

Water Quality Sampling in the Verde River Watershed – Developing a Collaborative  
Water Quality Monitoring Program for People and Wildlife

Submitted on behalf of:  
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**Friends** *of the*  
**VERDE RIVER**

*Working Collaboratively for a Healthy Verde River*

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## EXECUTIVE SUMMARY:

Friends of the Verde River (Friends or FVR), a 501(c)(3) located in the city of Cottonwood, Yavapai County, Arizona, is pleased to submit this proposal on January 19, 2021, for WaterSMART Phase I Funding Opportunity Announcement no. BOR-DO-21-F003 to the United States of America Bureau of Reclamation for the FY 2021 Funding Cycle.

The Verde River is one of the longest perennial streams in the desert southwest. In 2010, Verde Watershed stakeholders gathered to discuss and strategize how to cooperatively manage woody invasive plants on a watershed-scale. These workshops resulted in the creation of the Verde River Cooperative Invasive Plant Management Plan (CIPMP) and a community-based public-private partnership, the Verde Watershed Restoration Coalition (VWRC).

VWRC is convened by Friends and has fully implemented the CIPMP, treating target invasive species across more than 9,500 riparian acres to date in the watershed. FVR, VWRC partners, and our grantors have already invested over \$4 million to restore the riparian corridor and maintain a healthy, flowing Verde River. FVR and VWRC partners developed a new 5-year strategic plan in 2019 (Appendix A), which expanded the scope of VWRC's work beyond invasive plant removal to other critical watershed issues, including improving water quality.

Water quality monitoring and evaluation is included as a conservation objective within the 2019 VWRC strategic plan. The objective is to address water quality drivers to maintain and improve water quality and to attain state clean water standards for healthy fish and wildlife and sustainable recreation. Priorities include developing a watershed wide water quality monitoring plan, proactively identifying pollution sources, informing and educating the public on water quality challenges, and working with partners on water quality goals.

Relatively little is known about water quality in the Verde River Watershed. Though the watershed contains multiple 303(d) impaired reaches, less than 10% of all reaches have adequate sampling in the last five years to be considered scorable by the Arizona Department of Environmental Quality's (ADEQ) Water Quality Index (WQI). While this is partially due to the inaccessibility of much of the watershed, recent examinations of the ADEQ water quality database suggest that a lack of coordination between groups has led to significant variation in data density. Some areas are under-sampled, primarily due to inaccessibility of those reaches.

To solve this problem, we propose creating a collaborative plan for water quality monitoring. This project specifically focuses on the eight-digit HUC 15060202 and ten-digit HUCs 1506020301, 1506020302, 1506020303, which encompasses the Verde River from its headwaters near Paulden, AZ, through the Wild and Scenic reaches in the watershed. This planning process will be led by Friends in collaboration with VWRC partners and will result in a monitoring plan that has been mutually developed and adopted by the various entities that sample water quality in the watershed. To accomplish this goal FVR proposes to hire and manage a planning consultant on behalf of and in consultation and coordination with the VWRC Water Quality Working Group.

Through the planning consultant Friends will:

- a.) Organize and facilitate planning meetings
- b.) Develop and cost-out 3-4 alternative sampling structures
- c.) Prepare draft and final plans, including the integration of comments by stakeholders.

Outcomes include:

- a.) A water quality monitoring plan that has been mutually agreed upon and adopted by partners.
- b.) Quantifiable improvements in our certainty of the status of water quality.

These actions and results will build upon a decade of collaborative work, improving our ability to detect changes in water quality and protect ecosystem health for years to come.

## BACKGROUND DATA:

One of the most significant natural resources found in Arizona is the Verde River, its tributary streams, and its riparian forests. Two sections of the Verde River have been federally recognized through the Wild & Scenic Rivers Act, 40.5 miles of the lower Verde and 16.8 miles of Fossil Creek, a tributary; the upper Verde is also eligible for listing. In total the Verde River and its major tributaries include 459.2 river-miles — 336.1 miles on federal land, 20.8 miles on state lands, 4.2 miles on Tribal land, and 98.1 miles on private lands, from the headwaters in Chino Valley to the confluence with the Salt River. The Verde is one of Arizona's last perennial flowing rivers.

The Verde River is treasured for its wildlife habitat, water supply, recreational opportunities, and natural beauty. The river supports native plants, fish, and wildlife; local agriculture; and recreation water needs. Riparian forests are one of Arizona's rarest forest types (< 0.5% surface area), and the riparian forests of the Verde River are home to a Fremont Cottonwood-Goodding's Willow Riparian Gallery Forest — one of the most threatened forests in North America.

These riparian areas sustain a large and diverse regional wildlife population, provide a critical flyway for migratory birds, and serve as a centrally important economic and recreational resource to our rural communities. Some 220 bird species breed, nest, or feed in these riparian forests along the Verde and breeding bird densities are among the highest recorded in North America. The Verde River and riparian corridor also provide critical habitat for four federally protected wildlife species and ten species of native fish.

There are multiple system stressors, however, including invasive plants, altered surface flows, suspected failed septic systems, and increased recreational use. These stressors in particular threaten the diversity, sustainability, and resilience of the Verde River and its tributaries. The Verde River delivers water to over three million people in metropolitan Phoenix and irrigates 6,400 acres of agriculture production along the Verde. Human populations in the Verde Watershed more than doubled from 1980-2000 and continue to grow, increasing surface and groundwater demands, recreational use, and development of gray infrastructure along the river corridor.

Recognizing the importance of the Verde Watershed and these threats to its ecological and economic value, the Verde Watershed Restoration Coalition (VWRC) was formed in 2010 as an initiative of Friends. VWRC then developed the Verde River Cooperative Invasive Plant Management Plan (CIPMP), followed by strategic plans in 2015 and 2019. In 2015 the VWRC Steering Committee elected to expand the priorities of the partnership beyond invasive plant management and to further engage federal and state agencies, local municipalities, private landowners, non-profit organizations, the Yavapai-Apache Nation, and local business owners. With this holistic perspective for engaging stakeholders throughout the watershed, VWRC has implemented restoration projects that use a strategic approach to controlling prioritized

invasive plants in the riparian areas of the Verde Watershed while increasing stakeholder collaboration.

VWRC partners include the Coconino National Forest, Prescott National Forest, Tonto National Forest, USFS Region 3 - State and Private Forestry, National Park Service, US Fish & Wildlife Service-Partners for Fish and Wildlife Program, Arizona Game and Fish Department, Arizona Department of Environmental Quality (ADEQ), Arizona State Parks and Trails, Yavapai County, Town of Camp Verde, City of Cottonwood, Town of Clarkdale, RiversEdge West, The Nature Conservancy, Oak Creek Watershed Council, Arizona Conservation Corps, The Vetraplex (a private Veterans-owned business), and private landowners. The partnership has managed invasive plants while supporting the local economy, veterans, and young adults through training and job creation since 2012. Friends and VWRC Partners have worked cooperatively to treat more than 9,500 acres throughout the watershed. VWRC has been able to accomplish this through stakeholder participation and financial support from our partners, funders, 237 private landowners, as well as dedicated volunteers and students.

In 2019, VWRC completed its second strategic plan (Appendix 1) with the following four goals:

1. Restore and maintain ecosystem functions and habitat connectivity for fish and wildlife to facilitate self-sustaining natural processes and linkages between terrestrial and aquatic systems;
2. Reduce anthropogenic erosion and associated landscape drivers along perennial river floodplains, ephemeral washes, upland gullies, and springs;
3. Address water quality drivers to maintain and improve water quality to attain state clean water standards for healthy fish and wildlife and sustainable recreation; and
4. Provide volunteer and educational opportunities to assist in river conservation efforts and develop people who are stewards of watershed health.

## PROJECT LOCATION

The Verde River watershed is a 6,624-square-mile basin in north-central AZ with private, public, and tribal ownership. In total the Verde River and its major tributaries include 459.2 river-miles, with 336.1 miles on federal land, 20.8 miles on state lands, 4.2 miles on Tribal land, and 98.1 miles on private land from the headwaters in Chino Valley to the confluence with the Salt River near Scottsdale. The watershed also contains the only two Wild and Scenic river sections in the state of Arizona, Fossil Creek and the Lower Verde River, and is thus of federal significance. Perennial tributaries include (from upstream to downstream) Sycamore Creek, Oak Creek, Beaver Creek, West Clear Creek, Fossil Creek, and East Verde Creek.

The Hydrologic Unit Code (HUC) for the whole Verde watershed is 150602. This project specifically focuses on the eight-digit HUC 15060202 and ten-digit HUCs 1506020301, 1506020302, 1506020303, which encompasses the Verde River from its headwaters near Paulden, AZ, through the Wild and Scenic reaches in the watershed. Two reaches of the watershed, both the mainstem of the Verde near Cottonwood, AZ, and Oak Creek near Sedona, AZ, are currently listed as 303(d) impaired for *Escherichia Coli*.

## TECHNICAL PROJECT DESCRIPTION

Friends of the Verde River is an **Existing Watershed Group**. Friends was initially formed in 2007 as a grassroots affiliate of the Arizona State Parks Foundation and became a fully independent corporation under IRS section **501(c)(3)** in 2011.

Friends' **mission** is to work collaboratively for a healthy, flowing Verde River system, **envisioning** a river system that supports our natural environment, vibrant communities, and quality of life for future generations. We focus our work on restoring habitat, sustaining river flows, and building supportive communities. We proactively engage in a combination of "boots-on-the-ground" projects and policy solutions guided by sound conservation principles and which meet human and environmental needs in an outcomes-oriented manner. Specifically, the **goals** of Friends are:

- Ensure that the Verde Watershed Report Card is an influential communication and monitoring tool, maintained and promoted by Friends in collaboration with our partners.
- Restore and maintain ecosystem functions and habitat connectivity for fish and wildlife to facilitate self-sustaining natural processes and linkages between terrestrial and aquatic systems.
- Reduce accelerated erosion and associated landscape drivers within perennial riverbanks, ephemeral washes, gullies, and surrounding landscapes.
- Address water quality drivers to maintain and improve water quality to attain state clean water standards for healthy fish and wildlife and sustainable recreation.
- Provide volunteer and educational opportunities to assist in river conservation efforts and help people to develop as stewards of watershed health.
- Ensure that VWRC partners continue to be committed to good planning and evaluation towards achievement of the goals/objectives in the 2020 strategic plan.
- Ensure that the Verde River Exchange has an influential profile in the Verde Valley and statewide, demonstrating the value of mitigation to offset groundwater use.
- Working with our partners, engage with communities in the Verde Valley to adopt integrated land & water planning policies and practices that protect flows in the Verde River.
- Design events, activities, and communications to create a sense of community, increase engagement, be memorable, deliver positive net revenue, reinforce programmatic goals, and enhance understanding of the challenges facing the Verde River system.

Towards these goals, Friends:

- Treated more than 9,500 riparian acres for invasive plants in the last ten years
- Leads the Verde Watershed Restoration Coalition, which includes more than 235 private landowner partners, three National Forests, one indigenous Nation, and three state agencies.
- Manages the Verde River Exchange, a voluntary water supply program that has created and sold more than 14 million gallons of water offset credits to preserve river flow.



- Launched a regionally relevant Integrated Land and Water Planning Toolbox, from which we have created the River Friendly Living program to reward people, businesses, and communities that do the right thing for the rivers (launching in 2021).
- Hosted the second State of the Verde Watershed Conference in October 2019; the third conference will be held in February 2022.
- Issued the first ever Verde Watershed Report Card in 2020, which will be updated regularly.
- Serves as a member and fiscal sponsor of the Verde Front, a regional network promoting natural and cultural resources, with an emphasis on sustainable recreation.

Friends will use WaterSMART funding to:

- (1) Assess current status of water quality monitoring in the watershed (**Tasks A and B**)

Initial work completed by Friends in collaboration with ADEQ has shown that our knowledge of water quality in the watershed is severely lacking (Figure 1). This became clear as part of Friends' development of the Verde River Watershed Report Card. In this process we used ADEQ's recently developed measure of data adequacy (which they term index "stability") to score the extent to which reaches in stakeholder identified reporting zones have been sampled thoroughly through a set of narrative questions (e.g., Are both base flow and storm flow sampled?, Is the entire water year sampled?, etc.). We found that when this method is applied to the last five years of samples in the ADEQ database scores ranged from 2 to 59 on a scale of 1-100, with high scores corresponding to high levels of data adequacy.

These low data adequacy scores point to obvious deficiencies in current sampling regimes and suggest that there are fundamental gaps in our knowledge of water quality in the Verde River Watershed. However, the causes of these deficiencies are not always clear. Though absolute data scarcity is a serious problem in areas where access is difficult, the Verde River from Beasley Flat to Horseshoe Dam and Sycamore Creek, even areas with relatively easy access and organizations actively collecting water quality data, such as Fossil Creek, still show low data adequacy

This suggests that even in areas with relatively high sampling density (Figure 2) there are at least two causes of water quality data inadequacy: 1) sampling biases towards a particular part of the water year and 2) a lack of coordination between data collectors leading to some reaches being under sampled. However, the relative contributions of each of these causal factors is unknown and likely varies in space. Phase I will resolve this problem by identifying a rank order list of the cause for sampling deficiency in the project area.

This phase will be led by Friend's staff with close collaboration with VWRC partners, particularly ADEQ. As shown in Figures 1 and 2, Friends has already collected the underlying data necessary to complete such work. Further, Friends has already developed fact sheets on each of the collecting agencies for data included in the ADEQ database. We therefore anticipate that this work can be completed approximately three months after the project begins.

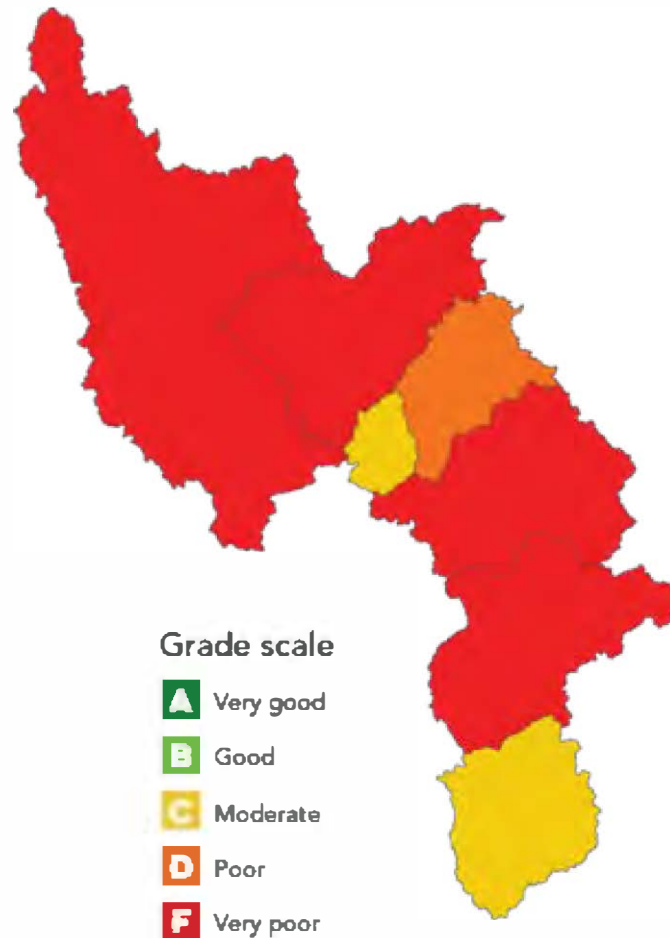


Figure 1. The Water Quality Certainty metric from the Verde River Watershed Report (Appendix 2; <https://ecoreportcard.org/report-cards/verde-river/>) shows that four of the seven watershed report card regions scored “very poor” for the Index Stability Scores, meaning there is an inadequate number of samples to adequately assess water quality in the region.

(2) Develop a collaborative water quality monitoring plan (Task B)

With the knowledge from Phase I on this project in hand, Friends will engage VWRC partners in developing a collaborative water quality monitoring plan. This work will be broken into three parts.

PHASE IIA. Friends will present the results from Phase I to the VWRC Water Quality Working Group, a subcommittee of VWRC of interested parties tasked with reducing water quality uncertainty in the watershed. Friends, on behalf of the VWRC working group, will engage a consultant to develop a plan to this end. This process is similar to the recent development of the VWRC Strategic Plan, in which Friends oversaw the planning effort and worked with a consultant to develop the plan and engage VWRC partners. (Three Months)

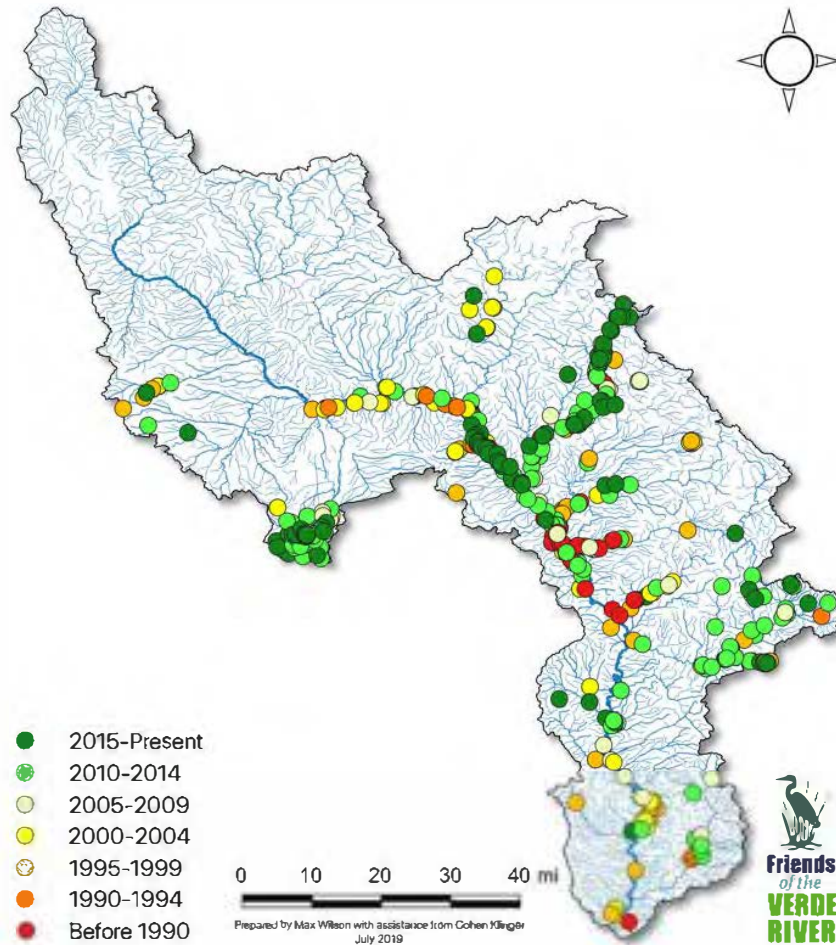


Figure 2. A map of water quality samples in the Arizona Department of Environmental Quality database organized by year the sample was collected.

PHASE IIB. The working group will advise the consultant in developing 3-4 alternatives sampling structures covering a wide range of potential sampling commitments from VWRC partners. These alternatives will include estimates of improvements in data adequacy scores if implemented. The working group will select a preferred alternative and report to the broader steering committee. (Six Months)

PHASE IIC. Upon steering committee approval, the consultant will develop a draft plan with comment periods for the working group at 25%, 75%, and 90% completion and the broader steering committee at 50% completion. The VWRC steering committee will adopt the plan when complete. (9-12 Months)

PHASE III. Upon completion of the collaborative waters quality monitoring program and once additional funding is secured, the collaborative water quality monitoring program will be implemented by Friends and VWRC partners. This phase will be funded by other funding sources.

## EVALUATION CRITERIA

***E.1.1. Evaluation Criterion A— Watershed Group Diversity and Geographic Scope (30 points)***  
*Up to 30 points may be awarded for this criterion. Sub-criteria are listed in descending order of importance.*

The Verde Watershed Restoration Coalition includes 23 public and private stakeholder organizations, including local community governments, and over 235 private landowners. Friends will increase outreach to private landowners, which include farmers and ranchers. The Yavapai-Apache Nation is a member of VWRC and Friends will reach out to other indigenous groups within the project area to expand their involvement. We have already had conversations with the Yavapai-Apache Nation's Environmental Protection Department. There are groups involved in water quality sampling that either attend VWRC meetings sporadically or not at all. We will reach out and include those groups as they are key to success. Funding from this FOA would build on past successes by engaging even more stakeholders in the watershed. *Proposals demonstrating that the New or Existing Watershed Group will represent the maximum diversity of interests, including representatives of the different sectors that exist within the watershed (e.g., hydropower production; livestock grazing; agriculture; industry; state, local, and tribal governments), will receive the highest priority consideration under this criterion. For example, in previous years, successful applicants targeted a diverse array of stakeholders that included farmers, irrigators, tourist and recreation groups, industry, environmental organizations, universities, and local governments.*

Friends currently engages a diverse group of stakeholders, including organizations or individuals who represent tribal, federal, state, and local governments; agricultural interests through farmers, ranchers, and ditch irrigators/managers; local school districts and universities; mining interests in Freeport-McMoRan; tourism and recreation as a member and the fiscal agent of the Verde Front and participant with the Sedona Chamber of Commerce and Tourism Bureau; members of the Yavapai-Apache Nation and its government; and other environmental non-profits. Nevertheless, there are individuals or organizations within each of these interests who do not participate in VWRC. Friends' stakeholder engagement would ensure all stakeholders who are interested in and affected by water quality are a part of the planning process.

*Priority will also be given to those proposals that target stakeholders and project concepts for small to medium sub-basin sized watersheds, for example an approximate 8-digit HUC as defined by the USGS [water.usgs.gov/GIS/huc.html](http://water.usgs.gov/GIS/huc.html), and which represent the full extent of the watershed.*

The project will cover one 8-digit HUC. This HUC encompasses the middle Verde, the reach that has the most concentration of stakeholders and is the most urban of all sections of the river. In addition, we will include three additional 10-digit HUCs so that the proposed scope of work can include the Wild and Scenic reaches in the watershed, the only two designated Wild and Scenic River reaches in the State of Arizona.

***Sub-criterion No. A1. Watershed Group Diversity Points shall be awarded to proposals based on the extent to which they encourage collaboration with a diverse array of stakeholders across the watershed.***

*Please describe the efforts that you will undertake to ensure that the watershed group will include a diverse array of stakeholders, including outreach to stakeholders or collaborating with other groups or partners. If the watershed itself does not include a diverse set of interests and sectors, please provide an explanation of this also (e.g., some watersheds may not include affected stakeholders in all of the sectors identified in the definition of a “watershed group” provided in Section A.2. Objective of this Funding Opportunity Announcement). In responding to this sub-criterion, please include:*

- *A description of the stakeholders within the watershed that affect or are affected by the quantity or quality of water within the watershed (“affected stakeholders”).*

All those who live in, work in, or play in the project area are affected by water quantity and quality within the Verde watershed. Nevertheless, we have maximum effect when we focus our work on influential individuals, organizations, and agencies. Those stakeholders include agriculture producers and holders of historic surface water rights; farmers, ranchers, hobby farmers, and viticulturists; and large landowners, such as the State of Arizona, federal agencies, and Salt River Project, a senior water rights holder. In addition, many businesses in the Verde Valley are impacted by water quantity and quality, including winery owners, breweries, recreational boating companies, farmers without water rights that pump groundwater, light industrial firms, and many others.

Active VWRC members mostly include agencies and organizations. Friends reaches many businesses through other collaborations such as Verde Front, Sustaining Flows Council, and the Verde River Exchange. Verde Front is a network of land managers, municipalities, businesses, and nonprofits focusing on sustainable recreation and economic development. The Sustaining Flows Council is a network of municipalities and businesses with historic surface water rights, including the largest farm business in the Verde Valley, Hauser & Hauser Farms. The Verde River Exchange is a voluntary water offset program that enables groundwater users to lower their water footprint. Water offset credits are generated through contracted use reduction by surface water users. Buyers of offset credits include many of the largest water-related businesses in the Verde Valley. Water flows and quality are a high priority of the Yavapai-Apache Nation. We work with the Nation and other diverse interests in multiple areas, including the VWRC and Verde Front. We also work closely with Yavapai Community College, which allows us to reach students and improve our educational outreach.

- *For Existing Watershed Groups, an explanation of the current membership of the watershed group and whether the current membership is representative of the affected stakeholders within the watershed. In other words, if the watershed group is already diverse, please provide support demonstrating the diversity of the group.*

Friends of the Verde River is a member of multiple coalitions described previously, including the Verde Watershed Restoration Coalition (ecosystem restoration focus), Verde Front (sustainable recreation and economic development focus), Verde River Exchange (operated by Friends with The Nature Conservancy to increase river flows), and the Sustaining Flows Council (a group of government and business representatives focused on local water policies). Affiliations of members of our Board of Directors include Tres Brisas Ranch, a beef operation; Sinagua Malt, a barley malt house; Culp & Kelly LLC, a water law firm; Keep Sedona Beautiful, a local NGO; a former mayor of Camp Verde; a member of the Yavapai-Apache Nation; an employee of a local winery; a Phoenix-area Director representing downstream user

stakeholders; and other members of the community. Many of our Directors are recreational boaters. While our membership is diverse, we have a goal of becoming more diverse by adding members from other areas throughout the watershed and other racial and ethnic groups.

- *Details on how you plan to target affected stakeholders to ensure that your group will represent a diverse set of stakeholders within the watershed, such as engaging in outreach to include new members, or collaborating with different groups or partners (e.g., outreach or partnership activities, public meetings, newsletters, marketing materials, or recruitment of new members).*

As described above, Friends already engages most public and many private riverside landowners within the watershed. For this project, we will be increasing our engagement with stakeholders who are involved in water quality monitoring through citizen science initiatives. The State of Arizona has little water quality monitoring capacity and relies on citizen groups. Those citizen groups monitor areas of the watershed that are convenient or interesting to them with little coordination. We will be engaging with riverside owners that are affected by water quality, such as recreational boating companies, fishing and hunting stakeholders, and recreational vehicle “parks,” of which there are many in the watershed. There are also many people who recreate in the water who are not otherwise involved, especially underserved and underrepresented American Indian and Hispanic individuals. We will conduct outreach to these groups to better understand how they use the river, how water quality impacts their interests, and their thoughts about needed improvements. The best ways to reach these individuals will vary, including in-person surveys, angler surveys, community meetings, and outreach materials.

- *Any other support demonstrating that the watershed group will include a diverse membership.*

One of the priorities that arose from VWRC Strategic Planning in 2015 was the need for a State of the Watershed Conference to inform the diverse stakeholder in the watershed. Friends hosted the first conference in May 2017 and the second conference in October 2019. Over 170 people attended the two and a half day conference. The focus of this conference was to engage participants in a discussion of the preliminary results of the Verde Watershed Report Card, which was published in February 2020. The Watershed Report Card scored indicators grouped into three broad areas: Habitat, Water, and Community. Within each of those areas, we scored metrics for upland, riparian, and aquatic habitat; water quantity and quality; and community vitality, engagement, and recreation. As an example of the success of our outreach to diverse members, for the Watershed Report Card and 2019 Conference, we had a large variety of attendees, including local ranchers, farmers, public land managers, funders, tribal representatives, water managers, students, elected officials, and NGO representatives. Our third State of the Verde Watershed Conference will take place in early 2022. This proposal will feed into that conference and the associated Verde Watershed Report Card. This will engage many more members into the process.

***Sub-criterion No. A2. Geographic Scope*** *Under this sub-criterion, higher priority will be given to proposed or Existing Watershed Groups representing the full geographic extent of the watershed. Applicants will receive points based on the extent to which they intend to do work across the entire extent of the watershed.*

*In addition, proposals that target small to medium sub-basin sized watersheds, for example an approximate 8-digit HUC as defined by the USGS, [water.usgs.gov/GIS/huc.html](http://water.usgs.gov/GIS/huc.html), will be given priority over large or very small watersheds.*

The proposed scope of work will include the entire Upper Verde River Subbasin (15060202) and three 10-digit HUC units of the Lower Verde (15060203-01, -02, and -03). We are including these additional HUC units in order to include the Town of Camp Verde and the Wild & Scenic reaches of the watershed. The scope of Friends of the Verde River's work is the entire six-digit HUC, but for this project we will restrict our scope to better match the funding to the project.

*Please provide the following information in response to this sub-criterion:*

- *Provide a map illustrating the geographic boundaries of the area in which the watershed group will work.*

The geographic boundaries are delineated as the Verde River watershed Study Area (Figure 3). A high resolution .jpg of the above map is attached.

- *The map should also identify the location or boundaries of the stakeholder groups within the area and indicate which stakeholders are currently involved in the group and which will be targeted through outreach. If a map of stakeholder location cannot be provided, please describe the geographic scope of the area to the best of your knowledge.*

The number of stakeholder groups and extent of the watershed prevent clear depiction of all groups on a single map. Attached, however, are maps that show city, county, and forest district boundaries. Note that these maps show the extent of the 6-digit HUC but we are proposing to work only in the 8- and 10-digit HUCs as described above. Figure 4 shows the landownership for the entire Verde River watershed. Four National Forests comprise the majority of the watershed and are included in the project area. Communities in the project area include Clarkdale, Cottonwood, Camp Verde, Sedona, and Jerome (Figure 4). Yavapai-Apache Lands near Clarkdale and Camp Verde are also within the project area (Figure 5).

- *Describe the extent to which the planned membership of the watershed group will represent the full geographic scope of the area in which the group intends to work. If applicable, describe the extent to which the watershed group already represents the geographic scope of the area.*

The existing members of VWRC represent three National Forest, cities and towns within the project area, including the Town of Clarkdale, City of Cottonwood, City of Sedona, and Town of Camp Verde. Additional agencies represented in VWRC that will be part of this project include Arizona State Parks and Trails, ADEQ, Arizona Game and Fish Department, National Park Service, and Yavapai-Apache Nation Environmental Department. Organizations, including The Nature Conservancy, Oak Creek Watershed Council, RiversEdge West, Sustainability Alliance, Keep Sedona Beautiful, Verde River Institute, and Arizona Wildlife Federation, and interested private landowners are partners in VWRC. The agencies and organizations involved in VWRC represent all areas of the watershed included in the project area.

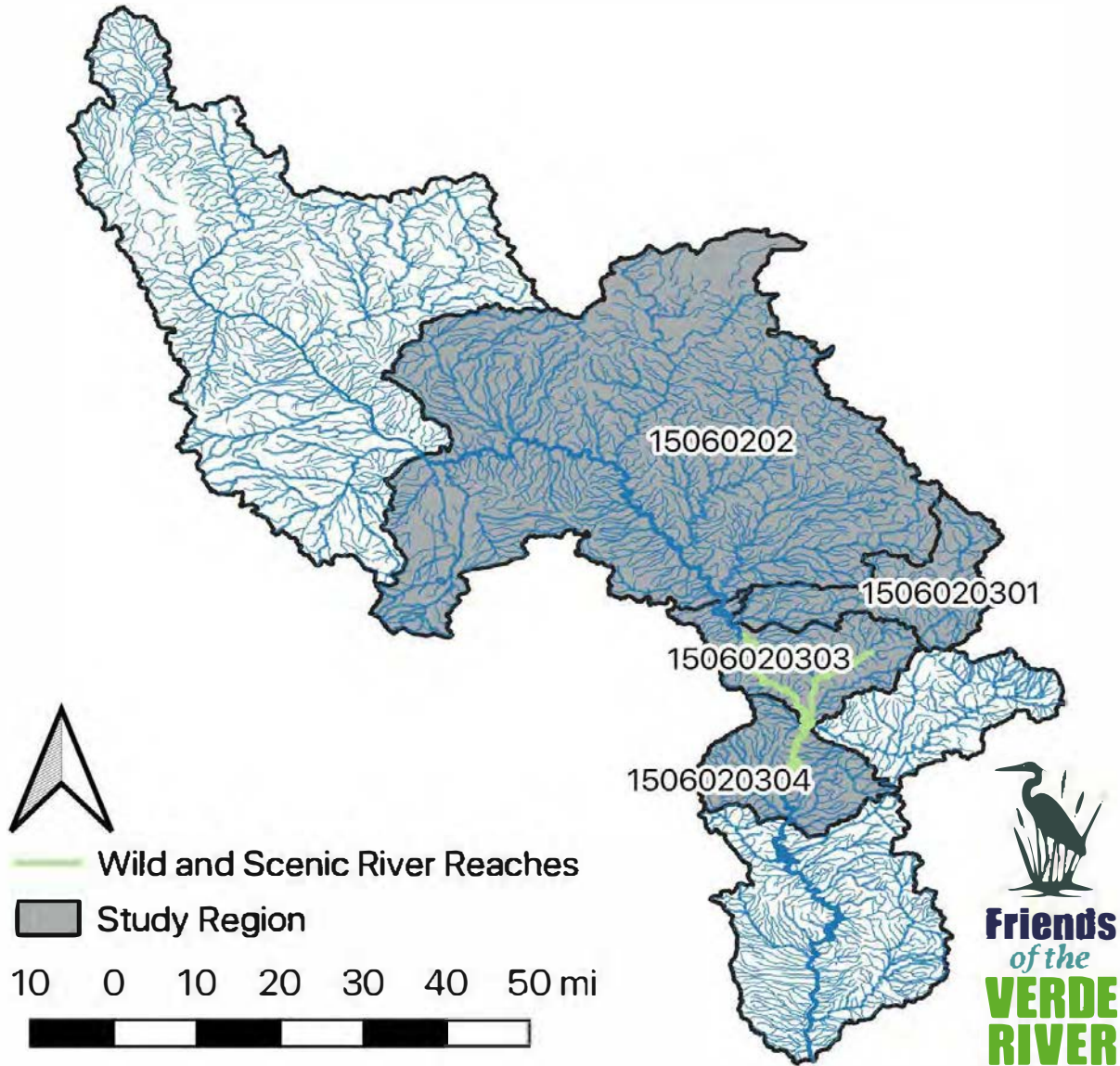


Figure 3. Project area boundary including one HUC eight (Upper Verde - 15060202) and three HUC 10 (West Clear Creek- 1506020301, Fossil Creek-Verde River - 1506020303, and Tangle Creek-Verde River – 1506020304).

- *Describe the efforts that you will undertake to ensure that the watershed group will target stakeholders that represent the full geographic scope of the area in which the watershed group will work.*

Friends has already engaged stakeholders across the geographic extent of the watershed. Nevertheless, early in the project we will conduct a watershed screening to ensure that we are not leaving out any stakeholders that we might have missed. The challenge with this scope of work will be in engaging new groups that are primarily interested in water quality plus underserved and underrepresented individuals that may be impacted by poor water quality.



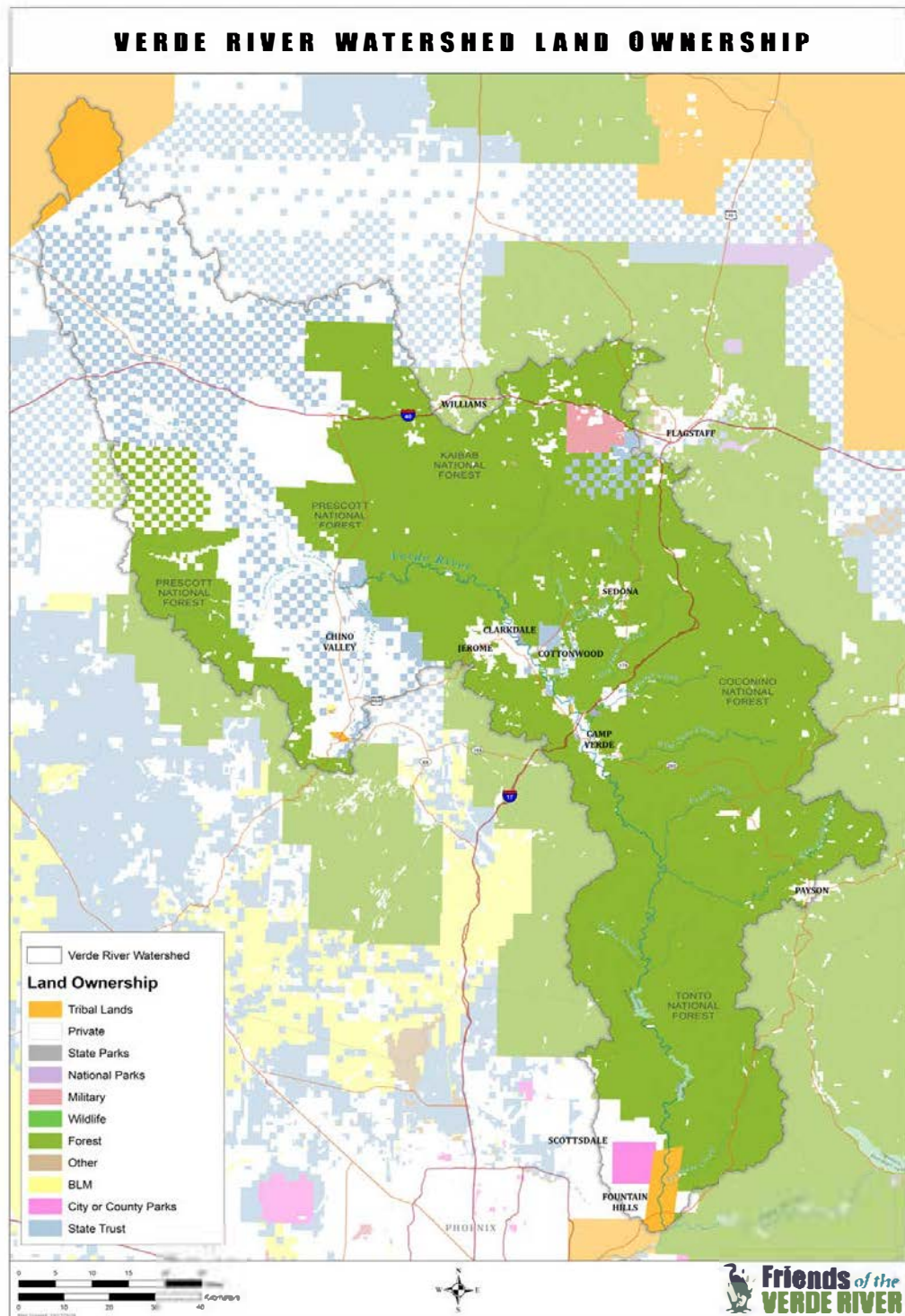


Figure 4. Land ownership in the Verde River Watershed.

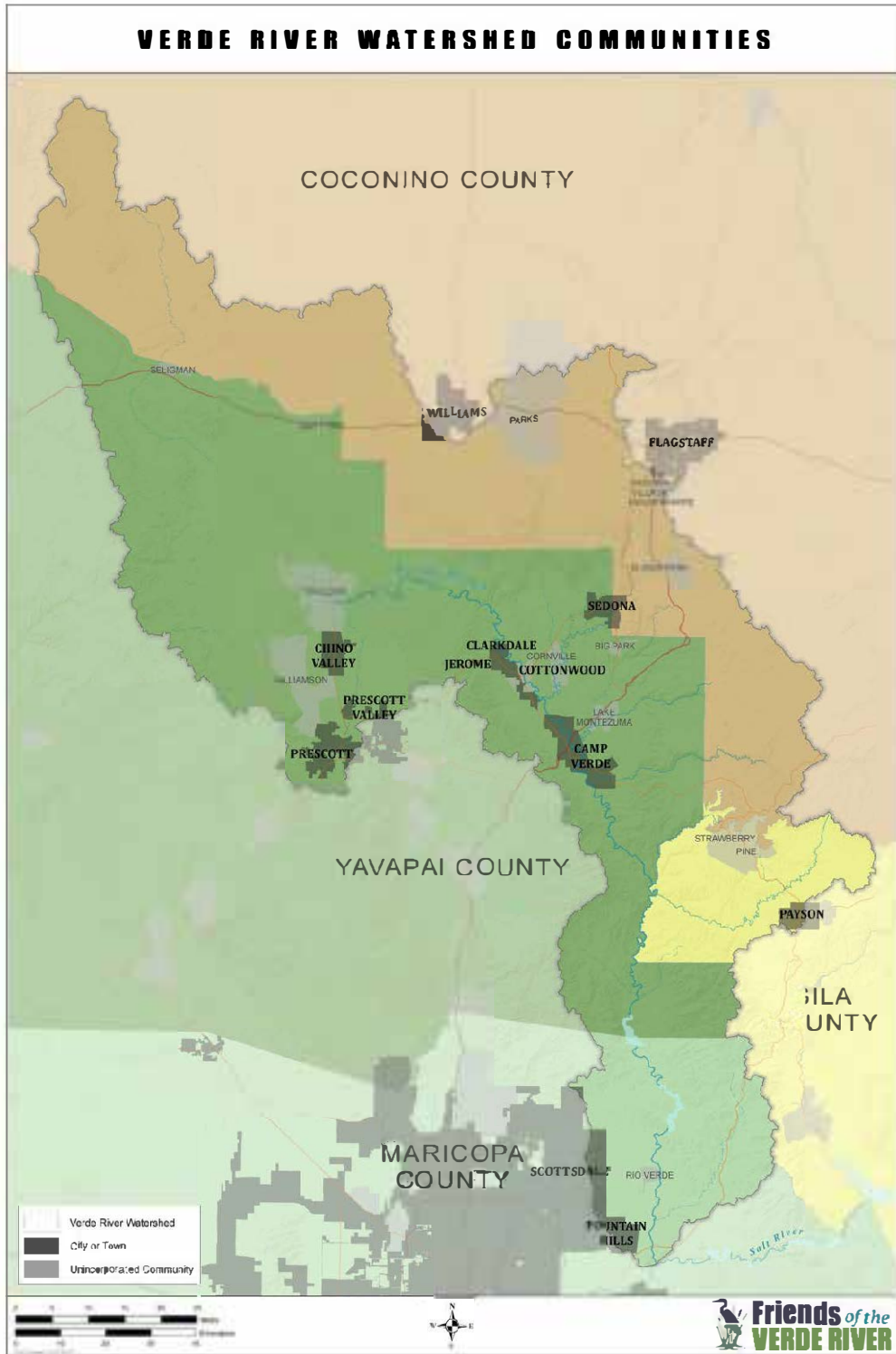


Figure 5. Communities in the Verde River Watershed.

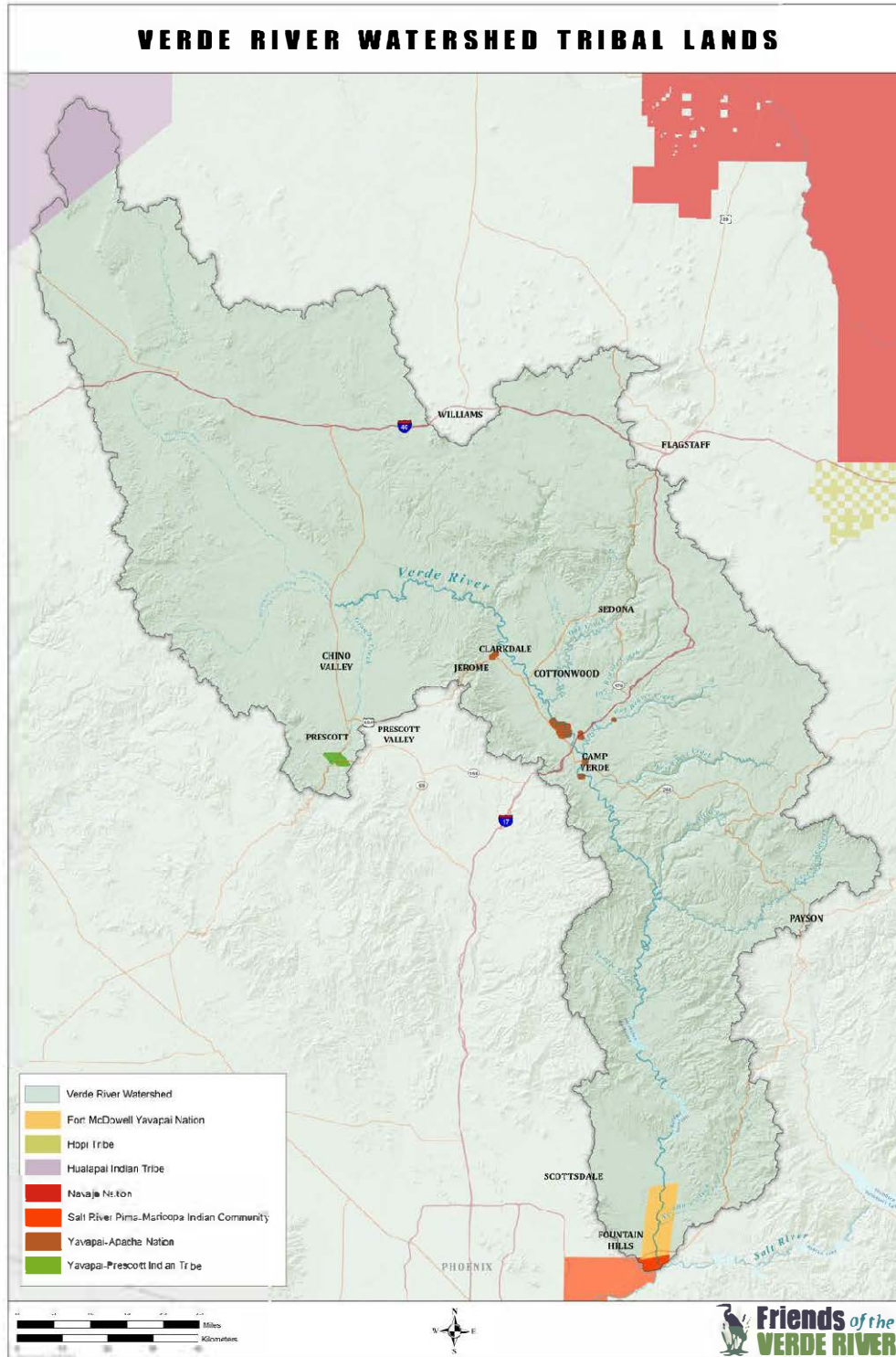


Figure 6. Tribal lands in the Verde River Watershed.

**E.1.2. Evaluation Criterion B — Addressing Critical Watershed Needs (35 points)** Up to 35 points may be awarded under this criterion based on the extent of the critical issues or needs within the watershed that can be addressed by the New or Existing Watershed Group. Sub-criteria are listed in descending order of importance.

**Sub-criterion No. B1. Critical Watershed Needs or Issues**

Please describe in detail the critical issues or needs occurring within the watershed including, for example: declining ecological resilience, water shortages, flooding, structural impairments, water supply, water quality issues (e.g., addressing Total Maximum Daily Loads, or targeting high priority activities in your state's "Measure W" watersheds), endangered species issues, conflicts over water supply, and other related issues faced by affected stakeholders. Endangered species issues may focus on, but are not limited to, activities prioritized by resource agencies such as National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA-NMFS) or U.S. Fish and Wildlife Service (USFWS), and appropriate state natural resource agencies. Applicants should consider contacting Federal, state, and local agencies; nongovernmental organizations; and other affected stakeholders to discuss what critical issues are affecting the watershed.

Most recently, we have re-evaluated and identified critical issues in the Verde River Watershed through three processes: revision and update of the Roadmap for a Flowing Verde Watershed, a cooperative plan created by Friends of the Verde River, The Nature Conservancy, and Environmental Defense Fund; the 2019 VWRC strategic plan (attached), which was used in the update to the Roadmap, and development of the Verde Watershed Report Card. For the Verde Watershed, critical issues include declining river flows and increasing pressure on unregulated groundwater pumping; habitat degradation from non-native invasive species and human-caused erosion; water quality impairment; population growth; drought, and climate change. The Verde watershed provides habitat for 16 endangered and threatened species plus the rare Fremont Cottonwood/Gooddings' willow mixed broadleaf riparian forest. The Verde Valley includes five small cities, ranging in size from 500 to 12,500, in a rural part of Arizona, sandwiched between Phoenix to the south and Flagstaff to the north. Community risk factors include lack of affordable housing, moderate education attainment, and unemployment. The Verde Watershed Report Card (Appendix 2) identifies nineteen different critical watershed issues, from which we derived seven different solution sets.

**Sub-criterion No. B2. Developing Strategies to Address Critical Watershed Needs or Issues**

Please describe in detail how the group plans to positively contribute to the management of the issues and needs of the watershed through the proposed activities. Only address those Task Areas that you propose to complete with this grant funding. Please address the following when responding to this sub-criterion:

**Task A – Water Group Development:** Describe the stakeholder outreach and partnership building that will be conducted and explain how it will contribute to the management of the critical watershed issues and needs?

- If the watershed group will build on previous partnership building efforts, describe these efforts and how the watershed group will expand upon them through this grant.

The foundation of VWRC was built on a common vision that the Verde River comprises a diverse, self-sustaining, and resilient riparian ecosystem in which native plant species are

controlled through cooperative stakeholder participation. The partnership has built a solid track record for engaging diverse stakeholders, accomplishing goals, raising the necessary funds, and expanding our scope as critical issues and needs arise. Friends and VWRC partners will use this foundation to engage additional stakeholders, focusing on water quality. VWRC has already established this is a priority goal through its strategic planning (see VWRC strategic plan, Appendix 1). Through the VWRC strategic planning process, Verde Watershed Report Card development, and other collaborative efforts, Friends has broad experience engaging partners in cooperative projects to benefit the Verde River watershed.

● *Will the group establish relationships with conservation organizations advocating for balanced stewardship and use of public lands, or advocating for increased access to the Department of the Interior lands for hunting, fishing, and other recreation? If so, how?*

Yes. Friends' partners at the Forest Service are currently planning to implement a large increase in access and trails throughout the Verde Valley and we support increased recreational opportunities. At the same time, we want to ensure there are discussions around how increased access can be planned to maintain and improve water quality. Friends' VWRC partners supporting responsible recreation include The Nature Conservancy, Sierra Club, Oak Creek Watershed Council, Prescott Creeks, Arizona Wildlife Federation, and Verde River Institute. All partners listed are already participating on the VWRC Water Quality Working Group or have been invited to participate and we will continue to work to engage them in the planning process.

***Task B - Watershed Restoration Planning:*** *Describe the process the watershed group will use to develop a watershed restoration plan and how completing the plan will contribute to the management of the critical watershed issues and needs.*

The focus of this watershed restoration plan is water quality and drivers that impact water quality. Prior plans focused on water quantity (river flow) and habitat health. The completion of this plan will expand our scope to the full extent of watershed restoration planning. The VWRC strategic plan (attached) has two focuses in this area: (1) improve water quality and monitoring and (2) reduce sediment loading and impacts. Friends has collected underlying data through the Verde Watershed Report Card.

We will use watershed principles in our process. That means we will identify stakeholders, invite them into the process, listen to their concerns and suggestions, engage them in crafting solutions, and check in frequently to ensure we are representing the interests of the stakeholders. In Phase I, we will conduct an additional screen to ensure that we have a comprehensive list of stakeholders and issues. In Phase IIA, we will engage a working group, built from VWRC with the addition of key stakeholders focused on water quality, to identify and agree upon gaps and needs for water quality sampling and analysis. This group will work with Friends to select a consultant for Phases IIB and IIC. In Phase IIB, the output will be 3-4 alternative sampling plans, with one preferred alternative. Each sampling plan will include a cost, identify how to pay for the cost, and the stakeholders who will be involved. Sampling plans will identify management goals and questions, modeled on best practices for watershed sampling plans. Phase IIC will conclude with a final watershed sampling plan proposal. At all phases, Arizona Department of Environmental Quality will be involved as a key participant. The goal is development of a plan and timeline for achievement of state clean water standards.

● *How does the group plan to gather information regarding the critical issues and needs of the watershed (e.g., contacting government agencies, talking to stakeholders, literature research, monitoring and modeling activities)? Will the group use science to identify best practices to manage land and water resources and adapt to changes in the environment? If so, how?*

A good example of how Friends gathers information and identifies best practices is our recent Verde Watershed Report Card process. We began in 2018 scoping the project and engaging with the primary funding partner, US Forest Services. We identified a large list of stakeholders, contacted them, and invited them to the initial workshop. We recorded responses to a set of scoping questions, and summarized and published a newsletter about the meeting. We had a second meeting that used the same process to follow up with the next set of questions. We also held focus group discussions with stakeholders that had not participated in the workshops. The development of metrics was an interactive process that included literature research and some original research. We had a data management plan and documented methods in a published report. We analyzed the data using accepted scientific methods, working in consultation with our experts. We produced a draft of the metrics for further review and analysis. At the 2019 State of the Verde Watershed Conference, we presented drafts, heard from panelist experts, and facilitated discussions. Then we revised metrics as needed, drafted our public outreach documents and a website, and completed the Report Card for release in February 2020.

We will follow this same process for the development of the plan proposed in this project. We would note that we were successful in obtaining buy-in and financial support from the four larger cities and the County of Yavapai for the Watershed Report Card and expect to work with these same stakeholders plus additional partners in development of this plan.

● *Will the group identify opportunities to resolve conflicts? If so, how?*

Yes, Friends will ensure that our consultant is skilled in conflict resolution. That said, we do not expect to encounter conflicts based on our almost ten-year history of working with groups in the Verde.

● *Will the group complete an analysis to prioritize issues within the restoration plan?*

Yes. Issue prioritization will be part of the process, just as it was with the Verde Watershed Report Card.

● *If the watershed group will build on previous efforts, describe these efforts and how the watershed group will expand upon them through the work proposed in the proposal.*

This project builds on results of the Verde Watershed Report Card. We identified four metrics for water quality - turbidity (important to downstream water users), macroinvertebrates, water quality index score, and water quality certainty score. In the Report Card, turbidity and macroinvertebrates received a watershed-wide score of “good.” The water quality index score was “very good” but the water quality certainty score was “very poor.” What we discovered in the process was that, while water quality samples generally scored high, there is uncoordinated oversampling in some areas while other areas are rarely if ever sampled. Sampling is not conducted in response to any management or ecosystem questions. For example, sampling is not designed to answer such fundamental Clean Water Act questions as “is it safe to swim?” or “safe to consume fish?” We also expect to refine the four metrics in response to the stakeholder process. One way of describing the ultimate outcome of this

project (beyond the scope of this proposal) is that we will change the water quality certainty score from “very poor” to “very good.”

**Task C - Watershed Management Project Design:** *Describe the process that the watershed group will use to design projects and how completing the project design will contribute to the management of critical watershed issues and needs.*

- *To the extent known, describe the project(s) for which the watershed group will complete a design.*

Friends and VWRC partners through the VWRC Water Quality Working Group will complete a collaborative water quality monitoring plan for the project area.

- *Will the group complete an analysis to prioritize watershed management projects and identify specific project locations? If yes, describe this analysis.*

To prioritize water quality monitoring, VWRC partners will use existing data to identify areas where data is currently adequate and areas that need improvement. ADEQ will be closely involved to ensure the plan addresses areas that are a priority for the agency. Sampling sites will then be collaboratively established.

- *What type of site-specific project design and engineering will the watershed group complete?*

The project design will include a collaborative water quality monitoring strategy to adequately sample the project area.

- *How will the watershed group develop a project timeline and milestones for the project?*

A timeline and milestones have already been proposed for the project based on similar planning efforts. Once the VWRC Water Quality Working Group is convened to begin work on the project, the proposed timeline and milestones will be reviewed to determine if adjustments are necessary.

- *Will the watershed group work with Reclamation’s environmental and cultural resource staff to determine what type of site-specific environmental compliance will be necessary for the project(s) upon implementation (Federal environmental compliance will be required if the project is implemented with Federal funding or is located on Federal lands)?*

Yes, VWRC will work with Reclamations, environmental and cultural resource staff to determine what type of compliance will be necessary prior to project implementation.

- *If the watershed group will build on previous efforts, describe these efforts and how the watershed group will expand upon them through the proposed work.*

Over the past 10 years, Friends and our VWRC partners have successfully worked to remove invasive plants on over 9,500 riparian acres in the Verde Watershed. VWRC partners are now expanding focus to include wildlife corridors, sediment and erosion reduction, water quality monitoring, and volunteerism throughout the watershed. The coalition has successfully engaged 23 agencies, organizations, and municipalities and over 235 private landowners throughout the watershed. Developing a collaborative water quality monitoring program builds on the previous success of VWRC and address priorities established in the 2019 VWRC Strategic Plan (Appendix 1).

### **E.1.3. Evaluation Criterion C— Implementation and Results (25 points)**

*Up to 25 points may be awarded to proposals based on the extent to which the proposal demonstrates that the applicant understands program requirements, is able to implement planned activities within the required two-year time frame, and the extent to which the*

proposed activities will complement existing Federal, state or regional planning efforts. Sub-criteria are in descending order of importance.

**Sub-criterion No. C1. Project Implementation**

Please note, if your project is selected, responses provided in the selection will be used to develop the scope of work that will be included in the financial assistance agreement.

Applicants should describe their plan for implementing the proposed scope of work. Please include an estimated schedule that shows the stages and duration of the proposed work.

Applicants may refer back to their Technical Proposal if this information is provided there and do not need to provide duplicate information in addressing this sub-criterion if it exists elsewhere in the applicant’s proposal. The schedule should include:

- Major tasks (e.g., stakeholder outreach; development of bylaws, a mission statement, and articles of incorporation; development of a watershed restoration plan and project design and concepts)
- Milestones for each task
- Start and end dates for each task and milestone
- Costs for each task

Tasks, Milestones, Estimated Dates, and Costs are given in the table below:

Task	Sub-task	Budget	Timeline					
Assess current status of water quality monitoring in the watershed	Organize existing data in the ADEQ database, identify rank order list of causes for sampling deficiency in each 10-digit HUC	\$ 9,934.15	Sept- Nov 2021					
	Invite additional partners to VWRC Water Quality working group, develop scope of work, and hire planning consultant	\$ 8,284.15	Oct 2021- Dec 2021					
Develop a collaborative water quality sampling plan	Develop and price 3-4 alternative sampling structures, select preferred alternative	\$ 45,103.51		Dec 2021- June 2022				
	Collaboratively develop draft plan with regular input from VWRC partners, integrate comments from stakeholders, adopt plan	\$ 33,905.65				June 2022- May 2023		

**Table 1.** Tasks, milestones, estimated dates, and costs.

**Sub-criterion No. C2. Building on Relevant Federal, State, or Regional Planning Efforts**

Please describe how the proposed activities of the watershed group will complement or meet the goals of relevant Federal, state or regional planning efforts. Such plans may include but are not limited to:

- Water conservation plans
- Drought contingency plans
- Plans that meet the criteria identified in the U.S Environmental Protection Agency’s (EPA) Nonpoint Source Management Program
- Plans that meet the EPA’s criteria for Watershed-Based Plans
- Or other relevant plans or planning efforts

Applicants should describe how the proposed activities of the watershed group will complement or meet the goals of applicable Federal, state or regional water plans. Reclamation suggests that groups contact Federal, state or local agencies in your area to identify existing goals and plans relevant to the watershed group. Please reference any relevant plans, but do not include these plans as part of this application.



All relevant Federal, state, and regional planning committees will be invited to join this planning process. We are confident that key stakeholders have been active participants in past planning work with Friends. As such, we anticipate participation by agencies and other stakeholders to bring forth other relevant planning activities as they are developed. Currently under consideration by Friends for the scope of work proposed here are the National Nonpoint Source Monitoring Program and Arizona DEQ Surface Water Monitoring and Assessment program. Existing plans include the NEMO Watershed Based Plan: Verde River, Colorado River Drought Contingency Plan, Statewide Assessment of Arizona's Streams, Nonpoint Source Management 5-Year Plan for Arizona, EPA Polluted Runoff: Nonpoint Source Pollution, An Assessment of Arizona's Intermittent Streams, Arizona's Comprehensive Water Quality Monitoring Strategy for Fiscal Years 2021 to 2025, and 2016 Arizona Water Quality in Arizona 305(b) Assessment Report (Appendix 3). Information from these and other existing sources will be used to develop the collaborative water quality monitoring plan.

**1.4. Evaluation Criterion D— Department of the Interior and Bureau of Reclamation Priorities (10 points)**

*Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department priorities. Please address those priorities that are applicable to your project. You may address only the parts of a priority that are applicable. It is not necessary to address priorities, or parts of priorities, that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. The points available under this criterion will not be divided among the priorities, and projects will not be penalized if some of the priorities are not applicable. Points will be allocated based on the degree to which the project supports one or more of the Priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.*

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
  - a. *Utilize Science to identify best practices to manage land and water resources and adapt to changes in the environment;*

Land and water management have a direct impact on water quality. However, without adequate sampling it is impossible to assess the impacts of land and water management practices on water quality. Further, without adequate sampling it is impossible to detect the impacts of projects designed to improve water quality. This plan will serve as the cornerstone of science-based water quality management for its duration.

- b. *Examine land use planning processes and land use designations that govern public use and access;*
  - N/A*
  - c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards;*

A collaborative water quality sampling plan will ensure that those who are collecting water quality data are not replicating one another's work, wasting time and resources. This plan will assist the Arizona Department of Environmental Quality in meeting its compliance requirements.

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

Once the project is implemented and water quality monitoring is occurring throughout the watershed, identifying areas of sediment in the Verde River watershed through collaborative water quality monitoring will allow Friends and our VWRC partners to address accelerated erosion and sedimentation. The USBOR and Salt River Project recently began an appraisal level study to learn more about sedimentation in the Verde River reservoirs and evaluate potential solutions.

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

Friends has a long history of working with diverse stakeholder groups that advocate for balanced stewardship and use of public lands, as expressed elsewhere in this application. Nevertheless, there are those who are not involved. This project will improve our relationships with organizations that are primarily interested in balanced stewardship and use of public lands.

- f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;*

N/A

- g. Shift the balance towards providing greater public access to public lands over restrictions to access.*

N/A

## *2. Utilizing our natural resources*

Ensuring clean water allows continued utilization of natural resources, including water. Water storage capacity in Verde River reservoirs is being reduced due to sedimentation. Once the program is developed and the project implemented, increased monitoring to identify and address areas of accelerated erosion will continue to ensure a safe and reliable water supply.

## *3. Restoring trust with local communities*

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

As shown in the land use map, the vast majority of the Verde River Watershed is composed of Federal lands. All of the communities in the project area border either Coconino, Prescott, or Tonto National Forests. Further, VWRC works extensively with private property owners whose property is bordered by federal lands. Bureau of Reclamation support will directly support these communities.

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

VWRC has partnered with each of these institutions, excepting the Governor's office, and counts many as members. Additionally, many of the forests in US Forest Service Region 3 and one national park unit will be included in the planning described in this scope of work. Bureau of Reclamation support for this project will continue this history of dialogue between local stakeholders and the Federal government.

## *4. Striking a regulatory balance*

- a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*

A collaborative water quality monitoring plan will assure that the agencies responsible for collecting water quality data are not replicating one another's work, resulting in lower overall sampling burdens, including those for regulatory reviews, and an increased uniformity of our knowledge of water quality throughout the watershed.

*b. Ensure that Endangered Species Act (ESA) decisions are based on strong science and thorough analysis;*

Were an endangered species in the watershed found to be sensitive to changes in water quality, a collaborative water quality monitoring plan and the resulting increased knowledge of water quality in the watershed would provide a strong scientific basis for ESA decisions.

5. *Modernizing our infrastructure*

N/A

### **Bureau of Reclamation Priorities**

1. *Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities to Benefit Farms, Families, Businesses, and Fish and Wildlife*

Although no water structure improvements are planned with this project, implementing a collaborative water quality monitoring program in the Verde River watershed will allow identification of issues such as accelerated erosion and allow partners to proactively implement solutions. This will help to preserve storage space in Verde River Reservoirs that are currently part of the Verde River Sediment Mitigation Study.

2. *Streamline Regulatory Processes and Remove Unnecessary Burdens to Provide More Water and Power Supply Reliability*

Proactively implementing water quality monitoring throughout the watershed will allow issues to be addressed prior to regulatory restrictions.

3. *Leverage Science and Technology to Improve Waters Supply Reliability to Communities*

Developing and implementing a collaborative water quality monitoring program in the Verde River watershed will allow VWRC partners and others to identify areas of concern throughout the project area, including identification of gullies. Implementing sediment reduction measures in areas identified through monitoring will help ensure a safe and reliable water supply.

4. *Address Ongoing Drought*

Once areas of accelerate erosion are identified through monitoring, restoration measures can be implemented which will increase groundwater recharge by redirecting water across the land surface or infiltration basins.

5. *Improve the Value of Hydropower to Reclamation Power Customers*

N/A

6. *Improve Waters Supplies for Tribal and Rural Communities*

The Yavapai-Apache Nation Environmental Department is a VWRC partner and is engaged in water quality monitoring efforts. We will continue to strengthen our relationship with them through this project. Developing a water quality monitoring program throughout the project area will allow us to work to engage underserved and underrepresented individuals that may be impacted by poor water quality

7. *Title Transfer*

N/A

**PROPOSED BUDGET**

SOURCE	AMOUNT
Costs to be reimbursed with the Federal Funding	\$ 97,227.46
Costs to be paid by the applicant	\$ -
Value of third-party contributions	\$ -
<b>TOTAL PROJECT COSTS</b>	<b>\$ 97,227.46</b>

Table 2. Total project costs

Year 1				
Budget Item Description	Computation		Quantity Type	Federal Request
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
Habitat Manager, Tracy Stephens	\$ 56,100.00	0.35	FTE	\$ 19,635.00
Habitat Coordinator, Elaine Nichols	\$ 37,456.85	0.1	FTE	\$ 3,745.68
<b>Fringe Benefits</b>				
Payroll Taxes	\$ 23,380.68	7.65%	Percent Base	\$ 1,788.62
Retirement	\$ 23,380.68	2%	Percent Base	\$ 467.61
Health	\$ 6,600.00	0.45	Annual Stipend per FTE	\$ 2,970.00
<b>Travel</b>				
Mileage	\$ 0.56	1000	Miles Per Year	\$ 1,120.00
<b>Supplies and Materials</b>				
Computer	\$ 1,500.00	1	Integer	\$ 1,500.00
Software	\$ 359.76	1	Integer	\$ 359.76
Printing	\$ 0.15	250	Color Pages per Year	\$ 37.50
<b>Contractural</b>				
Planning	\$ 100.00	117	Hours	\$ 11,700.00
Consultant Travel	\$ 2,000.00	1	Allowance for project	\$ 667.00
<b>Other</b>				
<b>Total Direct Costs</b>				<b>\$ 43,991.18</b>
<b>Indirect Costs</b>				
De Minimus	\$ 43,991.18	10%	Percent Direct	\$ 4,399.12
<b>Total Estimated Project Costs</b>				<b>\$ 48,390.30</b>

Table 3. Year one project costs.

Year 2				
Budget Item Description	Computation		Quantity Type	Federal Request
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
Habitat Manager, Tracy Stephens	\$ 56,100.00	0.35	FTE	\$ 19,635.00
Habitat Coordinator, Elaine Nichols	\$ 37,456.85	0.1	FTE	\$ 3,745.68
<b>Fringe Benefits</b>				
Payroll Taxes	\$ 23,380.68	7.65%	Percent Base	\$ 1,788.62
Retirement	\$ 23,380.68	2%	Percent Base	\$ 467.61
Health	\$ 6,600.00	0.45	Annual Stipend per FTE	\$ 2,970.00
<b>Travel</b>				
Mileage	\$ 0.56	2000	Miles Per Year	\$ 1,120.00
<b>Supplies and Materials</b>				
Computer	\$ 1,500.00	1	Integer	\$ -
Software	\$ 359.76	1	Integer	\$ -
Printing	\$ 0.15	250	Color Pages per Year	\$ 37.50
<b>Contractural</b>				
Planning	\$ 100.00	133	Hours	\$ 13,300.00
Consultant Travel	\$ 2,000.00	1	Allowance for project	\$ 1,333.00
<b>Other</b>				
<b>Total Direct Costs</b>				<b>\$ 44,397.42</b>
<b>Indirect Costs</b>				
De Minimus	\$ 44,397.42	10%	Percent Direct	\$ 4,439.74
<b>Total Estimated Project Costs</b>				<b>\$ 48,837.16</b>

Table 4. Year two project costs.

Total				
Budget Item Description	Computation		Quantity Type	Federal Request
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
Habitat Manager, Tracy Stephens	\$ 56,100.00	0.35	FTE	\$ 39,270.00
Habitat Coordinator, Elaine Nichols	\$ 37,456.85	0.1	FTE	\$ 7,491.37
<b>Fringe Benefits</b>				
Payroll Taxes	\$ 46,761.37	7.65%	Percent Base	\$ 3,577.24
Retirement	\$ 46,761.37	2%	Percent Base	\$ 935.23
Health	\$ 6,600.00	0.45	Annual Stipend per FTE	\$ 5,940.00
<b>Travel</b>				
Mileage	\$ 0.56	2000	Miles Per Year	\$ 2,240.00
<b>Supplies and Materials</b>				
Computer	\$ 1,500.00	1	Integer	\$ 1,500.00
Software	\$ 359.76	1	Integer	\$ 359.76
Printing	\$ 0.15	250	Color Pages per Year	\$ 75.00
<b>Contractural</b>				
Planning	\$ 100.00	250	Hours	\$ 25,000.00
Consultant Travel	\$ 2,000.00	1	Allowance for project	\$ 2,000.00
<b>Other</b>				
<b>Total Direct Costs</b>				<b>\$ 88,388.60</b>
<b>Indirect Costs</b>				
De Minimus	\$ 88,388.60	10%	Percent Direct	\$ 8,838.86
<b>Total Estimated Project Costs</b>				<b>\$ 97,227.46</b>

Table 5. Total project budget.

## BUDGET NARRATIVE

### Salaries and Wages

Total salaries for this project are estimated to be \$47,000.00. These funds will support 0.35 Full Time Employee (FTE) for the project manager (Tracy Stephens, Program Manager, Habitat Restoration), 0.1 FTE for the project coordinator (Elaine Nichols, Program Coordinator, Habitat Restoration).

### Fringe Benefits

Fringe benefits include 7.65% of base salary for the employer contribution to payroll taxes, 2% of base salary to cover employer match for employee retirement accounts, and a \$550/month contribution for each FTE towards employee health insurance.

### Travel:

Travel at the federal mileage rate of \$0.56/mile will be applied to reimburse staff travel to and from properties throughout the Verde watershed, stakeholder meetings, and community events. No overnight travel is anticipated within this scope of work.

### Supplies:

Printing at a rate of \$0.15 (estimated based on past experience) per color page for 1,250 pages for printing to support the planning process. Additionally we will purchase a computer for the project manager (\$1,500) and provide software support for staff in year one (Adobe Acrobat Pro, (\$14.99 per user per month) x (12 months) x (two users) = \$359.76)

### Contractual:

Consulting costs are estimated at 250 hours of work at \$100.00 per hour with \$2,000 to support consultant travel.

### Indirect:

In direct costs are calculated at the *de minimis* rate of 10%.