Kittitas Reclamation District
Water Markets for the Yakima Basin:
Researching and Developing Strategies for Multi-Benefit Markets

Reclamation WaterSMART Water Marketing Strategy Grant Proposal

Funding Opportunity Announcement

No. BOR-DO-17-F014

Prepared by

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Date:	April 19, 2017
Applicant:	Kittitas Reclamation District
City/County/State:	Ellensburg, Kittitas, Washington
Completion Timeframe:	September 2017 through February 2019
Reclamation Nexus:	Columbia-Cascades office authorized in 1905.

The Kittitas Reclamation District (KRD) seeks $198,989.86 in funding from the WaterSMART "Water Marketing Strategy Grants" opportunity to complete steps necessary to develop a "*smart market*" strategy for water marketing in WA's Yakima Basin. There is need in the Yakima Basin to formally enhance the voluntary transfers of water rights to meet water management goals, such as water for agriculture, drought responses, enhanced stream flows and water for municipal uses. KRD, with technical assistance from Trout Unlimited, will analyze water rights and use, long term basin-wide water needs, and market strategy characteristics to develop and enhance Yakima Basin water marketing efforts. The "smart market" approach will use proprietary technology and processes to provide a viable strategy that reduces transactional costs and uncertainty, and increases market participation. KRD will complete the work by focusing on a multi-benefit, ag-to-ag market strategy that builds upon existing efforts and incorporates extensive stakeholder input. These efforts will ensure successful water market reallocation efforts, one of the seven goals under the Yakima Basin Integrated Plan (YBIP)—a diverse multi-stakeholder, basin-wide integrated water resources management effort co-administered by the WA Dept. of Ecology and U.S. Bureau of Reclamation. KRD is well positioned to lead this effort because of its strategic location in the basin, its leadership and history on supporting forward thinking water management strategies and history with all entities in the Basin to support projects that provide multiple benefits to water users and instream flow. KRD is leading efforts to keep important streams flowing by using irrigation infrastructure to address dewatered upper Yakima River tributaries during summer months.

Background Data

Geography and Climate

This proposal focuses on developing a water market strategy in the Yakima River Basin ("the Basin"). (Figure 1). The Basin is over 6,150 sq miles and drains the eastern slope of the Cascade Mountains in Central WA (*Existing Analyses #1*). The Yakima River headwaters are in the Cascades and the river flows southeast for about 215 miles before its Columbia River confluence at WA's "Tri-Cities" (Richland, Kennewick, and Pasco). The Basin is home to over 300,000 people living in parts of Kittitas, Yakima, Benton, and Klickitat counties.

In the Basin's southeastern area is the Yakama Nation reservation, which occupies about 23% percent of the Basin's land area. The Yakama Nation manages over 1.1 million acres of land, including 600,000 timber acres and 90,000 irrigated acres in the Wapato Project.

The unique Basin climate varies from snow-dominated, wet mountains (>8,000') to dry, semi-arid lowlands. The mountains receive over 140" of precipitation (dominated by snow) annually. This moisture helps sustain the lower elevations that receive average less than 10" of precipitation. Ecosystem communities reflect this difference, with conifer forests dominating the Basin's headwaters and shrub steppe (dryland grasses and sage) dominating the lowlands.

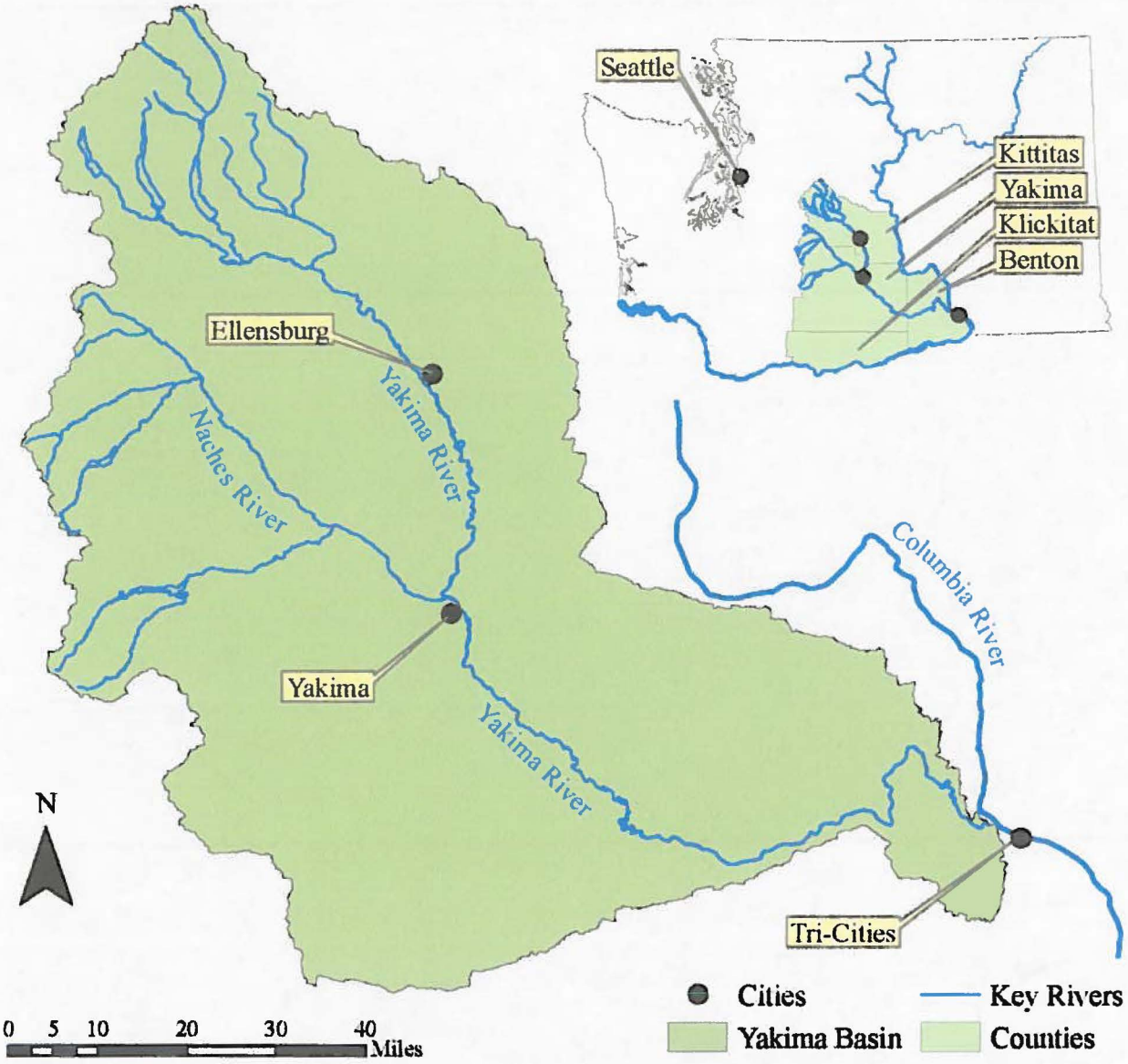

Figure 1. The Yakima Basin, over 6,000 sq miles, lies in Central Washington and includes the Yakima and Naches Rivers plus major towns of Ellensburg, Yakima, and the "Tri-Cities."

Land Uses

Agriculture is the Basin's economic driver, largest user of water, and is highly dependent on a sufficient water supply. Agricultural practices (land uses) in the headwaters include timber harvest, cattle grazing, and hay production, while lower elevation land uses include dry-land grain production and irrigated agriculture (fruits, vegetables, hay, and hops). The Basin's $3.4 billion worth of crop production, livestock, and food processing makes it the leading agricultural region in Washington. Of the basin's total worth, $1.8 billion is attributable to agricultural exports. The Yakima Basin is number one in the country for hop production and the Basin's 12,000 acres of vineyards produce more than one third of WA's grapes that contribute to more than half of all wine produced in WA.

Irrigated acres vary annually from 450,000 to 500,000. In 2015, a severe drought year, Yakima Basin producers grew over 465,000 acres of crops. These crops, with respective acreages include: orchards including apples, pears, and cherries, 70,658; hops, 37,444; cereal grains, 90,847; hay/silage, 96,706; herbs, 44,403; vegetables, 13,040; vineyards, 39,206; and "other" smaller water uses of berry, oilseed, commercial tree, flower bulb, green manure, melon, nursery, seed, and turfgrass, 72,851 (*Existing Analyses #17*).

Water shortages pose a dangerous risk to the Basin and the State's economy. Past droughts in the Basin in 2001 and 2015 caused staggering economic losses exceeding $300 million. Significant water supply actions are needed to prevent irreparable ecosystem and economic harm.

Another large and growing economic driver is fisheries and outdoor recreation. The Basin's diverse geography supports fishing, hunting, whitewater rafting, and hiking. Fisheries have extreme significance as cultural, economic, and nutritional resources for the Yakama Nation.

Historically, Yakima Basin anadromous fish runs were the second largest in the Columbia Basin. These once robust Sockeye, Chinook, and Coho salmon and Steelhead trout runs are now highly diminished. Steelhead and Bull trout are classified as threatened species under the Endangered Species Act, while Sockeye, Coho, and fall Chinook were all extirpated but are currently being reintroduced. Moreover, the Yakima Basin is home to resident Rainbow and Westslope Cutthroat populations that support a blue ribbon trout fishery.

Yakima Basin Water Rights and Management Considerations

With over 2000 surface water rights, the U.S. Bureau of Reclamation's ("Reclamation") Yakima Project, and other groundwater and surface water right classifications, Yakima Basin water management is complex. The ongoing Yakima Basin "Acquavella" adjudication has clarified surface water right elements and right types, such as proratable/non-proratable, project or non-project, and tributary/mainstem and has determined all existing surface water rights within the Basin correlating each right's priority relative to all other rights.

Development of Basin irrigation began in the 1850s. The earliest water rights are state-based water rights. In 1905, WA's legislature made possible Reclamation's ability to construct the Yakima Project by granting the U.S. the right to exercise eminent domain in acquiring lands, water, and property for irrigation purposes. On May 10, 1905, the U.S. filed an application to withdrawal all unappropriated waters of the Yakima River and its principal tributaries. Relatively few post-May 10, 1905 water rights exist on non-principal Yakima River tributaries.

Basin water rights are divided into non-proratable and proratable water rights. Non-proratable, senior rights have a pre-May 10, 1905 priority date. Proratable, interruptible water rights have a May 10, 1905 or later priority date. Water delivery goes first to non-proratable water rights, then to everyone else.

Reclamation's Yakima Project provides water for six irrigation districts (divisions) and a storage component. The irrigation districts include the: Kittitas Reclamation District (KRD); Roza Irrigation District (RID); Yakima-Tieton Irrigation District (YTID); Wapato Irrigation Project (WIP); Sunnyside Valley Irrigation District (SVID); and Kennewick Irrigation District (KID). The storage component includes five headwater reservoirs. The project also supplies state-based non-contract water rights to various users. The irrigation divisions provide about 70% of the total diversions of major diverters in the Basin. The rest are primarily other irrigation entities (e.g. ditch or canal companies, municipalities) that are mainly nonproratable water right holders.

To determine Yakima Project water deliveries, Reclamation annually calculates total water supply available ("TWSA"), which is "the amount of water available. . .from. . .the Yakima River and its tributaries. . .to supply the contract obligations of the [U.S.] to deliver water and to supply claimed rights to the use of [Yakima Basin water]" (*Existing Analyses #2*). TWSA is the: (1) forecasted Apr 1 through Jul 31 runoff *plus* (2) usable return flow estimates upstream of Parker Gage *plus* (3) reservoir storage on Apr 1 *plus* (4) forecasted Aug. 1 through Sept. 30 runoff (*Existing Analyses #1, 2*).

Water quantity developed from TWSA typically satisfies senior water right holders; however, it is not always sufficient to fill proratable water rights. This creates water supply concerns for proratable districts (Table 1).

Table 1. Yakima Project and non-project water entitlements (in AF) upstream of the Parker Gage exceed 2.29 million AF/year. (*Irr. = Irrigation; Recreated from the "Out of Stream Needs" technical memorandum; *Existing Analyses #1*.)

Entity	Proratable AF	Non-Proratable AF	Total AF
Wapato Irr. Project	350,000	305,613	655,613
Sunnyside Valley Irr. District	157,776	289,646	447,422
Kittitas Reclamation District	336,000	25,000[1]	361,000
Roza Irr. District	393,000	0	393,000
Yakima-Tieton Irr. District	30,425	75,865	106,290
Non-federal Entities	46,247	308,808	355,055
Totals	1,313,448	1,004,932	2,318,380

The proratable nature of water rights can create significant hardships for water users, especially during drought years. The KID's water right, 102,674 AF/year, is not included in TWSA[2] but brings the Yakima Project total to 2,040,999 AF of water rights. With about 1.1 million AF typically available from storage, and 1.3 million AF being proratable, Project water users are often susceptible to TWSA fluctuations. Irrigation districts manage their own water rights according to state and federal laws and internal rules and policies.

Irrigation districts with proratable water rights have a long term goal during drought years of a minimum of 70% water supply on an annual basis (*Existing Analyses #1*). 70% water supply would provide sufficient water to meet minimum agricultural needs and prevent severe economic harm. In recent droughts, the 70% goal equaled an additional need over 355,000 AF.

The Basin's total, non-project state-based water rights vary in source, quantity (annual and instantaneous), and priority date. The source of these rights comes from 31 subbasins, exceeds 400,000 AF, and the total quantity exceeds 60,000-plus irrigated acres. With priority dates ranging from 1852 to 1980, many of these rights receive only partial-season water due to over-appropriation of water rights and changes due to climate change.

Non-agricultural Basin-wide water needs also exist. Current municipal and domestic water need

[1] KRD has a July 3, 1903 non-consumptive right for 70 cfs and 25,000 AF.
[2] KID's water is not included in TWSA because the water source is unregulated and return flows. Reclamation is not contractually obligated to release storage water for KID because it is below the Parker Gage.

is about 91,000 AF/year. Existing supplies of municipal water are currently not supporting current demands. Lack of water availability could constrain the growth and development of communities in the Yakima Basin as populations in the Yakima Basin are projected to grow faster than the national average. A conservative estimate of projected needs (accounting for population growth and land use changes) is about 72,000 additional AF/year. A final water need, "other uses," includes industrial, fisheries, livestock, and non-municipal water supply. (See Existing Studies #1). Other uses, such as groundwater and domestic well mitigation, require about 26,000 AF/year at present. This creates a deliberate market for reliable surface water rights and provides opportunity to ensure a market strategy captures these stakeholders. A smart market would help address these issues by incorporating emerging technologies into the strategy.

Basin water rights and management is also influenced by Federal legislation. In 1979, Reclamation was directed by Congress to focus its Yakima Basin activities on developing a plan to provide water for supplemental irrigation, the Yakama Indian Reservation, instream flows for aquatic life, and a comprehensive plan for efficient management of water supplies. The Yakima River Basin Watershed Enhancement Program ("YRBWEP") was authorized in 1984 and available funding focused on fish passage and irrigation diversion screening. In 1994, Congress passed YRBWEP Phase 2 legislation providing for significant water conservation/acquisition, long-term studies of irrigation and fish water needs, improvement of Yakama Nation water delivery, and development of an interim plan to manage Basin water. In 2009, KRD began working with Reclamation on Phase 3 of YRBWEP. Phase 3 is the Yakima River Basin Integrated Water Resource Management Plan, commonly called "YBIP".

Past and Current Market Efforts

Water marketing and banking is not a new practice for Yakima Basin water users and water right holders. In normal and drought years, intra-district water leasing has been an important risk management tool. Roza has the first "smart" market, or electronic clearinghouse, for surface water trading in the United States, which Mammoth Trading developed and operates annually. Generally, agricultural water transfers also occur through decentralized or informal mechanisms, such as bilateral contracts and district-level bulletin boards. Inter-district transfers are also common; for example, Roza leased over 50,000 AF of water in four drought years since 2000.

Recently, transfers also occur for development or domestic mitigation. Instream flow transfers, led by Trout Unlimited (TU), also occur annually to benefit environmental purposes. In drought years, various transfers occurred from senior water right holders for use by other irrigators or for instream flow purposes (*Existing Analyses #13*). Additionally, in past droughts some water moved into and within the irrigation districts; however, these transfers were limited.

Reclamation is authorized to use its facilities for water marketing and banking. In addition, the WA legislature authorized the WA State Trust Water Rights Program (TWRP) for water-banking in 2003. The TWRP provides the legal mechanism to hold water rights for in- and out-of-stream uses and protects the water rights from relinquishment. The TWRP provides a key mechanism for ensuring any water bank transactions are legally protected.

Prior Working Relationships

KRD was formed in 1911 to deliver water within Reclamation's Kittitas Division. In 2007, KRD, Ecology, Reclamation, and other water users and resource managers collaborated and partnered to plan, design, and construct the Manastash Creek Project through the Yakima River Basin Water Enhancement Program. This award-winning water conservation pilot project near

Ellensburg, WA, replaced 20,000 linear feet of unlined lateral with a buried gravity pressure pipeline. This project conserves about 1,215 AF of water annually through increased irrigation water delivery efficiency. KRD, Reclamation, and Ecology then executed an agreement to manage the conserved water for instream flow and habitat restoration in Manastash Creek. This project is helping restore fish (salmon, steelhead, and trout) passage and populations while ensuring reliable water delivery for area irrigators.

In 2016 KRD received a WaterSMART award ($147,104) to implement Phase I of their North Branch Canal lining project. As part of Phase I, KRD received technical assistance from partners to complete all permitting and compliance requirements. These projects help improve KRD's water delivery efficiency and, through water management and allocation agreements, help instream flows. Both projects demonstrate KRD's ongoing partnership with Reclamation to allocate, manage, and protect conserved water for its members and environmental restoration.

Trout Unlimited (TU), a project partner, has successfully received and completed multiple Reclamation Cooperative Agreements to enhance habitat for fish and their habitats in priority basins in WA, ID, and OR. TU also successfully implemented multiple complex projects in the Yakima Basin to address local water supply issues, such as water rights acquisitions for instream flow, water delivery efficiency implementation, and habitat projects.

Mammoth Trading (MT), also a key partner, launched the first smart market for surface water trading in RID in 2016. MT has begun conversations with other irrigation districts receiving Yakima Project water to develop similar systems for intra-district water trading and can capitalize on these relationships and prior experience for this effort.

Project Description

This project seeks to partner with Reclamation's Water Marketing program to build a robust, "smart," water market in the Yakima River Basin. Through our methodology and specific steps, we propose to facilitate and leverage water transfers across agricultural and municipal sectors that also create instream flow benefits. Developing water transactions that benefit agriculture, municipal, and instream flow needs, or "multi-benefit" transactions, will not only address water scarcity in the basin, but also increase drought resilience in a collaborative way. This proposal will enable us to develop a strategy to (1) create a more efficient market for "multi-benefit" transactions, and (2) scale up existing water transfers to create a more robust water market.

This project will engage in extensive stakeholder involvement, collect and analyze detailed data sets, and leverage new technology to develop a "smart" market strategy framework. The goals of the smart market development are to increase access, participation, transparency, and equity of water transfers in the Yakima Basin to address water scarcity and increase drought resilience among agricultural, municipal, and environmental interests. "Smart" markets leverage the power of computer optimization to process complex water rights, transfer rules, conveyance, and other constraints, streamlining and simplifying transfers (*Existing Analyses #13, 14, 15, 16*). Whereas the current decentralized transfer process is cumbersome, development of a centralized electronic clearinghouse will decrease transactions costs and increase market participation (*Existing Analyses #13, 14, 15, 16*). We will leverage the vast prior experience and expertise between TU in environmental water transactions and MT in agricultural water transfers and smart market technology to improve upon and scale water trading activity in the Basin.

As described below, the development of the smart market strategy in the Yakima Basin breaks new ground for the level of stakeholder involvement, multiple technical and hydrologic analyses, setting market constraints based on legal requirements and policy goals, and incorporating cost-effectiveness and monitoring standards. The ability to break new ground on water markets in the Basin is a tribute to the quarter-century of relationship-building among diverse interest groups that has already taken place in the Basin. The on-going investment in the Yakima Basin to develop and implement a multi-pronged approach to addressing water scarcity on a landscape scale creates a unique opportunity for water marketing to enhance these on-going efforts. Just as the Yakima Basin has already charted new ground in collaborative, basin-scale drought planning and project implementation, the Yakima Basin is likewise poised to create a new model for multi-sector-benefit water marketing to enhance its commitment to the collaborative process for solving water scarcity. This proposal fits under Funding Group 1.

Element 1. Outreach and Partnership Building

To inform our water market strategy, we plan to develop a Communications and Outreach Plan to conduct significant and strategic outreach that builds upon existing strong partnerships. We specifically plan to (1) form a technical work group, (2) hold outreach events to interact with interested stakeholders and gather information, and (3) develop outreach materials to support exchange of information with interested parties. This will allow KRD and contractors to adequately involve Basin water users and outside stakeholders in market strategy development. Tasks involved with this element will include: stakeholder workshops, technical workgroup meetings, preparation of written materials, stakeholder resolution gathering, and final market strategy preparation and review.

Our ongoing outreach objective is to develop a feedback loop whereby we provide education and information to all stakeholders so they can inform us about market perceptions and concerns. We view stakeholders as any interested party. Participants will include municipalities, irrigation districts, federal and state agencies, non-district water right holders, and the Yakama Nation. We plan to use outreach efforts to develop a clear, long-term smart market strategy for the Basin.

The goal of this specific input is to incorporate water user perspectives into strategy development. We think this step is vital to understanding (1) the complex nature of transferring water within the Basin, (2) properly evaluating the potential for multi-benefit market transactions, and (3) developing alternatives that address stakeholder concerns. As there are often misconceptions around water markets we will use a variety of interactive tools to help dispel misrepresentations and myths and educate stakeholders on how markets function in practice.

To date, various partners (e.g. Reclamation, Ecology, private consultants, irrigation districts, etc.) have executed numerous water resource planning efforts to evaluate water transactions and conservation projects for feasibility, design, and implementation and include some planning efforts to research and evaluate water market potential in the Yakima Basin. However, these efforts stopped at the pre-feasibility stage.

At present, an informal, inefficient market exists in the Yakima Basin. The current informal market suffers from lack of structure, transparency, and inclusivity. By analyzing these issues and incorporating them into our technical analyses with stakeholder input, we plan to use existing market mechanisms to guide our market strategy. With this present proposal, we seek to advance beyond past efforts to more comprehensively analyze market feasibility and design a strategy suitable for implementation upon grant completion.

Additionally, we will conduct outreach to all interested irrigation districts and extend offers of water market workshops tailored to each district (project or non-project). Outreach event objectives will be to 1) inform stakeholders about the structures and functioning of smart markets, which includes explaining benefits achievable for agricultural operations and environmental stream flows, and 2) attain stakeholder input on perceived market constraints, current market participation, and concerns about market development.

Element 2. Scoping and Planning Activities

To properly analyze and design a market strategy, we need to address data gaps existing in past studies. Our review of past market research efforts indicates need for thorough: (1) hydrologic analysis; (2) water rights inventory analysis; (3) economic analysis focusing on agricultural water use—including updating crop water usage; (4) legal analysis; and (5) analyses on the interactive effects of different market sectors—ag, municipal—on water market activity. In coordination with Reclamation, we will develop a Project Work Plan to conduct these analyses.

We will compile this data and complete market simulations to identify and address potential constraints and issues. We plan to then summarize this data in a series of technical memoranda or similar reports. Our primary objective is to use these reports to summarize our findings and inform the technical characteristics of a smart market strategy.

First, we will conduct a robust hydrologic analysis. Poorly designed water markets exacerbate the hydrologic challenges they seek to alleviate. Therefore, thoughtful design in the market strategy is paramount. Markets must reflect the local community, their goals, and the hydrologic relationships governing flow of the water resources. A key part of our proposal is to review past and current hydrologic studies to inform the development of market rules governing transfers.

Our analysis will synthesize information about consumptive use, return flow zones, zoning and spatial buffering, and conveyance and capacity constraints to influence market development. Accounting for Yakima Basin hydrologic nuances will be critical to preventing detrimental third-party or instream flow impacts—impacts that would undermine the purpose of the smart market. This effort will involve working with Washington Department of Fish and Wildlife, Washington Department of Ecology and the Yakama Nation to complete subbasin analyses to determine priority tributary instream flow needs including instream flow quantity development from published literature, identification of current instream flow quantities (including trust instream water), and spatial analysis of non-consumptive water right suitability. Such research will help identify instream flow needs and the areas of highest potential for multi-benefit water transfers.

Second, we will inventory existing water rights. To develop a field-level inventory of water rights, we will compile water rights and use data from Ecology, Irrigation Districts, and the Washington Department of Agriculture. We will geocode this information for spatial distribution allowing us to identify and utilize key information, including water right place of use, current crop types, irrigation methods, identified point of diversion, and water right quantities, all of which are critical to understanding reallocation potential. This product will serve as the basis for additional economic and water use analyses that will help guide our market strategy.

Our integrated, field-level water rights inventory developed from this project is expected to be the most detailed in Washington State, providing the first integrated database of water rights and crops. We will take steps to protect confidential landowner data and proprietary data from irrigation districts as appropriate. Additionally, we plan to identify overlapping, stacked, or supplementary water rights that provide irrigators multiple water sources. These situations

present market opportunities when transfers meet consumptive use requirements in the Yakima Basin (TWSA neutral) and management and protection requirements. Our analytical results could help improve future water management or forecasting.

Third, we will conduct an economic analysis focusing on agricultural water use. The majority of Basin water use is agricultural. As such, our economic analysis will focus on understanding the value of irrigation for estimating market costs. We will utilize an economic crop-water model calibrated to the Basin that integrates the crop-water model with an economic model that considers input, capital, and labor costs, and commodity prices. This will provide us the capability to analyze water values for agricultural use. Using field-level data on crop type, the integrated economic crop-water model can be used to estimate values for water rights basin-wide. Data needs include agricultural data compilation, economic crop-water model development and utilization, spatial analysis of water's economic value, market simulations, and market analysis. These subtasks will complete all work required to assign current and projected water values based on agricultural and environmental needs identified by stakeholder input and water rights analyses. These subtasks will also complete market simulations necessary to help identify issues with various market strategies.

Fourth, we will conduct legal analysis and research on water market transfer rules specific to the Yakima Basin. This review will include Yakima Basin transfer rules review and analysis, memorandum drafting to incorporate into the market strategy, review and a summary of the Acquavella Adjudication to ensure all analyses are current, and draft transfer agreements based on proposed market strategy and stakeholder input. This review is necessary to address the concerns for ensuring legal compliance with water transfers and market development based on Yakima Basin water transfer rules and regulations.

We will conduct a comprehensive study on rules and regulations governing Yakima Basin water transfers. The goal of this analysis is to identify the most effective and feasible contract designs. This analysis will include a review of State, irrigation districts, and Reclamation transfer rules/requirements. The ongoing Yakima Adjudication will help provide clarity on water rights rules and explanations for rulings. We anticipate various water transfers to trigger different approval requirements by multiple bodies. As previously mentioned, intra-/inter-district transfers already occur informally through bilateral contracts but could be more efficient and accessible through improved and formal market institutions.

Other legal nuances exist depending on the type of contract considered. There are many types of water-sharing contracts that parties could enter into, such as permanent transfers, single- or multi-year leases, split-season leases, or rotational or pooling agreements. The practicality of these contracts will vary, and legal requirements need to be considered. Further, in working closely with potential buyers and sellers to understand their water needs, we hope to identify contract designs most useful to everyone.

Through our analyses, we want to identify (and eliminate) technically possible agreements that are too burdensome and impractical. From this analysis, we plan to develop advisory memoranda that provide materials for outreach efforts and for smart market strategy development (sample agreements and transfer framework). These tasks include water protection requirements and water management requirements analysis. These will be the necessary research and analyses to identify specific stakeholder concerns, and develop strategies to address the concerns for

protecting and managing transferred water in an efficient and proactive manner based on Yakima Basin water transfer rules and regulations.

Lastly, we will overlay agricultural water values with those for municipal, industrial, instream, and groundwater mitigation uses. These competing market sectors intermittently drive market pricing and negotiations based on instantaneous and long-term demand. Collectively, water use values, water rights availability, and the hydrologic, legal, and conveyance constraints will be used in a market simulation to analyze and estimate potential reallocations.

The simulation will involve developing tailor-made proprietary algorithms incorporating market constraints and features. The simulation will provide estimates on: (1) the number, volume, and value of water rights transactions; (2) the aggregate and distributional economic effects; and (3) the aggregate and distributional instream flow outcomes. These simulations are key to developing our smart market strategy.

Once these simulations are complete we will evaluate the applicability of various market administration models. We will analyze: (1) market structures, including bid and offer solicitation, price discovery mechanisms, and the utility of data and analytics on price; (2) transactions costs, like applicable fees for title searches, transfer applications, and who bears cost burdens; and (3) costs and funding models for market administrative and ongoing support. We also plan to identify how we may expedite transfers through technological aids, like electronic clearinghouses or stakeholder-generated concepts.

Element 3. Development of a "Smart" Water Marketing Strategy

Information gathered through stakeholder outreach and the various analyses outlined above will lead to development of our "Smart" Water Marketing Strategy. Transactions costs associated with water market transactions can be burdensome: the rules and regulations governing trade can be onerous, requiring a degree of time, money, and technical skill to navigate.

We will evaluate the practicability of smart markets to automate transfers. Smart markets leverage computer optimization power with a tailored algorithm to match trades among market participants. The success of these markets provides lessons-learned to support Yakima Basin market strategy development. Moreover, smart markets solve practical obstacles of trading by: (1) creating a centralized clearinghouse to reduce costs of identifying interested parties; (2) using tailored algorithms to automate regulatory compliance; (3) aggregating trades enabling multi-trade matching to increase trade efficiency and likelihood; and (4) providing privacy safeguards.

We will develop a Smart Water Market Strategy Technical Report summarizing the results and recommendations for moving forward. We will use stakeholder input to 1) evaluate and refine the strategy, and 2) identify remaining challenges that must be addressed through policy, management, or technical support. We will summarize and synthesize all research and stakeholder input to develop a Smart Water Market Strategy that meets all Basin requirements.

This market will focus on multi-benefit transfers and will be as inclusive as possible to allow maximum participation. The framework will include development of a proper monitoring and protection scheme, identifying technical needs, estimating market startup and ongoing administrative costs (depending on market administrator), preparation of final market strategy for stakeholder review, and final technical and market strategy report preparation.

We will describe entities responsible for associated regulatory tasks like transfer applications and financial transactions. Depending on water rights and agreements, transfers may be

administratively approved by staff or may require board approval. Our Strategy will describe bid and offer solicitations, transparency measures, confidentiality practices in bidding processes, mechanisms for price discovery, participant communications, and the process for exchanging funds. The Strategy will describe roles for third parties, like market administrators, title companies, lienholders, county clerks, and local, State, Federal, and Tribal agencies. We will also describe the model for market administration, which will rely heavily on stakeholder input.

The smart market strategy framework will summarize our water rights findings, a proposed legal and policy framework, the viability of any given water user given hydrologic and policy constraints, and the ultimate market economic potential. Of those legal and practicable, the Strategy will outline the workflow of the transfer processes—the roles and responsibilities of each party involved: buyers, sellers, the market administrator, approval bodies, and other applicable third-party entities. Based on the outreach and planning activities' outcomes, we will also provide a summary and analysis of the types of agreements legally and practicably efficient *and* useful for water marketing activities.

The smart market strategy framework will identify regions with high, medium, and low risk, and the capacity for monitoring and enforcement. We will work closely with irrigation districts and Ecology to ensure that monitoring and enforcement in these regions is realistic and achievable. Monitoring data will inform risks around transactions and resulting management impacts. In areas with low monitoring and enforcement capability, we will outline strategies and recommendations for curbing risks, improving capacity (e.g. measurement devices investment, staffing), or restricting transfers based on certain criteria.

The Strategy will describe other support tools we will develop, like integrating real-time water use monitoring, water-energy use benchmarking, analytics to inform water-savings strategies, and support tools around water valuation pricing. We will sequence and/or develop these tools in stages as we evaluate and determine which tools reside in public and private sectors.

We will describe processes for market roll-out, possibly phased. We propose an end product improving existing market efficiency, participation, and multi-benefit transactions through low-risk, first step transactions. This product will incorporate our water rights and needs analysis, including stakeholder input. This will help us develop a market strategy maximizing past market efforts allowing for incremental improvements based on our research conclusions and outreach efforts. The smart market strategy framework will contain guidance for scaling, including metrics and continued stakeholder input, specifically from irrigation districts because they have specific rules and concerns.

Upon completion of the smart market strategy framework, all efforts will be summarized in a final Technical Report. We will provide the report for review by stakeholders prior to finalizing it for this proposal. The Technical Report will include: a summary of all work undertaken with thorough analyses and findings/conclusions; description of all planning and outreach activities conducted; and lessons learned. We anticipate the TWG will assist by thoroughly vetting alternative pathways and fully describing the methods used to determine the final strategy.

Evaluation Criteria

E.1.1: Evaluation Criterion A—Water Marketing Benefits (40 pts)

Describe how the proposed water market or water marketing activities are anticipated to benefit water supply sustainability after implementation of the strategy. Describe the benefits that are anticipated to result from the water marketing strategy, addressing each of the following:

A. Explain whether the water market/activity will address a specific water supply shortfall and describe the extent of benefits to different sectors, including agricultural, municipal/industrial, tribal and environmental sectors, including:

a. Will the water marketing strategy address a specific water supply shortfall?

Yes, the goal of our water marketing strategy is to help find market-based strategies to address water supply shortfalls under existing climate, drought, and climate uncertainty conditions which are projected to be significant under future climate change regimes. The goal of this proposal is to follow the model of YBIP where water for agriculture and municipal uses and instream flows are all improved and enhanced together.

b. What is the nature and severity of the shortfall and which sectors are affected? Please describe the shortfall and provide support for your response.

Drought years inflict serious water shortfalls on irrigators. The estimated drought year shortfall exceeds 450,000 AF (Existing Analyses #1, 2). This shortfall affects crop irrigation, instream flows, and domestic/municipal water supply. Most irrigation districts within the Basin typically receive a full water supply in years with average precipitation. In drought years, proratable irrigation districts receive a reduced water supply. At less than 70%, these irrigators are forced to make difficult decisions on which crops receive water; additionally, irrigation districts begin looking for water to lease from outside the district boundaries.

State water right holders (irrigators with creek water rights) typically experience inconsistent water reliability unless they have the oldest water rights or have "stacked" irrigation district water rights. When combined, the overall irrigation demand creates uncertainty in the amount of water needed on an annual basis. Irrigators (all) must often plan based on anticipated water supply in the winter rather than actual water supply at the start of the irrigation season.

Climate projections for the Yakima Basin indicate a warming trend resulting in precipitation falling as more rain instead of snow. This presents an anticipated annual shortfall similar to droughts. (http://cses.washington.edu/db/pdf/wacciach3yakima646.pdf.) The shortfall's extent will be variable. Since 1992, drought reduced the proratable irrigation district water supply to <70% one in every four years. In 2015, irrigation districts only received 47% of normal water supply. (http://www.yakimaherald.com/news/local/drought-forces-farmers-with-junior-water-rights-to-get-creative/article_bc73c738-5f5c-11e5-9446-83a1249d6290.html.)

The second shortfall is instream flow for fish and wildlife. This shortfall exists because irrigation water rights are over-appropriated for Yakima River tributaries, which leaves the tributaries severely impaired during fish spawning, rearing, and migration periods. This shortfall also impacts Yakima River tributaries. (*Existing Analyses #18*).

The shortfall effectively creates a human-induced annual drought for these streams. As such, the ecosystem output (aka – health) is severely impaired. Not only are resident and anadromous fish

populations impacted, but the impaired streams fail to provide natural ecosystem services because of dewatering. With two ESA-listed fish species and a large-scale anadromous fish restoration effort, this shortfall impairs Yakima Basin fisheries' recovery efforts.

The third shortfall is the need for municipal/domestic water. In the Yakima Basin, there is strong scientific evidence of hydrologic continuity between surface water and groundwater. The demand for municipal and domestic water needs have been met primarily using groundwater sources and those demands are expected to increase dramatically in the next several decades. Even though domestic wells are exempt from permitting, they are still subject to the priority system in the basin. In 2009, Ecology closed a portion of the Upper Yakima Basin to further groundwater withdrawals without mitigation due to the impact new exempt wells were having on senior water rights. In a series of case since 2010, the Washington Supreme Court has clarified that local governments have an obligation to protect water resources under their land use management authorities. These circumstances have driven local governments to require mitigation for new municipal and domestic water needs.

c. How and to what extent will the water market/water marketing activities, once implemented, address the shortfall? Please describe the expected benefits (e.g., how water users will benefit) and provide support for your response.

Our strategy will address the irrigation shortfalls by providing irrigators an efficient mechanism to move water at any point as other irrigators need/seek water (the flexibility to deal with in-season needs and changed circumstances). We expect our strategy to increase the ability of irrigators to move water as needed within the basin. This should allow irrigators with a short water supply to meet their water needs (e.g. – for perennial, high value crops) while offsetting the decreased water supply of those willing to transfer water (e.g. – annual, lower value crops). The goal of our strategy will be to provide irrigators the ability to plan for water shortages by acquiring water to reach at least 70% water supply in drought years. We expect benefits to include increased basin output due to greater water supply security/reliability.

Our strategy will also improve instream flow shortfalls by encouraging water transfers that possess an irrigation benefit *and* an instream flow component. Our strategy will also allow environmental interests to participate in the market to encourage these multi-benefit transactions.

Finally, our market strategy will also be available to municipal/domestic needs, which is an additional shortfall in the Yakima Basin. The most direct method to provide such mitigation is to establish water banks through the purchase of senior surface water rights, the transfer of those water rights to the State Trust Water Rights Program to provide mitigation for new uses, and the issuance of mitigation certificates to new groundwater uses backed by those Trust Water Rights. Several developers and one county have already established water banks in this manner. We expect the municipal/domestic needs to actively participate in the market and work with environmental and agricultural interests to meet multiple benefits.

d. Will the water market/water marketing activities benefit multiple sectors (e.g., agricultural, municipal, tribal and environmental) and/or types of water uses (e.g., hydropower generation, recreation, irrigation)? If so, to what extent and which sectors and water uses will benefit? Provide support for your response.

Yes, our water market strategy will benefit multiple sectors. These sectors are agriculture, municipal/domestic, and environmental. These sectors include benefits for the Yakama Nation—

a key stakeholder—though benefits levels will likely focus on methods to enhance instream flows. The extent of benefits for each sector will vary based on their respective market participation. Each sector will have market participation opportunities to the benefit of their objectives. Our strategy will prioritize multiple-benefit transactions.

B. Explain how and to what extent the proposed water market or water marketing activities will improve water supply sustainability in general in the area upon implementation of the strategy (address all that apply):

a. Increasing resiliency to drought

Implementation of our water marketing strategy will improve water sustainability for drought resiliency by improving the ability of water users and regulators to move water as necessary to meet irrigation and environmental needs. This will increase the Yakima Basin's agricultural producers and fisheries to withstand drought periods by providing greater access to water when as it is needed. Moreover, our strategy will make it easier for all stakeholders to plan for drought.

b. Providing instream flows for ecological purposes, species, recreation or water quality objectives

We propose developing a multi-benefit market strategy. Under our strategy, stakeholders interested in instream flows for any purpose would have both the ability to participate directly in water transactions and to incentivize transactions with secondary instream flow benefits. Our strategy will apply to the entire Yakima Basin as practicable.

c. Sustaining agricultural communities while still reducing diversions

Our market strategy will also encourage capital investment by agricultural producers to improve irrigation systems and on-farm water management. Markets monetize water conservation and reward improved efficiency by providing a new revenue stream to agricultural producers to sell or lease conserved water. Markets incentivize adoption of new data, technology, and analytics to improve water use efficiency while maintaining or improving profitability.

d. Reducing the likelihood of conflicts over water

Our market strategy will provide an open and inclusive water market. This will reduce conflicts by allowing everyone to participate in market transactions. Markets allow communities to voluntarily reallocate water resources amongst themselves, rather than through a purely rigid system of prior appropriation. Moreover, our strategy will encourage multi-benefit transactions, which will allow environmental, municipal/domestic, industrial, and agricultural interests to work together to maximize transaction benefits.

e. Demonstrating a water marketing approach that is innovative and which may be applied by others

This proposal is innovative as it seeks to integrate multiple water rights and sources into a single marketplace; to find creative solutions addressing the concern of multiple water sources within a water market; and to utilize state-of-the-art 'smart' market technology to automate regulatory compliance and reduce transactions costs to participants. Several management districts in many states across the US West deal with similar challenges of fractured water rights information, commingled water sources, and complex regulatory environments. Our hope is that the findings of our study will be transferrable to those jurisdictions.

C. Explain the extent to which the water market/activity will be ready to proceed upon completion of the strategy, addressing each of the following (note: Funding Group I proposals will be evaluated separately from Funding Group II proposals, to ensure fairness):

a. Describe your plans and timeline for implementing the strategy upon its completion.

We anticipate a final strategy capable of implementation with a pilot area within one year of completion of the grant agreement. A major component is determination of the proper approach to implement the strategy in coordination with other Yakima Basin water resource activities. We believe a tiered approach that starts with implementing low-risk (pilot area) transfers and progresses to more difficult transactions will help stakeholders to gradually become more familiar and comfortable with market-based strategies. Starting with lower-risk transactions will also help our team to troubleshoot, evaluate the strategy's implementation, and make any necessary changes as needed without the risk of large-scale or long-term consequences.

b. Are there complex issues, including issues of law or policy, that would need to be resolved before the strategy could be implemented?

Yakima Basin's water transfer laws and policy are based on established principles and practices (some through litigation). One of the principals of the proposal is to look at ways of streamlining water transfers. We will analyze all Basin water management policies which may require changes in policy and potentially current water law. Initial stakeholder discussions in the Basin about TWSA issues identified the challenge of sorting and classifying stacked water rights and evaluating strategies to mitigating negative transfer impacts.

c. Explain whether previous planning, outreach and/or water marketing activities were completed, including work on any of the required Project elements (1), (2), and (3), described above.

Numerous previous planning and water marketing activities were completed for the Yakima Basin (*Existing Analyses*). We identified at least 12 water market planning and technical memoranda that evaluated aspects of a Yakima Basin market strategy. However, no documents provided a strategy beyond the preliminary feasibility stage. As such, these documents provide a basis to begin this project and guide the strategy but significant work is required to complete analyses and vet prior market planning efforts. Additionally, four especially relevant smart market peer-reviewed papers were identified.

E.1.2: Evaluation Criterion B—Level of Stakeholder Support and Involvement (30 pts)

A. Identify stakeholders in the planning area who have committed to be involved in the planning process. Documentation could include letters from stakeholders committing to be involved in the planning process (such letters should explain what their specific interest is and how they plan to participate).

a. Describe their commitment, e.g., will they contribute funding or in-kind services or otherwise engage in the planning process?

At this time, we have agreement to participate in the process from the major irrigation districts, Yakama Nation, WDFW, and WDOE. The WA Department of Ecology is committed to contribute funding to match any award.

b. Please explain whether the project is supported by a diverse set of stakeholders. For example, is the project supported by entities representing environmental, agricultural, municipal, tribal, or recreation uses?

Water markets are one of the seven elements of the YBIP supported by its Executive Committee and Stakeholder Workgroup. The workgroup support includes members from the environmental (American Rivers and Trout Unlimited), agricultural (Yakima Tieton Irrigation District,, KRD, Kennewick Irrigation District, Roza Irrigation District), tribal (Yakama Nation), and state organizations (WDFW, WDOE). These stakeholders support the elements of the plan.

B. Describe stakeholders in the planning area who have expressed their support for the planning process, whether or not they have committed to participate. Support can include letters of support from stakeholders or a description of feedback from interested stakeholders; such letters should identify the stakeholder's specific interest.

We received letters of support for this effort from: the Kittitas County Conservation District, North Yakima Conservation District, WA Dept. of Fish and Wildlife, Ecology, American Rivers, The Wilderness Society, RID, and YTID. We anticipate all these stakeholders to participate in various steps of the planning process. Additionally, TU, Ecology, and WSU committed to provide cost-share and technical assistance.

C. Is there opposition to the proposed strategy? If so, describe the opposition and explain how it will be addressed. Opposition will not necessarily result in fewer points.

Water markets in the Yakima Basin are not a new idea or strategy. We think opposition will depend on market strategy developments. At present, a water market is supported by irrigators, regulators, and the environmental community. However, the support is conditioned on the market's ability to meet specific basin requirements.

Opposition will exist if market options move water in ways impairing irrigation districts' ability to deliver customer water. We will address irrigation district concerns through careful water rights and legal analysis of transfers and by examining issues surrounding TWSA impairment and other water users (e.g. transfers must be TWSA neutral). We will also include irrigation districts in the TWG as part of the planning process. Additional opposition likely exists from environmental groups if they see a market benefitting only irrigation or municipal interests to the detriment of the environment (fish and wildlife). We will address this potential opposition by also including environmental representatives in the TWG as part of the planning process.

D. Do any separate planning efforts express support for the proposed water market/transaction? Or, will the proposed water marketing strategy complement other ongoing or recent planning efforts within the area?

Our proposal is in support of the Yakima Basin Integrated Plan (YBIP), which is a 30-year integrated water resource plan that identifies seven elements that will improve water resource concerns for the Yakima Basin. "Market reallocation" is one of the seven elements. At present, there is no formal plan or proposed water market. This proposal will help inform the market development by filling data gaps and providing analysis of various implementation strategies.

Other studies include: Yakima Basin Study (Reclamation), Ecology IP EIS (Ecology), drought response planning (Ecology), and YBIP (Ecology and Reclamation). This proposal is complementary to the past studies because we are incorporating those study results into the development of our strategy. Moreover, Ecology's Office of Columbia River is also planning to

solicit water market proposals. We are complementing that effort by seeking funding and proposing a Smart Market with the nation's only smart market company. Additionally, we are proposing to develop a market strategy that may work in part or in whole. In this way, our strategy is something other Washington basins can duplicate and implement.

E. Describe what efforts that you will undertake to ensure participation by a diverse array of stakeholders in developing the water marketing strategy. If specific stakeholders have not yet been identified, or if some sectors are not yet represented, explain how you will accomplish this in the first few months after an award. Support could include a description of key stakeholder interests in the planning area and what efforts that you will undertake to engage them in the planning process, including outreach to stakeholders or collaborating with other groups or partners.

Market strategy success relies heavily on the participation of the diverse stakeholders already involved in the Yakima Basin Integrated Plan (YBIP). This includes those that may oppose the plan and those in favor of the plan. We recognize the stakeholders will include those on the YBIP workgroup, in addition to environmental and irrigation interests not represented. For those on the YBIP workgroup, we anticipate engaging those stakeholders through the established YBIP channels. We will accomplish stakeholder identification and inclusion by soliciting participation in a Technical Work Group (TWG) and holding our first outreach event within 3 months of receiving the award. We will collaborate with existing YBIP workgroup members by requesting information and allowing for their review and commenting on our work products. We view the review by workgroup members as key stage in the successful development of a successful market because these stakeholders possess the requisite experience and skill to review any market strategy from their respective viewpoints and provide biased input. This biased review and input is required so we may incorporate a diversity of needs and concerns. For interested stakeholders not on the YBIP workgroup (including those we may not have identified) we anticipate accomplishing outreach to these groups by: (1) advertising our effort through local newspapers, radio, and trade publications; (2) holding public outreach workshops to encourage participation; and (3) providing them the opportunity to participate in our process as we develop a strategy. We will accomplish both efforts within 3 months of any award through our outreach and communication plan, which is designed to encourage stakeholder participation.

E.1.3: Evaluation Criterion C—Ability to Meet Program Requirements (20 pts)

A. Describe how the three elements of a water marketing strategy will be addressed within the required timeframe. Please include an estimated project schedule that shows the stages and duration of the proposed work including major tasks, milestones, and dates. If prior planning work will be relied on to meet any of the required elements of a water marketing strategy, please explain this and briefly describe that work that will be relied on. Your response to this sub-criterion should demonstrate your understanding of the tasks required to address the required elements of a water marketing strategy under this program.

We will address all three elements of the water marketing strategy by contracting with TU, who possess significant expertise in researching, analyzing, and transacting water rights. TU will then subcontract with MT, Plauche & Carr, and WSU to develop a market strategy, including all relevant research, by working with stakeholders and Yakima Basin experts in a technical working group (TWG), to ensure we incorporate relevant areas of concern. TU will contract with WA State Univ. experts on crop water modeling and MT on market development to ensure our

research and analysis meets current industry standards or is state-of-the-art. We anticipate starting in September 2017 and completing after 18 months—February 2019. The following table outlines our proposed timeline for major tasks, responsible parties, and key milestones.

Major Tasks	Parties	Dates	Milestones
Outreach: stakeholder workshops, Technical advisory group creation, preparation of written materials	KRD, TU, MT	09/17 – 10/18	TWG formation; stakeholder meetings; development and BOR review of Comm. & Outreach Plan; development of outreach materials
Project Work Plan: develop and refine tasks, subtasks, work schedule, and responsibilities	KRD, TU, MT	09/17 – 12/17	Development of Project Work Plan; submit to BOR for review
Water rights analysis: subbasin suitability, water rights spatial analysis, TWSA requirements	KRD, TU, KRD	10/17 – 03/18	Draft and completed technical reports on water rights; GIS data base completion
Water Valuation: data compilation, crop-water models, spatial analysis, market simulations/analysis	KRD, MT, WSU	10/17 – 06/18	Draft and completed technical reports on water valuations, crop water use; market simulations completion
Instream Flow: stream flow needs, trust water inventory, transfer opportunities	KRD, TU	10/17 – 12/17	Draft and completed report on water needs by subbasin and streams
Water management and protection: steps & requirements to ensure protectable water transfers	TU, KRD	10/17 – 12/18	Draft strategy incorporating stakeholder concerns about managing and protecting transferred waters
Legal Analysis: review & analyze basin water transfer rules, adjudication status & updates, draft transfer agreements	TU, KRD	10/17 – 01/18	Memoranda summarizing legal concerns and issues with advice; draft agreements for transfers
Smart market strategy development: monitoring & enforcement plan, technological support, admin, final technical report and market strategy	TU, MT, KRD	10/17 – 02/19	Draft Strategy and Technical Report; Complete all necessary reporting requirements for WaterSMART grant

B. Describe the availability and quality of existing data and models applicable to the proposed water marketing strategy.

We identified numerous studies analyzing Yakima Basin water resource data to varying degrees. No study went beyond the preliminary feasibility of any water marketing strategies. Raw data for water use is available through federal, state, and local agencies. The data accuracy and reliability ranges from very precise, sub-acre crop irrigation types to broad, coarse-scale subbasin water demands. This data is available but requires QA/QC procedures prior to analyses.

Three notable model limitations exist. First, prior benefit-cost modeling exercises over-estimated marketable water amounts in the Yakima Basin. These skewed results caused dissatisfaction by Basin stakeholders over a lack of understanding of water transfer rules. Second, crop water requirement models require updating to reflect current and projected climate uncertainty because current models are >30 years old and do not account for climate shifts. Finally, instream flow

requirements for fish benefits change annually based on precipitation and irrigator needs. We plan to collect and synthesize raw data for all three to identify and address issues in our strategy.

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

Kevin Eslinger is KRD's assistant manager. His family is fifth generation farmers in the Kittitas Valley. He has served on the Board of Directors for a local irrigation company, and the Kittitas County Water Purveyors. He is also the Farm Bureau Secretary/Treasurer and is well-versed with irrigation and water rights issues in the Yakima Basin.

Roger Satnik is KRD's GIS analyst and grants manager. He has twenty years of experience in coordinating Reclamation grants for the KRD. Rogers holds a BS in Mathematics from Central Washington University with major studies in Computer Science and GIS.

KRD will partner with TU's Washington Water Project. TU's staff is skilled and technical proficient in the world of water rights and market transactions, especially in the Yakima Basin. TU will contract with Plauche & Carr, MT, and WA State Univ. to attain specialized legal and technical skills and assistance surrounding Yakima Basin water rights, Smart markets and market development, and crop water use models.

Jeff Slothower is a partner at Lathrop, Winbauer, Harrel, Slothower & Denison L.L.P and has worked in the Yakima Basin since 1984. Jeff has a J.D. from Willamette College of Law plus B.A. degrees in Business Administration and Economics. Jeff provides legal services for KRD and other Basin water rights clients on a daily basis and for the Acquavella Adjudication.

Lisa Pelly is Director of TU's Washington Water Project. She has over 10 years of experience designing and implementing policies and projects enhancing instream flow in WA's waterways. She is: a board member of the WA Wildlife and Recreation Coalition, YBIP Implementation Executive Committee, Icicle Creek Steering Committee, and one of two conservation representatives to the Columbia River Policy Advisory Group.

Justin Bezold is TU's manager for the Yakima River Basin. His work includes identifying, assessing, and implementing projects with meaningful coldwater fish conservation benefits, specifically projects restoring stream flows to more natural conditions. Justin holds a B.S. in Fisheries and Wildlife Management, an M.S. in Forest Resources, and a J.D. His professional background includes over 10 years of experience as a fisheries biologist in ID, GA, and WA.

Cody Gillin is TU's project manager and GIS expert. Cody's work includes analyzing crop types and water use patterns through remote sensing and on-the-ground verifications and water conservation project development. Cody holds a B.S. in Environmental Science and an M.S. in Forestry. Cody has been with TU for 5 years.

Laura Ziemer is Senior Counsel and Water Policy Advisor for TU's Western Water and Habitat Program. She graduated with a J.D. and an M.S. in Resource Ecology. Laura opened the Montana Water Project office for TU in August of 1998 and has expanded TU's water leasing program through legislative improvements to the program, as well as pioneering an approach to stream restoration that involves converting irrigation water rights to instream flow rights.

Peter Dykstra is a partner at Plauche and Carr LLP and serves as outside counsel to TU on all of its water resources projects in WA, including the Yakima Basin. He has over 15 years of experience developing, negotiating, permitting, and implementing dozens of water rights

transactions in the Yakima Basin for TU, public agencies, and private entities. As part of his water rights work in the Basin, Peter has been lead counsel to Kittitas County on its successful creation of a groundwater mitigation banking program.

Richael Young is a water resources economist and principal at MT. She is responsible for developing market-based solutions to meet client needs worldwide, including in WA's Yakima Basin. She holds a M.S. in Agricultural and Applied Economics and a B.S. in Civil and Environmental Engineering. At MT, Richael led the development and implementation of the first smart markets for surface and groundwater in the world.

Nicholas Brozović, Ph.D. is a water resources economist and cofounder at MT. He has extensive experience in water policy and management worldwide, including incentive-based management. His work focuses on using economic analysis to evaluate and design management policies for spatial, dynamic water resource systems.

Jennifer Adam (Assoc. Prof., Civil and Environmental Engineering) and **Michael Brady** (Ass't Prof., School of Economic Sciences) of WA State Univ. have experience in integrated economic-hydrologic studies and computational modeling in the Yakima Basin.

E.1.4: Evaluation Criterion D—Nexus to Reclamation (10 pts)

Q1: Is there a Reclamation project, facility, or activity within the planning area?

A1: Yes, the Yakima Project is located within the Yakima Basin, which is the planning area. Reclamation completed a Basin Study highlighting Yakima Basin water resource issues.

Q2: Is the planning area in the same basin as a Reclamation project, facility, or activity?

A2: Yes, the Yakima Project is located within this project's proposed geographic area.

Q3: In what way will the proposed Project benefit a basin where a Reclamation project, facility, or activity is located?

A3: This project will benefit the Yakima Basin by providing a formal framework for a smart water market. The framework and market structure will facilitate more water trading in all years. This proposal will help provide water users a means to participate in a water market that is currently cumbersome and time consuming. The proposed work will result in greater water flexibility benefitting irrigation districts receiving water from Reclamation's Yakima Project.

Q4: Will the Project help Reclamation meet trust responsibilities to any tribe(s)?

A4: Yes, our proposed project will develop a framework to help Yakima Project water managers meet water needs, both for agriculture, municipalities, *and* instream flows for fish and wildlife. We will provide the Yakama Nation opportunities to participate in this project and help design a market strategy to meet water needs for instream flows and the Wapato Irrigation Project.

Q5: Does the proposed Project support implementation of an Interior initiative? Or, does the Project support a complementary initiative of another Interior agency?

A5: Yes, the proposed project helps support the National Drought Resiliency Partnership. Moreover, this project helps support the YBIP, which is designed to address water security for irrigators, fish recovery, and municipal water supply.

ENVIRONMENTAL AND CULTURAL COMPLIANCE

Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, CWA, ESA, NHPA, consultation with potentially affected tribes, and consultation with the State Historic Preservation Office. KRD and contractors will comply with all applicable regulations to complete this project.

Q1: Will the proposed Project impact the surrounding environment?

A1: No, no earth disturbing actions are anticipated or planned for this project. We do not anticipate needing field measurements. Any "field work" will involve driving through areas or visiting irrigation districts to understand crop and irrigation systems.

Q2: Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the area? If so, would they be affected by any activities associated with the proposed Project?

A2: Yes, the Yakima Basin is home to Mid-Columbia Steelhead and Bull Trout, both listed as threatened under the Federal Endangered Species Act. The Basin also contains the corresponding critical habitat for these species. We do not anticipate any instream or habitat impacting activities and, as such, do not foresee any affects from our proposed activities.

Q3: Are there wetlands or other surface waters inside the Project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as "Waters of the United State?" If so, please describe and estimate any impacts the proposed project may have.

A3: Yes, both wetlands and surface waters exist within the Project boundaries and these areas fall under CWA jurisdiction. However, we do not plan any activities that involve instream activities or activities that may discharge sediment or pollutants to these areas. As such, we do not estimate any impacts from the proposed project.

Q4: When was the water delivery system constructed?

A4: The Yakima Project was authorized in 1905 and construction began in 1906 and completed in 1982. KRD construction began in 1926 and completed in 1931.

Q5: Will the proposed project result in any modification of or effects to individual features of an irrigation system?

A5: No.

Q6: Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?

A6: Likely yes.

Q7: Are there any known archeological sites in the proposed area?

A7: Yes, this proposal covers the Yakima Basin that has numerous sites. However, we do not plan any activities to impact the sites.

Q8: Will the proposed Project have a disproportionately high and adverse effect on low income or minority populations?

A8: No.

$25.75/hr. Laura Ziemer is the Senior Policy and Legal Advisor for TU. Her estimated project time is 175 hours at $53.00/hr.

TU's federally approved 2017 NICRA is 16.12% and the TU Fringe Benefit rate is 32.56% for all employees. TU's total costs are: $80,729 for staff time; $26,285 for Fringe Benefits; and Indirect costs are $32,412.75. TU total costs are $159,304.39.

TU Sub-contractors

MT's key staff, titles, hours, and rates are as follows: Richael Young, Principal, 600 hours, $150/hr; Nicholas Brozović, Economist, 70 hours, $200/hr. MT's Fringe benefits and Indirect are included in their hourly rates. Travel costs for MT are $7,824. Total costs are $111,824.

WA State University's key staff, hours, and rates are as follows: Director, State of WA Water Research Center, 0.3732 person-months at $15,391.17/month. Mike Brady, SES Assistant Professor, 0.47 person-months at $10,899/month; Jennifer Adam, CEE Associate Professor, 0.47 person-months at $12,168/month; and Postdoctoral Research Associate, 1.8 person-months at $5,000/month. WSU's fringe and administrative rate is 53%. WSU's total costs are $96,527.

Peter Dykstra is a Partner at Plauche and Carr. Key staff, title, hours and rates are: His rate is $200 per hour and it is anticipated his time on the project will be 121 hours. His Indirect and Fringe Benefits are included in his hourly rate. The total cost is $24,200.

All rates are fixed rates. The costs associated with TU, Plauche & Carr, MT, WSU, and Lathrop, Winbauer, Harrel, Slothower & Denison L.L.P. were determined fair and reasonable because:

1. TU (Lisa Pelly, Justin Bezold, Cody Gillin, Laura Ziemer) is a national non-profit with Yakima-based staff. TU's expertise is working throughout WA with water right holders in projects focusing on instream flow transactions and irrigation efficiency. TU's rates are comparable with other national non-profits and considerably lower than similarly skilled for-profit firms. TU bases its rates on experience and local wage comparisons. TU has an approved federal NICRA of 16.12%. Fringe benefits are 32.56%.
2. Plauche & Carr (Peter Dykstra) is a law firm with a history of involvement working with water rights throughout WA including the Yakima Basin. Peter Dykstra has over 20 years of experience advising clients, irrigation districts, Counties, Cities and others on water rights, water law and water banking. Peter Dykstra provides a discounted rate when working with a non-profit client and his rate is significantly less than most legal rates in Eastern WA.
3. MT is a water resources firm specializing in smart markets and water valuations. At the present time, MT is the only known firm in the western U.S. specializing in, designing, and operating active smart markets for water trading. Their rates are comparable to other water resource and valuation firms in WA and OR.
4. WSU is providing a specialized crop water model specific to WA. This is the only known model and was developed for this specific type of use. The cost of development is complete and the costs in this grant are covering staff time to complete necessary crop modeling.
5. Lathrop, Winbauer, Harrel, Slothower & Denison L.L.P. is a Kittitas County-based law firm providing legal services to local clients. Jeff Slothower is highly experienced in water law and his rate is consistent with similarly experienced attorneys.

Additional Costs

Travel

MT Trading is based in Denver, Colorado. It is estimated on eight trips for travel to the Yakima Basin. Other incidentals include a rental car, lodging and meals. The costs are based on information from the GSA website and review of discount airfare at www.kayak.com.

Mileage numbers are based on the current Federal rate for the Yakima Basin at $0.535/mile.

Category	Location	Purpose	Cost	Units	Total
Airfare (MT)	Yakima/Denver	Outreach, meetings, and research	$ 300.00	8	$ 2,400.00
Rental car (MT)	Yakima Basin	Outreach, meetings, and research	$ 71.00	24	$ 1,704.00
Meals (MT)	Yakima Basin	Outreach, meetings, and research	$ 59.00	24	$ 1,416.00
Lodging (MT)	Yakima Basin	Outreach, meetings, and research	$ 96.00	24	$ 2,304.00
Mileage (KRD, TU)	Yakima Basin	Outreach, meetings, and research	$ 0.535	12000	$ 6,420.00
TOTAL					$14,244.00

Materials and Supplies

Meaningful outreach to community members is a key part of our proposal and we anticipate a diversity of platforms for presenting information and ideas. Cost estimates are based on current room rental rates in the Yakima Basin. Estimated prices for outreach materials, and computer costs are based on reviewing prices at a local office supply store in Yakima, Washington PRINT GUYS. The GIS software cost is from ESRI.com.

Item	Cost Basis	Purpose	Cost	Units	Total
Large monitor (27")	Avg online	GIS analysis	$ 300.00	1	$ 350.00
GIS software license	Past costs	GIS analysis	$ 250.00	2	$ 500.00
Computer	Avg. online	General use	$ 1,800.00	1	$ 1,800.00
FAQ flyers	Print Guys (Yakima)	Meeting handouts	$ 0.39	8000	$ 3,120.00
Postcards	Print Guys (Yakima)	Invites/info incl. postage	$ 0.635	12000	$ 7,620.00
Mounted info boards	Print Guys (Yakima)	Meeting info ($10/sq ft)	$ 16.00	25	$ 400.00
Room Rental	Past costs	Meeting locations	$ 65.00	18	$ 1,170.00

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LETTERS OF SUPPORT

See Appendix. Letters are from: WA Department of Fish and Wildlife, WA Department of Ecology, The Wilderness Society, American Rivers, Kittitas County Conservation District, North Yakima Conservation District, Roza Irrigation District, and Yakima Tieton Irrigation District.

OFFICIAL RESOLUTION

KRD is unable to submit the official resolution at this time due to schedule of board meetings and will submit the resolution within 30 days of April 19, 2017. KRD's next board meeting is May 2, 2017.

APPENDIX. LETTERS OF COMMITMENT & SUPPORT

Commitment Letters:

1. Washington Department of Ecology
2. Trout Unlimited
3. Washington State University

Support Letters:

1. Roza Irrigation District
2. Washington Department of Ecology
3. The Wilderness Society
4. North Yakima Conservation District
5. Washington Department of Fish and Wildlife
6. Yakima-Tieton Irrigation District
7. American Rivers
8. Kittitas County Conservation District

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 17, 2017

Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
PO BOX 25007
Denver CO 80225

Attn: Ms. Irene M. Hoiby

RE: Yakima Basin 2017 Water Smart Proposal

The Washington State Department of Ecology pledges a cash match of $155,000 for Kittitas Reclamation District's (KRD) Water Smart Proposal: *Researching and Developing Strategies for Multi-Benefit Markets*. The match is available now, and will remain committed for this purpose. There are no constraints or contingencies on this match as it is related to our work of developing water supply solutions.

Ecology is extremely interested in making this project a success. We look forward to working with KRD and all project partners to achieve that end. Thank you for your consideration. Please contact me at (360) 407-6672 if you have any questions.

Sincerely,

Thomas Loranger
Program Manager
Water Resources

TROUT UNLIMITED

Trout Unlimited: America's Leading Coldwater Fisheries Conservation Organization

April 17, 2017

Bureau of Reclamation
Financial Assistance Operations
Attn: Ms. Irene M. Hoiby
Mail Code: 84-27852
P.O. Box 25007
Denver, CO 80225

Re: Kittitas Reclamation District WaterSMART Water Marketing Application

Dear Ms. Hoiby,

I am writing regarding the application by the Kittitas Reclamation District for a U.S. Bureau of Reclamation WaterSMART: Water Marketing Strategy Grants for FY2017. Trout Unlimited is very pleased to provide $30,886 worth of cash matching funds. This matching commitment is available from July 1, 2017 through June 30, 2018. The funds do not come with any additional time contraints or other contingencies.

Please contact Lisa Pelly at 509-888-0970 or LPELLY@tu.org with any questions or concerns.

Thank you,

Lisa Pelly

Lisa Pelly, Director
Trout Unlimited Washington Water Project

Washington Water Project
103 Palouse, Suite 14, Wenatchee, WA 98801; 115 S. Glover Street, Twisp, WA 98856;
P.O. Box 1987, Yakima, WA 98907
(509) 888-0970 • Fax: (509) 888-4352 • www.tu.org

WASHINGTON STATE UNIVERSITY
Office of Research Support and Operations

April 17, 2017 In Reply Please Refer To: 131820-001

Bureau of Reclamation
Financial Assistance Operations
Attn: Ms. Irene Hoiby
Mail Code: 84-27852
P.O. Box 25007
Denver, CO 80225

To whom it may concern:

This letter is to confirm that Washington State University/Water Research Center agrees to participate in the study entitled ***"Water Markets for the Yakima Basin: Researching and Developing Strategies for Multi-Benefit Markets." -Leveraging Agricultural Water Transactions to Increase Instream Flow*** with Trout Unlimited for the period of performance from 9/1/2017 - 8/31/2019. The total costs for Washington State University will be $48,250 with a cost share match of $48,278.

The appropriate programmatic and administrative personnel of Washington State University involved in this grant application are aware of the funding agency's grant policy and are prepared to establish the necessary inter-institutional agreements consistent with that policy.

Questions of a technical nature can be directed to Jonathan Yoder at (509)335-8569 or yoder@wsu.edu. Administrative, contractual, or budgetary questions can be directed to Office of Research Support & Operations at (509) 335-9661 or orso@wsu.edu.

Sincerely,

Dan Nordquist, AVP
Office of Research Support & Operations
Washington State University

Lighty 280, PO Box 641060
Pullman, WA 99164-1060

ROZA
IRRIGATION DISTRICT

April 14, 2017

Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
PO BOX 25007
Denver CO 80225
Attn: Ms. Irene M. Hoiby

RE: Yakima Basin 2017 Water Smart Proposal

Roza Irrigation District is pleased provide support for the WaterSMART proposal: Water Markets for the Yakima Basin being submitted by Kittitas Reclamation District under the 2017 WaterSMART Water Marketing Strategy Funding Grant. This letter supports the grant proposal titled: *Researching and Developing Strategies for Multi-benefit Markets in the Yakima Basin.*

This proposal focuses on the Yakima River Basin in Washington State and is designed to address two major problems in the Yakima Basin; water supply and water for fisheries and habitat. Roza supplies water to 72,000 irrigated acres in the Yakima River basin.

This proposal builds on years of success and work accomplished under the Yakima Basin Integrated Water Resource Management Plan (YBIP). YBIP goals include addressing the issue of decreasing Cascade snowpack by assuring agricultural water delivery reliability to irrigators during severe droughts, restoring salmon and steelhead populations and their habitats and ensuring water supply for municipal and industrial users.

As one of the seven elements of the Yakima Basin Integrated Water Resource Management Plan, water markets play a critical role in its success and implementation.

We encourage Reclamation's support and approval of this proposal. If you have any questions regarding this letter, please contact me.

Sincerely,

Scott Revell
District Manager

Cc: Lisa Pelly, TU

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

April 14, 2017

Bureau of Reclamation
Financial Assistance Operations
Attn: Irene M. Hoiby
Mail code: 84-27852
P.O. Box 25007
Denver, CO 80225

RE: Yakima Basin 2017 WaterSMART Proposal

Dear Ms. Hoiby:

The Washington State Department of Ecology (Ecology) is pleased to provide support for the WaterSMART proposal: *Researching and Developing Strategies for Multi-benefit Markets in the Yakima Basin,* being submitted by Kittitas Reclamation District under the 2017 WaterSMART Water Marketing Strategy Funding Grant.

This proposal focuses on the Yakima River Basin in Washington State and is designed to address water shortages for both out-of-stream uses, and water for fisheries and habitat. As Climate change is expected to significantly impact the Yakima Basin, Ecology is especially interested in using markets to move water.

This proposal builds on years of success and work accomplished under the Yakima Basin Integrated Water Resource Management Plan (YBIP). YBIP goals include addressing reduced Cascade Mountain snowpack and climate change by employing seven different elements. One of these elements is Market Reallocation, in which water markets are used to move water at dire times and in critical locations.

We encourage Reclamation's support and approval of this proposal.

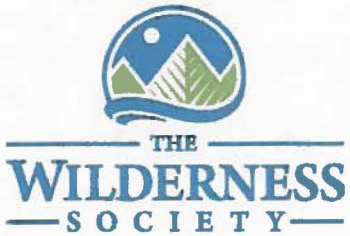
If you have any questions regarding this letter, please contact Kelsey Collins at (509) 575-2640.

Sincerely,

Trevor Hutton

Trevor Hutton, Section Manager
Water Resources Program
Central Regional Office

TH:SS/170407



April 12, 2017

Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
P.O. BOX 25007
Denver, CO 80225
Attn: Ms. Irene M. Hoiby

RE: Yakima Basin 2017 Water Smart Proposal

The Wilderness Society is pleased provide a letter of support for the WaterSMART proposal, *Water Markets for the Yakima Basin*, submitted by the Kittitas Reclamation District (KRD) under the Bureau of Reclamation's 2017 WaterSMART Water Marketing Strategy Funding Grant. This letter supports the grant proposal titled: *Researching and Developing Strategies for Multi-benefit Markets in the Yakima Basin.*

KRD's proposal focuses on the Yakima River Basin in Washington State and is designed to address two major problems facing this basin in the face of climate change: (1) providing enough water to support the agricultural needs of the basin; and (2) providing enough water to support the needs of fish—especially endangered and recovering populations—throughout the basin. Since 2012, The Wilderness Society has been part of a broad-based coalition involved in the Yakima Basin Integrated Plan (YBIP). As a national advocacy organization focused on the management and protection of our public lands, The Wilderness Society has worked to support protection and restoration efforts in the headwaters of the Yakima Basin. As a partner of the YBIP, we are also invested in seeing our partners succeed with projects such as the project proposed by KRD.

This proposal builds on years of success and work accomplished under the YBIP. YBIP goals include: (1) addressing the issue of decreasing Cascade snowpack by assuring agricultural water delivery reliability to irrigators during severe droughts; (2) restoring salmon and steelhead populations and their habitats; and (3) ensuring water supply for municipal and industrial users. As one of the seven elements of the Yakima Basin Integrated Water Resource Management Plan, water markets play a critical role in its success and implementation.

We encourage the Bureau of Reclamation's support and approval of this proposal. If you have any questions regarding this letter, feel free to contact me at kcraig@tws.org or 206-473-2523.

Sincerely,

Kitty Craig
Washington State Deputy Director
The Wilderness Society

North Yakima Conservation District
1606 Perry St., Suite C - Yakima, WA 98902 - (509) 454-5736, Ext. 5 - Fax (509) 454-5682

Bureau of Reclamation
Financial Assistance Operations
Mail Code: 84-27852
P.O. Box 25007
Denver CO 80225

Attn: Ms. Irene M. Hoiby

April 11, 2017

RE: Yakima Basin 2017 Water Smart Proposal

The North Yakima Conservation District (NYCD) fully supports the Water SMART proposal: Water Markets for the Yakima Basin being submitted by the Kittitas Reclamation District (KRD) under the 2017 Reclamations WaterSMART Water Marketing Strategy Funding Grant. Specifically NYCD supports the Grant titled: Researching and Developing Strategies for Multi-benefit Markets in the Yakima Basin.

KRD's proposal focuses on the Yakima River Basin in Washington State and is designed to address two major problems in the Yakima Basin; water supply for agriculture and water needs for fisheries and habitat. NYCD's support of this proposal is in the interest of developing opportunities and benefits for both the agricultural sector that is dependent upon this limited water resource as well as enhancement of fisheries resources and the habitat they rely upon. The outcomes of this proposal will provide a valuable tool to be used throughout the Yakima Basin that will benefit Agriculture and Fisheries.

This proposal builds on years of success and work accomplished under the Yakima Basin Integrated Water Resource Management Plan (YBIP). YBIP goals include addressing the issue of decreasing Cascade snowpack by assuring agricultural water delivery reliability to irrigators during severe droughts, restoring salmon and steelhead populations and their habitats and ensuring water supply for municipal and industrial users. As one of the seven elements of the Yakima Basin Integrated Water Resource Management Plan, water markets play a critical role in its success and implementation.

The North Yakima Conservation District encourages Reclamation's support and approval of this WaterSMART proposal.

If you have any questions regarding this letter, please contact Michael Tobin, NYCD Manager at (509)454-5736 ext. 122.

Sincerely,

Michael Tobin
NYCD Manager

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
South Central Region 3 – 1701 S. 24th Avenue, Yakima, WA 98902-5720
Telephone: (509) 575-2740 • Fax: (509) 575-2474

April 11, 2017

Ms. Irene M. Hoiby
U.S. Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
P.O. BOX 25007
Denver, CO 80225

RE: Yakima Basin 2017 WaterSMART Water Marketing Strategy Proposal

Dear Ms. Hoiby,

The Washington Department of Fish & Wildlife (WDFW) is pleased to support the WaterSMART grant proposal, "*Researching and Developing Strategies for Multi-benefit Water Markets in the Yakima Basin*", submitted by Kittitas Reclamation District under Reclamation's 2017 Water Marketing Strategy funding opportunity.

This proposal focuses on addressing two major problems in the Yakima Basin: allocating limited water supply, particularly during times of drought, for both irrigated agriculture and for fish, wildlife and the aquatic/riparian habitats they depend on for short-term survival and long-term productivity/recovery. Yakima Basin spring chinook, coho and sockeye salmon, as well as ESA-listed summer steelhead and bull trout, will benefit from the active, functional water market envisioned by the proposal applicant.

This proposal builds on work accomplished under the Yakima Basin Integrated Water Resource Management Plan (YBIP) since 2009. YBIP goals include addressing the issue of decreasing Cascade Range snowpack caused by climate change by assuring agricultural water delivery reliability to irrigators during severe droughts, restoring salmon and steelhead populations and their habitats and ensuring water supply for municipal and industrial users. [Water] "Market Reallocation" is one of the seven principal elements of the YBIP, which WDFW believes will play a critical role in the overall success of YBIP implementation.

We encourage Reclamation's approval of this grant proposal. If you have any questions regarding WDFW's support for the project, please contact me at (509) 457-9325.

Sincerely,

Mike Livingston
Regional Director

YAKIMA-TIETON IRRIGATION DISTRICT

TELEPHONE
COWICHE
(509)678-4101

OFFICE, TIETON HEADQUARTERS
470 CAMP 4 ROAD
YAKIMA, WA 98908

FAX
COWICHE
(509)678-5730

April 12, 2017

Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
PO BOX 25007
Denver CO 80225

Attn: Ms. Irene M. Hoiby

RE: Yakima Basin 2017 Water Smart Proposal
Yakima –Tieton Irrigation District (YTID) is pleased to provide support for the WaterSMART proposal: Water Markets for the Yakima Basin being submitted by Kittitas Reclamation District under the 2017 Reclamations WaterSMART Water Marketing Strategy Funding Grant. This letter supports the grant proposal titled: *Researching and Developing Strategies for Multi-benefit Markets in the Yakima Basin.*

This proposal focuses on the Yakima River Basin in Washington State and is designed to address two major problems in the Yakima Basin; water supply and water for fisheries and habitat. The District has supported solutions to both of these issues by supporting water supply projects such as Wymer and Bumping Reservoirs and our current feasibility study of a new reservoir on the North Fork of Cowiche Creek along with other alternatives to enhance/replace our 107 year old main canal. Since 2013 we have been part of a water exchange program to improve instream flows to Cowiche Creek. In 2015, a severe drought year, we also did some water "wheeling" to enhance fish habitat. These are examples of innovative uses of existing infrastructure to enhance habitat and fisheries.

This proposal builds on years of success and work accomplished under the Yakima Basin Integrated Water Resource Management Plan (YBIP). YBIP goals include addressing the issue of decreasing Cascade snowpack by assuring agricultural water delivery reliability to irrigators during severe droughts, restoring salmon and steelhead populations and their habitats and ensuring water supply for municipal and industrial users. As one of the seven elements of the Yakima Basin Integrated Water Resource Management Plan, water markets play a critical role in its success and implementation. YTID has been on the YBIP work group since it started.

We encourage Reclamation's support and approval of this proposal.

If you have any questions regarding this letter, please contact me at my office or RickDieker@yvn.com

Richard Dieker

Secretary -Manager

American Rivers
Rivers Connect Us

April 13, 2017

Ms. Irene M. Hoiby
U.S. Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
PO Box 25007
Denver, CO 80225

RE: Yakima Basin 2017 Water Smart Proposal

Dear Ms. Hoiby:

American Rivers is pleased provide support for the WaterSMART proposal, *Water Markets for the Yakima Basin*, being submitted by Kittitas Reclamation District (KRD) under the 2017 U.S. Bureau of Reclamation's WaterSMART Water Marketing Strategy Funding Grant. This letter supports the grant proposal titled: *Researching and Developing Strategies for Multi-benefit Markets in the Yakima Basin.*

KRD's proposal focuses on the Yakima River Basin in Washington State and is designed to address two major problems in the basin: (1) providing enough water to support the agricultural needs of the basin; and (2) providing enough water to support the needs of fish—especially endangered and recovering populations—throughout the basin. American Rivers and KRD have been part of a broad-based coalition involved in the Yakima Basin Integrated Plan (YBIP) working to optimize water supplies and restore the basin's river systems and fisheries since 2009. American Rivers is a national not-for-profit organization working to protect wild rivers, restore damaged rivers and conserve clean water for people and nature. As a partner of the YBIP, we are also invested in seeing our partners succeed with projects such as the project proposed by KRD.

This proposal builds on years of success and work accomplished under the Yakima Basin Integrated Water Resource Management Plan. YBIP goals include addressing the issue of decreasing Cascade snowpack by assuring agricultural water delivery reliability to irrigators during severe droughts, restoring salmon and steelhead populations and their habitats and ensuring water supply for municipal and industrial users. As one of the seven elements of the Yakima Basin Integrated Water Resource Management Plan, water markets play a critical role in its success and implementation.

We encourage the Bureau of Reclamation's support and approval of this proposal. If you have any questions regarding this letter, feel free to contact me at 206-213-0330 or wmcdermott@americanrivers.org.

Thank you,

Wendy D. McDermott
Director, Rivers of Puget Sound-Columbia Basin Programs

Kittitas County Conservation District
2211 W. Dolarway Rd, Suite 4 - Ellensburg, WA 98926 - Phone (509) 925-3352 - Fax (888) 546-0825

April 13, 2017

Bureau of Reclamation
Financial Assistance Operations
Mail code: 84-27852
PO BOX 25007
Denver CO 80225

Attn: Ms. Irene M. Hoiby

RE: Yakima Basin 2017 Water Smart Proposal

The Kittitas County Conservation District is pleased provide support for the WaterSMART proposal: Water Markets for the Yakima Basin being submitted by Kittitas Reclamation District under Reclamation's 2017 WaterSMART Water Marketing Strategy Funding Grant. This letter supports the grant proposal titled: *Researching and Developing Strategies for Multi-Benefit Markets in the Yakima Basin.*

This proposal focuses on the Yakima River Basin in Washington State and is designed to address two major problems in the Yakima Basin; water supply and water for fisheries and habitat. Drought resiliency and efficient use of irrigation water is the highest priority in Kittitas County. Nearly all streams are over allocated, creating low flows both to supply irrigation needs and support resident and anadromous fisheries as well as streamside and floodplain vegetation.

This proposal builds on years of success and work accomplished under the Yakima Basin Integrated Water Resource Management Plan (YBIP). YBIP goals include addressing the issue of decreasing Cascade snowpack by assuring agricultural water delivery reliability to irrigators during severe droughts, restoring salmon and steelhead populations and their habitats and ensuring water supply for municipal and industrial users. As one of the seven elements of the Yakima Basin Integrated Water Resource Management Plan, water markets play a critical role in its success and implementation.

We encourage Reclamation's support and approval of this proposal. If you have any questions regarding this letter, please contact me at a-lael@conservewa.net or (509) 925-3352 ext. 207.

Respectfully,

Anna Lael
District Manager