Comprehensive Upper Arkansas Watershed Protection Planning

Collaborative Planning to Develop an Integrated Watershed Health Program

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TECHNICAL PROPOSAL

EXECUTIVE SUMMARY

Date: December 5th, 2023
Applicant: Arkansas River Watershed Collaborative
City, County, State: Poncha Springs, Chaffee County, Colorado

The Arkansas River Watershed Collaborative (ARWC) will work to integrate several subgroups for more comprehensive watershed management planning in the Upper Arkansas Watershed. These active subgroups have a mixture of goals, scopes, and geographic emphasis across multiple counties. Some of the concerns these groups address include, but are not limited to, water quality/quantity, forest health and wildfire risk, drought impacts, recreation, water rights protection, working agricultural lands, and post-fire recovery. ARWC plays a pivotal role in cross-jurisdictional communication, planning, and data sharing through participation in the Arkansas Basin Roundtable, numerous forest health councils, and the Upper Arkansas Watershed Partnership. ARWC is engaged in several watershed planning phases, projects, and monitoring throughout the Upper Arkansas Watershed. We aim to increase these efforts' capacity, coordination, and facilitation while supporting several regional subgroups in watershed health protection and planning. Additional funding for coordinators, outreach, facilitation, and monitoring is critical to the growth and sustainability of our watershed health and planning work. Developing an outreach plan and building staff capacity will engage stakeholders and the public better, adding to the success of our planning efforts. The tasks for this project are expected to take at least three years to complete, with a completion date of December 2027.

PROJECT LOCATION

This project is located in Colorado, and the 8-digit USGS HUC unit is 11020001 (Arkansas Headwaters). The project area includes all of Chaffee and Lake Counties, plus the majority of Fremont and Custer Counties (Figure 1).

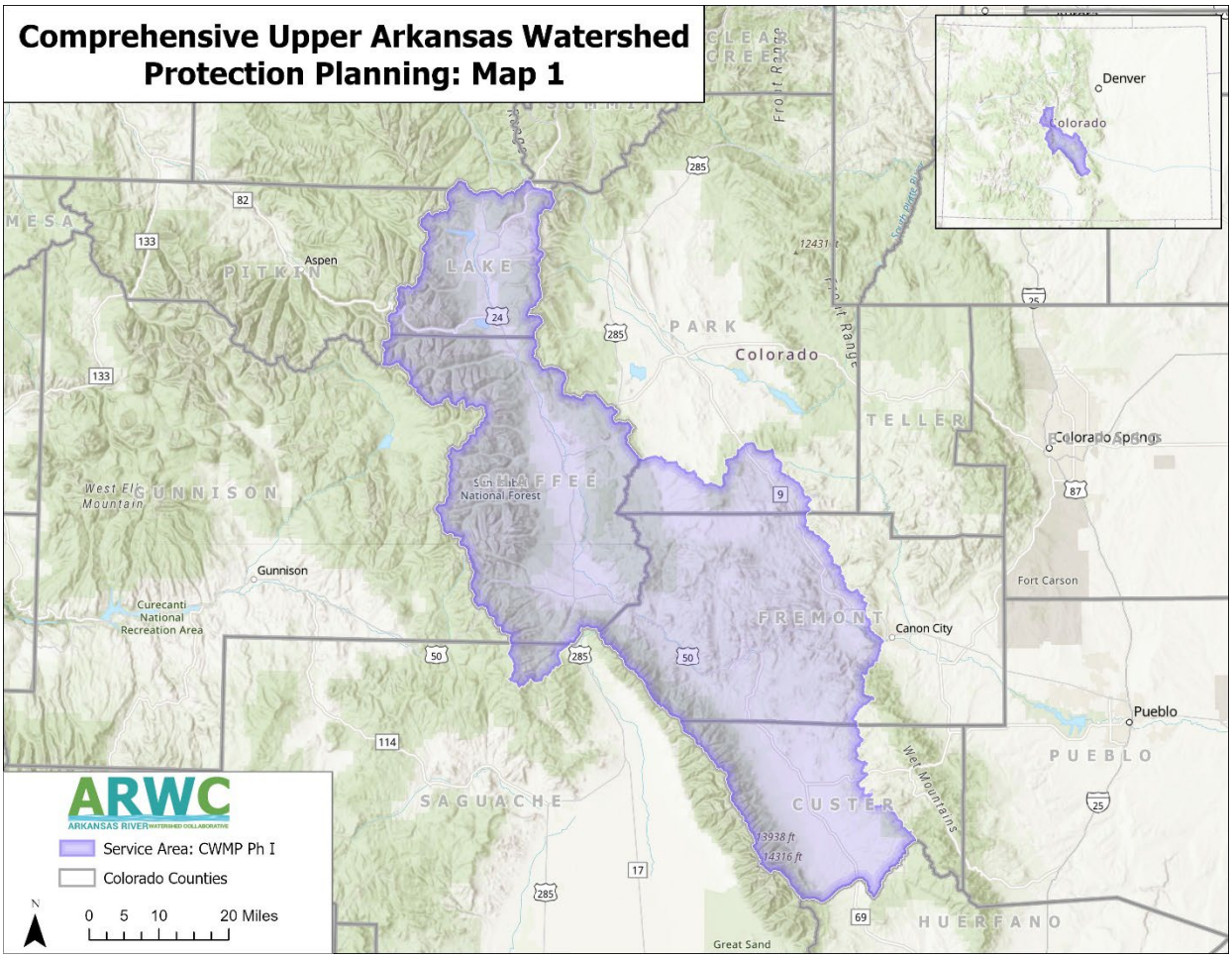

Figure 1. Geographic scope of this proposal. This area corresponds to USGS HUC unit 11020001, the Arkansas Headwaters.

APPLICANT CATEGORY

The Arkansas River Watershed Collaborative (ARWC) seeks funding as an Existing Watershed Group. Our organization was formed out of Colorado's Arkansas Basin Roundtable in 2017. Roundtables are locally driven collaborative groups established by the 2005 *Colorado Water for the 21st Century Act*. ARWC is a nonprofit 501(c)3 and was created to allow this group of stakeholders to hire staff, apply for grants, do watershed planning, and implement projects. The executive committee for the Arkansas Basin Roundtable makes up the majority of the ARWC's Board of Directors. The Board of Directors for ARWC represents stakeholders from across the basin and includes water utility companies, water conservancy districts, recreation

interests, local government, regulatory experts, and nonprofit groups. ARWC's mission is to "*Serve Colorado's Arkansas River Basin communities by addressing locally-identified watershed issues for economic, ecological, and social benefit*." ARWC works with many subgroups, including serving on the planning/leadership committees of the Upper Arkansas Watershed Partnership (UAWP) and the Colorado South Region Mitigation Stakeholders (CSRMS). We also participate on several councils, including Lake County and Chaffee County's Forest Health Councils. ARWC has been a successful lead and proponent of many projects, including post-fire nonpoint source water quality issues from flooding, forest health initiatives, and collaborative development.

ELIGIBILITY OF APPLICANT

ARWC is eligible for this funding as a 501(c)3 and is an Existing Watershed Group in Colorado. We are a non-regulatory group that represents diverse stakeholders across the watershed. Our board of directors includes water utility companies, water conservancy districts, recreation interests, local government, regulatory experts, and nonprofit groups. We respond to the needs of stakeholders, addressing water quantity/quality concerns, threats to water resources, forest health, and post-fire flooding mitigation.

PROJECT DESCRIPTION

Task A: Watershed Group Development:

Since its creation, the Arkansas River Watershed Collaborative has engaged many stakeholders and demonstrated successful project planning and implementation. One area where growth is needed is in communication and outreach. We wish to develop an outreach plan to tell the story of this successful building of our collaborative and also help attract new voices and engage the public. In the past, we have created promotional material to educate stakeholders and the public about the group and the watershed, but new and updated material is needed. This promotional material includes tabling materials, handouts, and a social media campaign to help raise that awareness. A portion of this material would also focus on subgroups in the basin, such as the Upper Arkansas Watershed Partnership, which has yet to create any print materials or conduct any social media outreach. Funding for an Outreach Coordinator to develop and carry out the outreach plan will be essential.

An outreach plan will also help us consider how the collaborative will proceed with membership. Development of a membership program has been considered for several years but needs additional development. Questions we would like to answer include: Should this be a membership for the general public? Are there dues? How much would the dues be? Do we want other entities (such as water providers) to be members, and at what level? How do we engage with the membership once it is established? How do we keep interest?

Task B: Watershed Restoration Planning:

Different parts of the Upper Arkansas Watershed are in various stages of watershed restoration planning based on the needs of the stakeholders and watershed concerns. Local needs in response to 303(d) impairments, aging infrastructure, legacy mining, and others are apparent throughout this project area. This project will help identify future projects based on stakeholder evaluation, stream health assessments, and collaborative engagement.

Most of the tributaries of the Arkansas from the headwaters to Brown's Creek are listed as 303(d) impaired due to arsenic, and others have additional pollutants. The mainstem of the Arkansas is listed as impaired due to multiple heavy metals, including arsenic, iron, cadmium, and zinc. Legacy mine impacts are also present throughout this project area, with the most considerable impacts in the headwaters of the Arkansas River in Lake County, CO.

Each county in this project area has a Community Wildfire Protection Plan. The plans are in various stages, and some are currently being updated. Several common themes are shared across these plans, namely reducing the risk of severe wildfire and post-fire impacts through increased pre-fire fuels mitigation work. All the counties in the project area are above the 80th percentile of risk to properties from wildfire; Fremont and Custer counties are above the 90th percentile (CEQ, 2023). We work with several partners and stakeholders to coordinate fire mitigation planning projects. These include, but are not limited to, the U.S. Forest Service, Colorado State Forest Service, the National Forest Foundation, Chaffee County Forest Health Council, Lake County Forest Health Council, and the Colorado South Region Mitigation Stakeholders.

Chaffee County

A Phase I integrated Watershed Plan is almost complete through the collaboration of the Upper Arkansas Watershed Partnership (UAWP). As part of this project, the UAWP plans to complete Phase II of an Integrated Watershed Planning process, including integrating plans from other groups and stakeholders to identify and prioritize watershed projects. The UAWP is at a pivotal moment in transitioning from learning to action and hiring a full-time coordinator will provide the needed capacity to catalyze project selection and prioritization. The UAWP Coordinator will be housed at Central Colorado Conservancy and coordinate project selection and implementation across program areas. The UAWP Leadership Team includes the Arkansas River Watershed Collaborative, Central Colorado Conservancy, Greater Arkansas River Nature Association, Trout Unlimited, and the Upper Arkansas Conservation District. The group has been engaging diverse stakeholders within Chaffee County to (1) protect water quality and quantity; (2) support agricultural operators with the protection of water rights and improvement of irrigation infrastructure; (3) provide community education about the value of the watershed and ecosystem functions; (4) build watershed resilience to drought, fire, and

flooding; and (5) maintain and restore the health of the Arkansas River, its tributaries, and wildlife habitat.

Lake County

The boundaries of Lake County encompass critical waterways that make up the Arkansas River headwaters. The City of Leadville and Lake County have a rich mining history and, consequently, legacy mine pollution. Cleanup and remediation have been underway for decades, but work remains. ARWC and other partners are closely engaged in identifying and completing projects to mitigate the water quality impacts of abandoned mine lands (AML). Multiple remediation and restoration projects are identified, but more planning and scoping are needed to analyze projects for feasibility, cost, and prioritization.

Lake County Government has identified multiple infrastructure projects slated for replacement in the coming years. This includes seven culverts across the county. While this is a vast improvement in infrastructure for the county, additional work is necessary, and evaluation from a watershed health perspective will provide maximum benefit to the watershed. Working with the Lake County Public Works Department, the Lake County Watershed Coordinator will work with stakeholders to develop additional infrastructure priorities and funding. This will allow us to strategically continue the momentum of culvert replacements over the coming years. Evaluation and ranking characteristics will include aquatic organism passage (AOP), post-fire flooding susceptibility/sizing, feasibility, and cost.

Fremont County

The Arkansas River cuts through spectacular canyon country that spans the county. It is home to some of the most frequently rafted river sections in the United States. It has also been subject to environmental impacts, including historic mining, sediment loading from severe wildfires, and 303(d) impairment from heavy metals.

ARWC is working with nonprofit partner River Science to monitor water quality in two locations of the mainstem of the Arkansas River in Fremont County. This project initially started as a post-fire sediment monitoring project, but we continue to provide these data for the guiding industry, Cañon City Water, and other interested stakeholders. The temperature and turbidity monitoring help professional outfitters determine fishing quality and monitor safe angling temperatures for the fish. The real-time turbidity monitoring allows the Cañon City Water to shut off its municipal water intakes when values are too high for their system. Additionally, we will continue to use these water quality monitoring sondes for post-fire sedimentation from two major fire scars from 2016 (Hayden Pass; 16,000 acres) and 2019 (Decker Fire; 9,000 acres). If another fire occurs in this reach of the river, we will already have the monitoring in place. We

want to continue to support this program as a benefit to the stakeholders in the area for current and future needs.

Custer County

Custer County is a rural county in Southern Colorado, entirely within the Arkansas River Watershed. As of the 2020 census, there was a population of 4,704. Due to its rugged, rural, and sparse population, this county is often overlooked for watershed conservation efforts. It contains important water resources, such as Texas and Grape Creek, that flow directly to the mainstem of the Arkansas River. Also within the county is Lake DeWeese, which is classified as 303(d) impaired due to arsenic, phosphorus, and dissolved oxygen levels (CDPHE, 2023). This lake is a critical water storage body for this agricultural region, representing only storage within the county. Concerns in this community often involve issues over water availability and drought. There has been an increase in both development and "buy and dry" of agricultural areas. We plan to work with the Custer County Board of County Commissioners to address local watershed needs and goals. Additionally, we work with Colorado Open Lands and their work to provide conservation easement services for agricultural and forested properties.

Another primary concern in Custer County is the threat of wildfire. The County contains two major mountain ranges, and most of the population is located between them within the Wet Mountain Valley. The mountain range to the west is the Sangre de Cristo Range, with several peaks over 13,000 feet. To the east is the northern portion of the Wet Mountains, rugged mountains with intermixed private properties and U.S. National Forest-managed lands. With much of the county being mountainous and forested, the risk of wildfire to property and the watershed is high, in the 93rd percentile for projected wildfire risk (CEQ, 2023). As part of this response to wildfire, ARWC has worked with regional stakeholders and helped organize and fund the Colorado South Mitigation Stakeholders (CSRMS) group. This group includes representatives from Custer and other counties, the U.S. Forest Service, Colorado State Forest Service, Colorado Open Lands, Colorado Water Conservation Board, and many others. This group meets to discuss project coordination, funding, and outreach. One of the difficulties of working in Custer and neighboring counties is the patchwork of private and public lands. Without close and strategic collaboration across land jurisdictions, we cannot achieve landscape-level effects in reducing impacts on forests and watersheds. As part of our long-term plan, ARWC will hire a watershed coordinator to focus on this watershed section, working closely with CSRMS.

EVALUATION CRITERIA

E.1.1. EVALUATION CRITERION A—WATERSHED GROUP DIVERSITY AND GEOGRAPHIC SCOPE

E.1.1.1. SUB-CRITERION NO. A1. WATERSHED GROUP DIVERSITY

The Upper Arkansas River Basin is a diverse landscape with equally diverse stakeholders. The Arkansas River Watershed Collaborative (ARWC) focuses on the Colorado portion of the watershed. The most unique aspect of ARWC is it was formed out the Arkansas Basin Roundtable. There are nine Roundtables in Colorado, each focused on a different watershed. The Arkansas River Watershed Collaborative (ARWC) is supported by one of the region's most diverse sets of stakeholders. Our Board of Directors includes Arkansas Basin Roundtable's executive committee, comprised of water utility providers, nonprofit entities, regulatory experts, recreation groups, water conservancy districts, and two county commissioners (Lake and Chaffee counties; Table 1).

Table 1. List of 2023 Board of Directors for the Arkansas River Watershed Collaborative.

ARWC Board of Directors	
Organization	**Stakeholder Type**
Colorado Springs Utilities	Water Utility Provider
Aurora Water	Water Utility Provider
CO State Engineer (retired)	Regulatory, Engineering Expert
GEI Consultants, Inc.	Regulatory Expert
Huerfano County Water Conservancy District	Water Rights and Use
Upper Arkansas Water Conservancy District	Water Rights and Use
Lake County Commissioner	County Government
Chaffee County Commissioner	County Government
Purgatoire River Water Conservancy District	Water Rights and Use
Red Curl Consulting	Operational and Regulatory Expert
Arkansas River Outfitters Association	Recreation, Outfitting, Guiding
Nonprofit Leadership (retired)	Nonprofit

The broader voting membership of the Roundtable includes over 50 seats from across the basin to represent the different water-related interests across the region (Table 2). Some of these members make up the ARWC board, and staff and leadership from ARWC attend monthly in-person meetings. There is allotted time at each monthly meeting for ARWC to report back to the membership and answer questions. A link to membership lists and meeting notes is available on the Arkansas Basin Roundtable website at arkansasbasin.com. This membership ranges from city and county government, water districts, water rights holders, recreation, environmental, and special districts. Below is from *Section 501* of the ARWC bylaws:

> *ARWC member entities are organizations affiliated with the Arkansas Basin Roundtable (the Roundtable), which were generally identified through Colorado State Legislative action (HB05- 1177) to "support diverse stakeholders to ensure process, application and public involvement in developing basin-wide water needs assessment. Statutory Roundtable members are appointed, representing counties, municipalities, and water conservancy districts, as required by §37-75-104 C.R.S. (2005)." In addition, the Roundtable includes At Large members, Non-voting members, and state and federal agency liaisons who bring interests in environment, recreation, and other water issues. All members of the Roundtable are members of ARWC. The Board of Directors, at its discretion, may in the future create additional classes of members. These members may hold voting Board positions upon approval of the sitting Board of Directors.*

Table 2. Available seats for the Arkansas Basin Roundtable. All members of the Roundtable are members of ARWC.

Seat	
Baca County	Upper Arkansas Water Conservancy District
Southeastern Colorado Water Conservancy District	Otero Municipal
At-Large Water Rights Owner	At-Large Environmental
Pueblo Municipal	Watershed Health Chair
Fremont Municipal	Upper South Platte Water Conservancy District
Prowers Municipal	Lake Municipal
Bent Municipal	Huerfano Municipal
At-Large Local Domestic Water Provider	Las Animas County
North La Junta Water Conservancy District	Elbert County
Legislative Appointment	Otero County
Colorado Water Conservancy Board Member	Bent County
Baca Municipal	Huerfano County
Lower Arkansas Valley Water Conservancy District	Teller County
Saguache County	Pueblo County
Prowers County	At-large Industrial
At-Large Recreation	At-Large Rep
At-Large Agriculture	Chaffee County
Custer County	Cheyenne Municipal
Cheyenne County	Custer Municipal
Purgatoire River Water Conservancy District	El Paso County
Crowley County	Elbert Municipal
Non-Voting Member	Fountain Creek Watershed, Flood Control, and Greenway District
Huerfano County Water Conservancy District	Kiowa Municipal
Fremont County	Lincoln County
Park County	Lincoln Municipal
Chaffee Municipal	Park Municipal
Lake County	Teller Municipal
At-Large (water rights holder)	Kiowa County
Pueblo Conservancy District	At-Large (water rights holder)
El Paso Municipal	At-Large Rep
Crowley Municipal	Las Animas Municipal

ARWC follows a standard nonprofit structure. ARWC staff reports to the Executive Director, and the Executive Director reports to the Board of Directors. ARWC holds quarterly board meetings with the entire board and Executive Director to provide organizational direction. The Executive Director then manages staff and decisions outside of decisions that require board approval (e.g., strategic planning, organizational structure, IRS filings, etc.).

As part of this board structure, the Executive Director and staff of ARWC receive direction from the specific directors' positions below.

This diversity in our board and membership is part of what makes ARWC successful. Through this thoughtful collaboration, we can reach a diverse audience of stakeholders while having experts to advise on project planning and implementation.

E.1.1.2. SUB-CRITERION NO. A2. GEOGRAPHIC SCOPE

The Arkansas River Watershed Collaborative (ARWC) represents the full extent of the Arkansas River watershed in Colorado. For this project, we are focused on the 8-digit USGS HUC unit 11020001 (Arkansas Headwaters). This project includes all of Chaffee and Lake Counties, plus the majority of Fremont and Custer Counties. Our planning and outreach activities in this proposal focus on the health of the watershed, including uplands, tributaries, and the mainstem of the Arkansas River.

With our active role on the Arkansas Basin Roundtable, we have excellent engagement with stakeholders representing many different types of needs. In addition, we participate in and lead several subgroups in the Upper Arkansas that provide stakeholder engagement on a more localized level. These groups include the Lake County Forest Health Council, the Chaffee County Forest Health Council, the Upper Arkansas Watershed Partnership (UAWP), and Colorado South Region Mitigation Stakeholders (CSRMS).

The forest health councils in Lake and Chaffee Counties and CSRMS have a wildfire and post-wildfire risk focus. Stakeholders represented in these groups include local government officials (e.g., county commissioners), emergency management staff, the Colorado State Forest Service, the U.S. Forest Service, the Bureau of Land Management, and local nonprofits such as ARWC and Colorado Open Lands. There is coverage for the entire project area proposed here between these groups.

The Upper Arkansas Watershed Partnership focuses on watershed health issues. ARWC, the Central Colorado Conservancy, Chaffee County, the Greater Arkansas River Nature Association, and Trout Unlimited lead this group. This group is focused chiefly on Chaffee County, but it has recently redefined its scope to encompass the entire HUC-8 watershed (Figure 2).

Beyond the Arkansas Basin Roundtable and the multiple subgroups, ARWC also engages with other regional stakeholders. One example is our partnership with the Arkansas River Outfitter Association (AROA) and their nonprofit arm, the Arkansas River Conservation Collaborative (ARCC). The ARCC uses fees from outfitting groups to reinvest in watershed health projects. The ARCC then invested in ARWC for our work in this area. ARWC regularly presents to the ARCC board to report on our work and potential collaborative efforts for the future. We also share data with them, such as our turbidity and temperature monitoring, so outfitting guides get real-time updates on Arkansas River conditions.

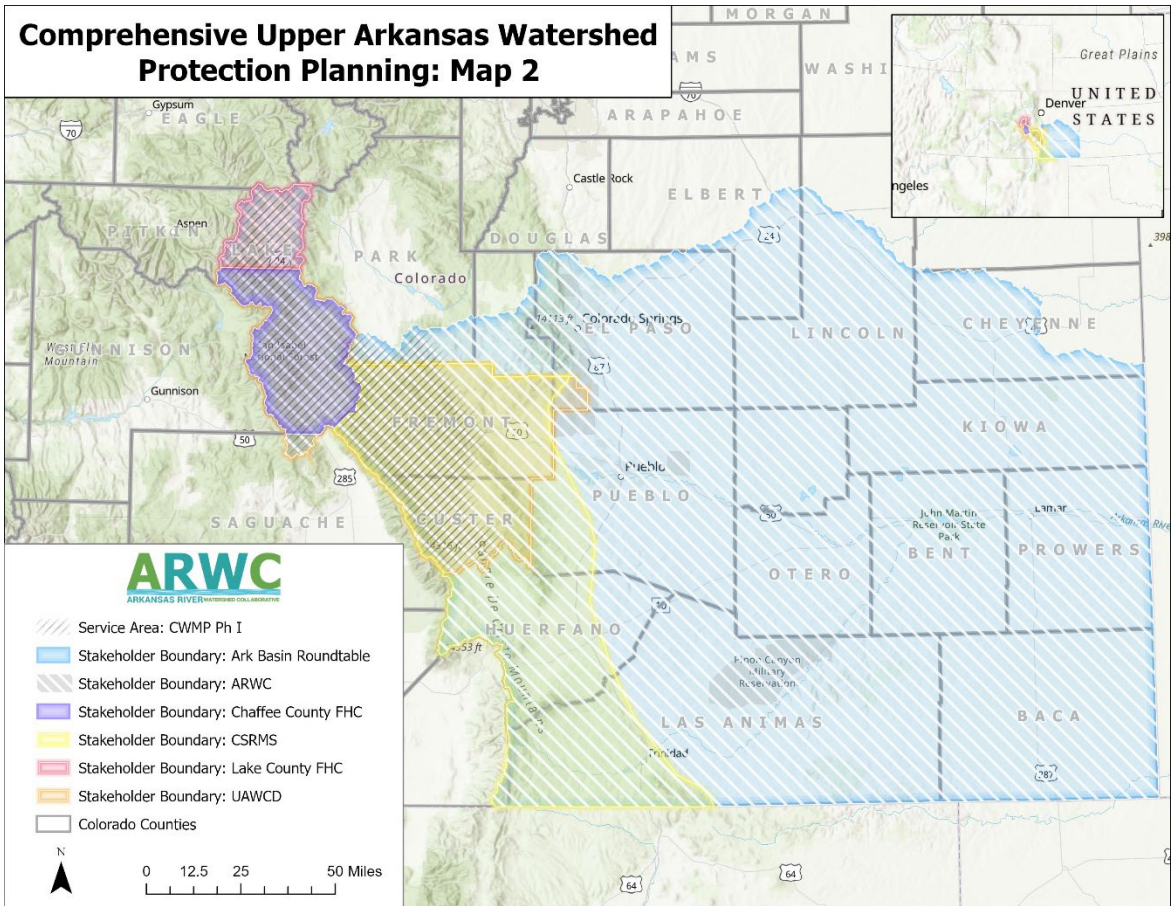

Figure 2. Stakeholder map of Arkansas River Basin in Colorado.

E.1.2. EVALUATION CRITERION B— DEVELOPING STRATEGIES TO ADDRESS CRITICAL WATERSHED NEEDS

E.1.2.1. SUB-CRITERION NO. B1. CRITICAL WATERSHED NEEDS OR ISSUES

The Arkansas Basin faces many issues that are common to arid western states and some that are specific to this region. These include water supply shortages, water quality issues, loss of riparian/wetland areas, drought, risk from wildfire and post-fire effects, and stressors due to climate change.

Water Supply and Storage

The Arkansas Basin is considered an over-appropriated basin– there is usually more demand for water than what is available. This over-appropriation has the most significant effect on agricultural producers that hold junior water rights for irrigation. Agriculture is an integral part of the economy of the Upper Arkansas River watershed. It supports many families and provides residents with local food while preserving this area's rural character. Maintaining water supply

and the agricultural way of life is essential to many regional stakeholders. About 80% of the water use in the basin is for agricultural producers (CWCB, 2022).

Transmountain and compact agreements are very important and very complicated in this basin. Close to 15% of the Arkansas Basin's water portfolio comes from the Colorado River Basin– a river currently facing crisis-level supply shortages. Furthermore, the Arkansas Basin must meet its obligations to the State of Kansas under the Arkansas River Compact of 1948. The obligation requires 40% of reservoir water at John Martin to be delivered to Kansas. With this interstate restriction, the over-appropriated Arkansas Basin receives scrutiny for supply issues.

Storage is a critical part of the water supply and demand structure in the Arkansas Basin. Most stakeholders in the basin agree that increased storage in the Upper Arkansas is necessary to protect existing and future water supplies. A complex system of storage, diversion, and agreements allows for water all the way from the West Slope of Colorado for utilization in the plains of southeast Colorado, known as the Fry-Ark project. Lake County storage is critical for transmountain diversions and downstream users as part of this system. Several Bureau of Reclamation facilities in Lake County make this system possible. These facilities include Turquoise, Mt. Elbert Forebay, and Twin Lakes Reservoirs (Figure 3). Protection of this infrastructure and water storage is vital to local, downstream, and transbasin interests. Water interests have identified risk from wildfire in Lake County as a concern for these systems (CWCB, 2022). A severe wildfire could cause several issues, including direct damage to infrastructure from the fire, sedimentation into reservoirs following a fire, and damage to intakes or other infrastructure due to post-fire debris flows.

Reclamation-owned Pueblo Reservoir is another critical water storage facility with a 357,678-acre-foot capacity, the largest in the basin. It also plays an essential role in the Fry-Ark project. Although outside the geographic scope of this proposal, upstream water quality problems in the Arkansas River will affect this reservoir. These can include tributary steam impairment and post-fire nonpoint source pollution. In the context of climate change, there is an increased risk of drought, increased severe wildfires, and changes in runoff timing. These stressors will only increase the need for protecting and improving our storage and diversion in the Upper Arkansas (USBR, 2023).

Figure 3. Mt Elbert Forebay dam in Lake County, Colorado. This dam is owned and operated by the Bureau of Reclamation. Photo: U.S. Bureau of Reclamation.

Water Quality

The Upper Arkansas watershed has a mixture of water quality concerns identified by stakeholders and through monitoring data. Most of the tributaries of the Arkansas from the headwaters to Brown's Creek are listed as 303(d) impaired due to arsenic, and others have additional pollutants. The mainstem of the Arkansas in Fremont County is listed as impaired due to multiple heavy metals, including Arsenic, Iron, Cadmium, and Zinc. Legacy mine impacts are also present throughout this project area, with the most considerable impacts in the headwaters of the Arkansas, in Lake County, CO. Agricultural and municipal consumptive users are, of course, concerned about this issue for impacts to public health (CDPHE, 2023).

Additionally, non-consumptive users such as recreation stakeholders closely follow water quality issues. Upper Arkansas is home to over 100 miles of Gold Metal Trout Waters. In the Arkansas Basin, there is an estimated $349 million in annual economic activity on these waters (CWCB, 2022)

Lake DeWeese is another water quality area of concern, classified as 303(d) impaired due to arsenic, phosphorus, and dissolved oxygen levels (CDPHE, 2023). This lake is an important water storage body for this agricultural region, representing only storage within the county. The

Upper Arkansas Water Conservancy District has suggested raising the dam's height to help with the dissolved oxygen and temperature issues. Low water levels in the lake are the primary reason for this issue. Increased drought stress due to climate change is expected to exacerbate low lake levels.

Other tributaries in Custer and Fremont Counties, such as Texas and Grape Creek, face stress and impairment and flow directly to the mainstem of the Arkansas River. The input to Lake Deweese is Grape Creek, which suffers impairment due to Arsenic, E. coli, and temperature (CDPHE, 2023).

Wildfire Risk

With increasing drought, changes in hydrology, and historical forest management practices, much of the Mountain West suffers from an increased risk of severe wildfire. The Upper Arkansas River watershed is no different, and the risk is very high in some areas. All of the counties in this project have completed Community Wildfire Protection Plans (CWPPs; Figure 4). The CWPPs identify areas at risk based on several factors and values. The Upper Arkansas has areas of high risk due to proximity to water supply/storage, property, transportation corridors, and other critical infrastructure. The steep, mountainous regions of our watershed are prone to the effects of post-fire flooding. For years after a fire, post-fire problems can damage property and infrastructure and cause injury and death (Figure 5). Additionally, with a history of mining activity, post-fire flooding in areas with mine waste can be especially harmful due to the mobilization of mine contaminants into waterways (Figure 6).

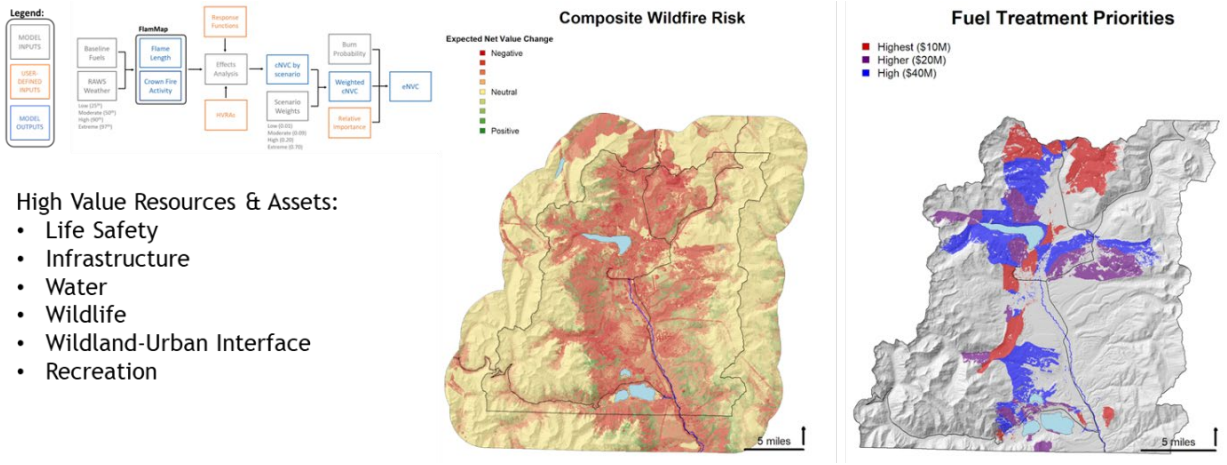

Figure 4. The CWPP process in Lake County, Colorado.

Figure 5. Post-fire flooding damage following Hayden Pass Fire in Fremont County. Photo: ARWC.

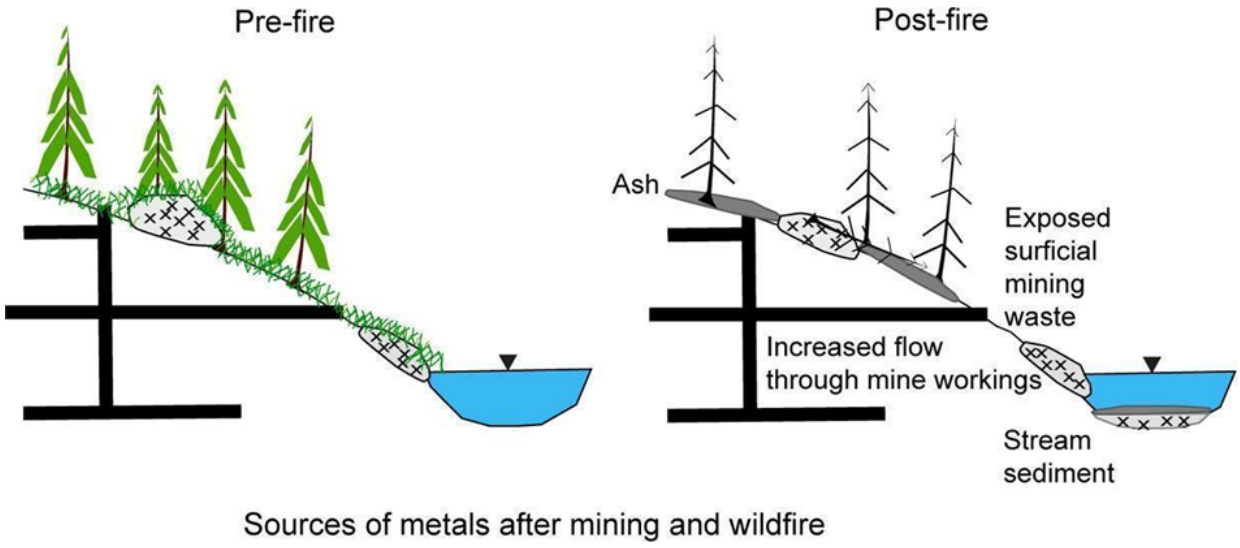

Figure 6. Graphical description of the sources of mine waste metals into watersheds after fires (Murphy, 2020).

E.1.2.2. SUB-CRITERION NO. B2. PROJECT BENEFITS

These proposed activities will build needed capacity and facilitate better planning and collaboration in the Upper Arkansas River Watershed. This area of Colorado is very rural, and we face several watershed issues but cannot often address them. Funding from this opportunity would help support an additional

four coordinators and two facilitators in this region. With similar goals but focusing on their specific geographic area, these coordinators and facilitators will establish connections with stakeholders and the community. This will put them in the position to begin researching, planning, and collaborating on addressing watershed health concerns. The outreach coordinator will also include these areas in their geographic scope, bridging connections across the region. By creating and implementing an outreach plan, this coordinator can collaborate across this area and bring awareness to stakeholders and communities.

With the addition of several coordinators and facilitators, ARWC will be poised to address critical watershed health concerns. For water quantity and quality, the coordinators will work on planning several projects. These include attending stakeholder meetings such as the Lake and Chaffee Forest Health Councils, the Upper Arkansas Watershed Partnership, and Colorado South Region Mitigation Stakeholders meetings. While meeting with stakeholders, these coordinators will help plan needed forest health projects. Improving forest health will have direct effects on increasing the resilience of our watershed to drought and wildfire. Lowering the risk of wildfire in the Upper Arkansas will mitigate risk to the water supply. Our forests supply our valley with water by capturing precipitation and releasing it into waterways or groundwater. Water from our forests is also captured in a complex water storage and diversion facility network. Most of these facilities are surrounded by forested lands, often in steep landscapes. By strategically planning forest health work around important water supply and storage, we can proactively reduce risks of damage to infrastructure and reduce post-fire flooding and sedimentation. In the context of climate change, we can expect changes to hydrologic timing and precipitation, exacerbating drought stress on our water storage and further increasing the need to protect this supply.

Furthermore, a reduction in severe wildfire risk reduces post-fire flooding risk. Post-fire flooding and debris flows can be highly damaging and occur years after a fire. We have plans to initiate at least one program for making our watershed "wildfire-ready." This planning effort will be an excellent fit for our new watershed coordinators to begin working on. ARWC has worked extensively on post-fire recovery following the recent fires in the area. And although post-fire recovery will always be a service we provide, ARWC plans to become more proactive in this space by helping stakeholders and communities be as ready as possible for the inevitability of future wildfires.

Work reducing the risk of severe wildfire in this watershed can also reduce the amount of contaminants that reach our waterways. The extensive abandoned mine land across this project area combined with wildfire could exacerbate the factors contributing to impairment by adding inputs of mine waste, often including heavy metal contamination. Work is ongoing with our partners, such as the Colorado Department of Health and the Environment (CDPHE), the Colorado Department of Reclamation, Mining, and Safety (DRMS), Trout Unlimited – Abandoned Mine Lands (TU – AML), and others to clean up abandoned mines while reducing wildfire risk (Figure 7). Continuing this collaboration and evaluating projects for future feasibility will be essential.

Figure 7. ARWC Staff touring a mine waste site in Lake County as part of cleanup efforts with the Colorado Department of Reclamation, Mining, and Safety (DRMS). Combining forest health projects with reclamation work has a greater effect on watershed resiliency. Photo: ARWC.

Continuing our current water quality monitoring efforts is important for our stakeholders. We continue to see pulses of heavy sedimentation in the Arkansas River from the Decker Fire scar. Continuing our monitoring of turbidity allows stakeholders like Cañon City, Colorado, to shut off their Arkansas River intakes for their municipal water when these events occur. Additionally, this monitoring data interests other stakeholders, such as the Arkansas River Outfitters Association, who receive turbidity and temperature alerts. These data can help determine whether fishing conditions are appropriate for taking clients on trips.

Further water quality monitoring information is also required to understand better some of the nonpoint source pollution in tributaries of the Arkansas River. Macroinvertebrate sampling is one of the simplest ways of evaluating a stream's health (USU, 2023). We propose to have one of our new watershed coordinators initiate macroinvertebrate sampling on tributaries of the Arkansas (Custer and/or Fremont Counties). By collecting the additional stream health data, we can better engage stakeholders to improve water quality. We will partner with Colorado River Watch to receive training and equipment to complete this work. River Watch also helps with the analysis and publishes the verified data on its website for public and stakeholder viewing.

Stakeholders that can expect to benefit from these planning and monitoring efforts are extensive. These include water utility providers, recreationists, outfitters, agricultural producers, private landowners, and municipalities. Water utility providers are aware that impacts from severe wildfires could have very detrimental effects on water storage and conveyance. Agricultural producers rely heavily on this infrastructure and are the most significant users of this supply in the basin. Outfitters and recreationists rely on a healthy Arkansas River and tributaries for their enjoyment and livelihoods. Severe impacts to tributaries or the mainstem could seriously affect their way of life in the Upper Arkansas. Municipalities rely on the watershed and storage to provide their communities with a consistent and clean water supply. The more resilient the watershed, the more reliable and safer our water supply will be.

E.1.3. EVALUATION CRITERION C—READINESS TO PROCEED

Our readiness to proceed will be immediate upon award. The majority of our expenses are in the personnel category. We plan to hire all of the positions before the award. The need for this capacity is immediate. Securing funding under this opportunity will allow us to create a better long-term plan and devote more time to planning activities. We will also be able to move quickly to hire contractors after receiving the award. The facilitators were active previously, but funding had expired. It will be simple to reengage the contractors and rehire them.

Action	Estimated Beginning Date	Estimated End Date
Hire Watershed Coordinator (Lake County)	January 2024	N/A
Hire Watershed Coordinator (Chaffee County)	December 2023	N/A
Hire Watershed Coordinator (Fremont/Custer County)	March 2024	N/A
Hire Outreach Coordinator	June 2024	N/A
Hire Facilitator for CSRMS	December 2024	N/A
Begin River Watch Water Quality Monitoring	June 2025	October 2027
Create Outreach Plan	January 2026	June 2026
Complete Ph II Integrated Watershed Management Plan (UAWP)	February 2024	December 2024

E.1.4. EVALUATION CRITERION D—PRESIDENTIAL AND DEPARTMENT OF THE INTERIOR PRIORITIES

E.1.4.1. CLIMATE CHANGE

This project aims to build the resiliency of the watershed in the face of climate change. The big picture of this proposal is to connect landscape-level and cross-jurisdictional planning work in the Upper Arkansas River watershed. The effects of climate change can be variable, but Colorado climate scientists advise us that there may be changes in snowpack, runoff timing, more intense wildfire, and increased severe drought (Colorado, 2023). We are encouraged to increase our resiliency and adapt to these changes. The planning, monitoring, and building of our capacity in this region will be essential to preparing for and mitigating the effects of climate change.

Engaging with stakeholders to address forest health will enhance our climate resiliency. By working on making our area wildfire-ready, we can protect critical infrastructure, water supply storage, and improve the recharge of natural and constructed water storage systems. Further, this planning effort will help us engage with industry, stakeholders, the community, and forestry experts to find innovative ways to reduce our wildfire risk and the buildup of fuels. These innovations can include using biochar and mushroom composting to reduce fuel loading and sequester carbon within the local area.

E.1.4.2. BENEFITS TO DISADVANTAGED, UNDERSERVED, AND TRIBAL COMMUNITIES

DISADVANTAGED AND UNDERSERVED COMMUNITY BENEFITS:

The majority of the project area encompasses disadvantaged communities. Lake County's area is classified as disadvantaged due to several issues, including climate change, energy, transportation, workforce development, and legacy pollution. This county has faced boom and bust cycles for decades from its rich mining history. Mining is still an important part of the community, but the number of people employed by this industry has steadily been shrinking. The economy is also shifting from mining-centric to other sectors, such as recreation. The mining history also left many abandoned legacy mines that continue to affect the watershed today. These abandoned mine areas include the California Gulch Superfund site within the Leadville Historic Mining District. Cleanup of the site is nearly complete, but many other places of contamination throughout the area continue to impact the watershed.

This project will address legacy pollution by building capacity in Lake County for a full-time watershed coordinator. This coordinator will focus on local Lake County issues, including working with our partners on previously identified and funded cleanup sites with our partners at Trout Unlimited, the Colorado Department of Health and the Environment, the Colorado Department of Reclamation, Mining, and Safety, and Lake County. In addition, funding from WaterSMART will provide support to work with partners to evaluate new projects, attend planning meetings, and conduct outreach with stakeholders and the community on this issue.

Lake County meets several additional thresholds for underserved communities. These include low income (90th percentile), energy cost (91st percentile), transportation barriers (95th percentile), linguistic isolation (93rd percentile), and projected fatalities and injuries due to climate change and natural hazards. While these are all complicated issues facing a community, we hope our work will have a positive impact. We can provide one to two professional jobs dedicated to improving watershed health. Through the outreach and planning work, we also plan to build the resilience of the watershed and the community to the effects of climate change.

In Fremont and Custer Counties, several thresholds are met for disadvantaged communities. These include abandoned mine land, low income, energy cost, wildfire risk, and transportation

barriers. Like Lake County, we hope to have a watershed coordinator focused on this area, providing a full-time, professional salary. Additionally, much of our water quality monitoring is focused on this area. This monitoring will help us fill gaps in water quality data while allowing us to target and develop potential projects in the future to reduce this low water quality.

Fremont and Custer counties are in the 93rd and 92nd percentiles, respectively, for wildfire risk. Reducing wildfire risk is an important goal for ARWC and the stakeholder community we support. Funding through WaterSMART will provide meeting facilitation for the Colorado South Region Mitigation Stakeholders (CSRMS). CSRMS is a vital stakeholder group focused on mitigating risks from wildfire in this region. CSRMS can better coordinate planning, projects, and funding for this underserved region through organized meetings and facilitation. Sustained funding for our Fremont/Custer Watershed Coordinator will also provide dedicated staff to aid in this process.

TRIBAL BENEFITS:

This project area is part of traditional lands for several tribes today—one of those tribes in the Navajo Nation. Mount Blanca in the Sangre De Christo Mountains is also known as Tsisnaasjini. This mountain is one of four sacred mountains, marking the corners of the traditional homeland of the Navajo. The tribe has purchased large tracts of land within the proposed project area in Custer County, totaling 28,855 acres. This land is being managed in trust by the Navajo Nation for agriculture, wildlife, open space, and conservation.

We look forward to meeting with Navajo land managers to discuss potential needs and planning that we may be able to collaborate on for the benefit of the watershed, tribe, and larger community.

PROJECT BUDGET

Table 3.—Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Upper Arkansas Watershed Partnership (various members)	$65,620
2. Colorado Water Conservation Board	$32,733
3. River Watch	$2,000*
4. Canon City Municipal Water	$7,000*
Non-Federal Subtotal	$107,353
REQUESTED RECLAMATION FUNDING	$298,612

BUDGET NARRATIVE

Please see Attachment B – Budget Detail and Narrative

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

This project includes only planning and monitoring work; no earth-disturbing activities are planned. There is not an expected impact on the environment through this work, and no additional compliance work is expected.

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

This region has a few threatened and endangered species (Table 4).

Table 4. List of threatened and endangered species in the project area.

Species	Status
Lesser prairie chicken	Threatened
Mexican spotted owl	Threatened
Penland alpine mustard	Threatened
Canada lynx	Endangered
Pawnee montane skipper	Endangered

The species listed will not be affected by the project.

- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States"? If so, please describe and estimate any impacts the proposed project may have.*

There are designated wetlands and surface waters that fall under CWA protection. These waters will not be affected by any of this proposed work.

- *When was the water delivery system constructed?*

There will be no effects on water delivery systems.

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

No, there will not be any effects to any irrigation systems.

- *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.*

N/A, see above.

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

Yes, archaeological resources exist in this large planning area, but none will be affected by this work.

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

There will be no expected adverse effects on low-income or minority populations.

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

No, there will be no impact on these places with this proposed project.

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

No, there will not be any introduction or spread of invasive or non-native species through this proposed work.

REQUIRED PERMITS OR APPROVALS

There are no permits or approvals required to complete this work.

OVERLAP OR DUPLICATION OF EFFORT STATEMENT

We are unaware of any overlap or duplication with any proposed projects for these activities.

CONFLICT OF INTEREST DISCLOSURE STATEMENT

ARWC has not identified any actual or potential conflicts of interest with aspects proposed in this application.

LETTERS OF SUPPORT FOR THE PROJECT AND LETTERS OF PARTICIPATION

Attachments:

1. Arkansas Basin Roundtable – Letter of Support
2. Upper Arkansas Watershed Partnership – Letter of Support

OFFICIAL RESOLUTION

Our official resolution from the Board of Directors and Executive Director will be submitted at the first quarterly Board Meeting following notification. Board meetings can also be called outside of this schedule to address any urgent need.

UNIQUE ENTITY IDENTIFIER (UEI) AND SYSTEM AWARD MANAGEMENT (SAM) REGISTRATION

ARWC has a Unique Entity Identifier (UEI) number of FCKNYHJW34M1. Our System Award Management (SAM) registration is also active, and will remain active for the duration of the award if selected.

BIBLIOGRAPHY

CDPHE. (2023, November 27). *Colorado Stream Segmentation*. Retrieved from Colorado Division of Water Resources: https://cdphe.maps.arcgis.com/apps/Viewer/index.html?appid=f1541d2f21834642ba1551c674fd4a79

Colorado. (2023). *Colorado Climate Preparedness Roadmap.* Denver: State of Colorado.

CWCB. (2022). *Arkansas Basin Implementation Plan.* Denver: Colorado Water Conservation Board.

Murphy, S. M. (2020). Wildfire-driven changes in hydrology mobilize arsenic and metals from legacy mine waste. *Science of the Total Environment*.

USBR. (2023, December 1). *Projects and Facilities*. Retrieved from Bureau of Reclamation: https://www.usbr.gov/projects/

USU. (2023, December 3). *Macroinvertebrate Sampling*. Retrieved from Utah Water Watch: https://extension.usu.edu/utahwaterwatch/monitoring/field-instructions/macroinvertebratesampling/

Appendix A: Letters of Support

Arkansas Basin Roundtable

November 8th, 2023

Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Re: WaterSMART Cooperative Watershed Management Program Phase I: ARWC's Comprehensive Upper Arkansas Watershed Protection Planning

Dear Reclamation Review Committee:

At its November 8th, 2023 meeting, the Arkansas Basin Roundtable (ABRT) approved support of the ***Comprehensive Upper Arkansas Watershed Protection Planning*** project.

ARWC is engaged in several watershed planning phases, projects, and monitoring throughout the Upper Arkansas Watershed. This project aims to increase these efforts' capacity, coordination, and facilitation while supporting several regional subgroups in watershed health protection and planning. Additional funding for coordinators, facilitation, outreach, and monitoring is critical to the growth and sustainability of our watershed health and planning work. Developing an outreach plan and building staff capacity will engage stakeholders and the public better, adding to the success of these efforts.

This project supports the goals of the Colorado Water Plan by performing planning to promote vibrant communities, robust agriculture, healthy watersheds, and watershed resilience. This is also in line with Arkansas Basin Implementation Plan goals by supporting ARWC's coordinator staff to conduct outreach in the basin for the Arkansas Roundtable and ARWC's watershed health work. The Roundtable has identified that their primary watershed health goal is to, "Maintain, improve, or restore critical water supply watersheds that could affect Arkansas Basin water uses and environmental and recreational values." This includes identifying projects and solutions for watershed health and water quality.

The Arkansas Basin Roundtable approved supporting this application by consensus, and there were no dissenting views.

Should you have any questions or concerns, please feel free to contact me either by telephone at (719) 668-8028 or by email at mshea@csu.org.

Thank you,

MDShea

Mark Shea
Chair

Copy via email: Applicant; Needs Assessment Chair

November 27th, 2023

Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

RE: WaterSMART Cooperative Watershed Management Program Ph I Grant Application

Dear Review Committee,

The Upper Arkansas Watershed Partnership (UAWP) would like to express our support for the project submitted by the Arkansas River Watershed Collaborative (ARWC): ***Comprehensive Upper Arkansas Watershed Protection Planning***. The UAWP was formed in 2020 to foster collaboration among agencies, organizations, government, and landowners in the upper Arkansas Basin to build a healthy and resilient watershed. The UAWP Leadership Team includes the Arkansas River Watershed Collaborative, Central Colorado Conservancy, Greater Arkansas River Nature Association, Trout Unlimited, and the Upper Arkansas Conservation District.

We have worked together to develop watershed planning and an Integrated Watershed Plan for the Upper Arkansas River. This project will also help support our first watershed coordinator, explicitly dedicated to the UAWP. We are transitioning from learning to action, and hiring a full-time coordinator will provide the needed capacity to catalyze project selection and implementation. Having a dedicated, full-time coordinator for our group and for outreach and planning, will be key to the success of watershed planning efforts in the Upper Arkansas. We are excited to add capacity to our valley and our organizations while promoting watershed health.

The funding support through the WaterSMART CWMP will help us move from Phase I of the Integrated Watershed Plan to Phase II, where we will integrate other plans within the Upper Arkansas for maximum benefit to the watershed. We are proud of the progress our partnership has made in this short time and look forward to continuing that momentum with the support of the Bureau of Reclamation.

Sincerely,

Natalie Allio

UAWP Watershed Coordinator