, this proposed project has the potential to help reduce unmet needs in the basin and might be an important piece of a comprehensive plan to meet significant water needs in the basin by mobilizing a full set of collaboratively designed solutions. ODFW sees this project as a potential step in developing permanent long-term solutions that meet both instream and out-of-stream needs in the basin. ODFW feels it is important to emphasize that providing for

permanent instream transfers of water rights and year round ecological river flows should be a necessary and paramount priority of any funded marketing transaction strategy.

ODFW supports the WaterSMART Water Marketing Strategy Grant project proposed by COID and encourages the Bureau of Reclamation to fund this important study.

Regards,

A handwritten signature in black ink, appearing to read "Ted G. Wise". The signature is fluid and cursive, with the first and last names being more prominent.

Ted Wise
East Region Hydropower Coordinator
Oregon Department of Fish and Wildlife
61374 Parrell Road
Bend, Oregon 97702
ted.g.wise@state.or.us



**DESCHUTES RIVER
CONSERVANCY**

April 19, 2017

Central Oregon Irrigation District
Attn: Craig Horrell
1055 SW Lake Court
Redmond, OR 97756

Dear Craig:

The Deschutes River Conservancy pledges \$270,000 – \$90,000 per year for three years – to support the work of the Bureau of Reclamation's WaterSMART grant, a water marketing strategy grant, opportunity number BOR-DO-17-F014.

These funds are available immediately, but we don't anticipate the work starting until approximately September of 2017. These funds are to be used for DRC consulting costs and not for COID expenses or any other consultant's expenses. There are no time constraints on these funds.

Sincerely,

Tod Heister
Executive Director

700 NW Hill Street • Bend, Oregon 97701
(P.O. Box 1560 • 97709)
541.382.4077 • Fax 541.382.4078
www.deschutesriver.org / info@deschutesriver.org



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April 19, 2017

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Tod Heister
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RESOLUTION NUMBER: 2017-8
WATERSMART GRANT AUTHORIZATION

A RESOLUTION AUTHORIZING AND APPROVING EXECUTION OF A COOPERATIVE AGREEMENT FOR THE FISCAL YEAR 2017 – 2018 BUREAU OF RECLAMATION WATERSMART GRANT PROVIDING SUPPLEMENTAL FINANCING FOR INVESTIGATING WATER TRANSACTION PROGRAMS.

WHEREAS: The project will provide an opportunity explore and research options and opportunities for implementing water transaction programs.

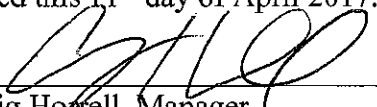
WHEREAS: The district will realize options for transferring water rights to other entities and/or individuals.

THEREFORE, BE IT RESOLVED that the Board of Directors of Central Oregon Irrigation District agrees and authorizes that:


1. Craig Horrell, Manager and Secretary to the Board of Directors for Central Oregon Irrigation District is given authority to enter into an agreement for the WaterSMART Grant Program of the Bureau of Reclamation;
2. Craig Horrell, Manager and Secretary to the Board of Directors for Central Oregon Irrigation District is given authority to review and submit the application to the Bureau of Reclamation for the WaterSMART Grant Program;
3. The district is capable of providing the amount of funding and/or in-kind contributions, specified in the funding plan; and
4. If selected to receive funds from Grant the district will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

ATTEST: CENTRAL OREGON IRRIGATION DISTRICT

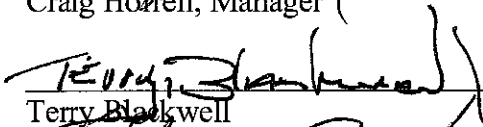
Dated this 11th day of April 2017.




Craig Horrell, Manager



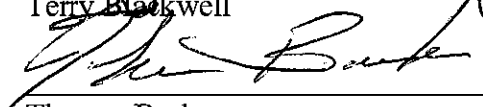
Carroll Penhollow, President



Terry Blackwell



Robert Borlen



Thomas Burke

~~Paul Kasberger~~ Absent