

Assessment, prioritization, and design of riparian restoration opportunities in the middle Santa Cruz River, Arizona

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EXECUTIVE SUMMARY

Date: January 18, 2021

Applicant: Sonoran Institute

Tucson, Pima County, Arizona

Sonoran Institute, on behalf of the Santa Cruz Watershed Collaborative (SCWC), seeks \$98,792 for a two-year initiative build upon a Reclamation-funded SCWC grant by conducting a study that will identify, design, and plan for restoration opportunities in the middle basin of the Santa Cruz River, which is without perennially flowing water. This project will build upon an ongoing partnership among Sonoran Institute, our municipal partners, and the Santa Cruz Watershed Collaborative. This proposal builds upon and does not duplicate BOR-funded SCWC programming. Year 1 project funds will be used for conservation opportunity assessment within the Santa Cruz River study area with a focus on identifying areas of the river corridor where restoration is possible, then narrowing the scope through a prioritization evaluation. Year 2 funding would create water budgets and conceptual designs for the prioritized subset of restoration projects identified in year 1. Separate from the existing Reclamation-funded SCWC grant, the water budgets and conceptual designs will be built with input from—and for implementation planning purposes, by—municipal water managers (Pima County Regional Wastewater Reclamation Department, Pima County Regional Flood Control District, Tucson Water, and the towns of Green Valley and Sahuarita). This project is supported by but will build upon a priority focus area of the Santa Cruz Watershed Collaborative’s Watershed Restoration Plan. This project will address issues of water reuse, water scarcity, watershed management, and restoration of local rivers and riparian habitat—all to the benefit of residents of the middle Tucson basin and those living downstream.

Project duration: December 2021–November 2023

This project will not be located on a federal facility.

PROJECT LOCATION

We will refer to the project location as the “middle Santa Cruz watershed.” Though part of the U.S. Geological Survey (USGS) HUC-categorized Upper Santa Cruz River watershed, the river section in this proposal includes the Santa Cruz River and its tributaries from the Santa Cruz County–Pima County line (upstream end) to the San Xavier District of the Tohono O’odham Nation (downstream end). The towns of Green Valley and Sahuarita are along the middle Santa Cruz. The entire Santa Cruz River watershed, however, is included in this proposed work, as infrastructure considerations and water management representation are basin-wide. This project watershed area is in Pima County, Arizona which is downstream of Santa Cruz County and upstream of Pinal County. The middle Santa Cruz River reach is within the 15050301 HUC and within the 1,895 mi² Santa Cruz Watershed Collaborative study area.

TECHNICAL PROJECT DESCRIPTION

Applicant Category

Sonoran Institute is applying for Phase 1 grant funds under task areas A, B, and C to develop this proposed work on behalf of the Santa Cruz Watershed Collaborative in support of their recently completed Reclamation WaterSMART-funded Watershed Restoration Plan.

Eligibility of Applicant

Sonoran Institute is a 501(c)(3) non-profit organization based in Tucson, Arizona. Sonoran Institute's mission is to connect people and communities with the natural resources that nourish and sustain them—and we accomplish this through conservation priority planning and strategic programming initiatives throughout the Colorado River Basin. Sonoran Institute's established reporting on environmental, cultural, and economic conditions in the Santa Cruz River basin makes us a leader in strategic thinking around water resource needs. Sonoran Institute's program coordinator and ecologist Claire Zugmeyer serves on the leadership and coordinating teams of the Santa Cruz Watershed Collaborative, and associate director Dr. Luke Cole is a member of the SCWC Restoring Flows and Floodplains working group and serves as coordinating team alternate. Claire and Luke also have extensive experience in support of the Pima County Santa Cruz River Management Plan. Luke also serves on the University of Arizona, **Water Resources Research Center's External Advisory Committee**.

Goals

This project will identify riparian restoration projects in the middle Santa Cruz River basin with the highest likelihood of implementation and environmental benefit—facilitating progress toward additional flowing reaches of the Santa Cruz. A three-phase strategy will be carried out by a Sonoran Institute-led consortium of local municipalities, water managers, holders of water rights, and subject matter experts (e.g., Santa Cruz Watershed Collaborative). The conservation opportunity assessment (Strategy 1) will identify all possible riparian restoration projects in the study area. Filtering the conservation opportunity assessment through an evaluation matrix will prioritize the most implementable and effective riparian restoration opportunities (Strategy 2). In the second year of this project, the prioritized restoration opportunities will each receive a water budget and conceptual design (Strategy 3). The goal of this study is to produce a practical, consensus-backed list of riparian restoration projects that can be shared with stakeholders in the Santa Cruz River basin and with water managers to consider for implementation. This goal supports Sonoran Institute's vision for the Santa Cruz River as a flowing river from Mexico to Marana and the mission and goals of the Santa Cruz Watershed Collaborative.

Approach

The Santa Cruz watershed encompasses a complex mix of urban communities, agricultural lands, native nations, and federal, state, and local public lands. Urban communities include Tucson, Sahuarita, Green Valley, and outlying unincorporated communities within Pima County. Native nations include the Tohono O'odham and Pascua Yaqui. Public lands dedicated to conservation that are proximate to the urban communities include Saguaro National Park, Coronado National Forest, Bureau of Land Management, and Arizona State Trust Lands. Other landowners include Davis Monthan Air Force Base, agricultural land users like Farmers Investment Co./Green Valley Pecan Co., and mining developments held by Freeport-McMoRan. Many of these entities also represent the major water resource managers and users, including water utilities for Sahuarita and Green Valley.

The main sources of water in the middle Santa Cruz watershed include Central Arizona Project (CAP) Colorado River water and groundwater. Two significant threats exist to the current municipal water supply: potential for significant decreases in Colorado River supply due to changes in precipitation and locally, decreased recharge of local aquifers due to land use changes and drought. Further, decreased precipitation and lack of recharge of local water sources is resulting in reduced flow at springs and threatening the reliability of individual wells.

The Santa Cruz River once flowed perennially, supporting riparian habitat and a diversity of fish and amphibians. For centuries, the middle stretch of the Santa Cruz was home to the Sobaipuri O’odham, whose settlement was centered on a perennially flowing portion of the river that is south of the present-day Tohono O’odham San Xavier District. This section and other flowing portions of the river were an essential resource that later supported the founding of Tucson. The floodplain along the Santa Cruz River represents at least 4100-years of agriculture—the longest known history of cultivation in the United States. Today, like many stretches of the Santa Cruz, the middle reach is reduced to dry, channelized riverbeds that run intermittently during seasonal rains.

The modern communities of the middle and greater Santa Cruz Watershed have experienced first-hand the impacts from the loss of perennial river flow and the attendant decline of riparian ecosystems along the Santa Cruz River. Historically, groundwater pumping was the primary water source for the area, where uses included irrigation for agriculture, residential uses, and rangeland management. Overpumping has decreased groundwater levels significantly throughout the basin, threatening the sustainability of the groundwater supply. This has also resulted in the loss of a vast majority of perennial and intermittent flows along the Santa Cruz River and tributaries. The addition of CAP water in the 1990s allowed much of the Tucson basin aquifer to begin to recover. Greater connectivity of CAP and the reclaimed effluentsystems have begun to reduce groundwater pressures in other areas of the Tucson basin.

Fortunately, through conservation priority studies and a wide-reaching array of new and existing water infrastructure, over thirty-five miles of the Santa Cruz River now flow with highly treated effluent, though no perennial flows exist in the middle reach. In the flowing reaches, there is now lush riparian habitat and stretches of continuous flow. In the three reaches of the Santa Cruz with perennial flows of effluent, the pollution-sensitive and endangered Gila topminnow can be found, resulting from natural recruitment and managed reintroductions.

Scope of work

The proposed project encompasses three phased strategies that will be carried out over the two-year funding window: 1) conservation opportunity assessment, 2) prioritization evaluation, and 3) water budget and riparian restoration plan design. Building upon Sonoran Institute’s staff expertise, existing programming (e.g., *Living River* reporting series, ongoing infrastructure and hydrologic studies), and established partnerships (e.g., Pima County Regional Flood Control District, Pima County Wastewater and Reclamation, the San Xavier District, and the SCWC), we see a viable opportunity to assess and prioritize opportunities to create flowing stretches of the Santa Cruz River in this otherwise dry reach.

Included in the scope of work will be outreach and relationship-building efforts to engage existing partners and new stakeholders. Products from this work will be hosted and shared through SCWC online GIS platforms, in SCWC monthly bulletins, and during regular SCWC partner meetings. Additionally,

Sonoran Institute hosts the Santa Cruz River Research Days, a symposium that brings researchers, media, public, and stakeholder groups together to learn about the watershed and river.

STRATEGY 1: Conservation opportunity assessment

- Assembling water resource experts, resource managers, and riparian restoration specialists
- Discovery and reporting on water availability

Historically, the project area in the middle Santa Cruz River would flow during seasonal monsoon events and winter rains. Though frequently intermittent, these flows were able to support the Great Mesquite Forest, a nearly impenetrable seven square mile mesquite forest that was habitat to birds, large cats, and other now-endangered species of wildlife. Owing to climatic cycles, development pressures, and the accompanying overextraction of groundwater, the mesquite forest has disappeared. While this project does not aim to reforest the middle stretch of the Santa Cruz River, its verdant past and modern water infrastructure point to multiple benefits that could result from riparian restoration. Both upstream and downstream of the project area include flowing stretches of the river where the return of clean, flowing water has created lush riparian areas and aquatic habitat that sustains populations of native, pollution-sensitive fish species.

The Reclamation-funded SCWC grant focuses on projects throughout its Santa Cruz River watershed study area. This project builds upon (but does not duplicate) the SCWC project by applying a three-strategy approach in a section of the Santa Cruz that is lacking in riparian restoration studies and strategies. The year 1 conservation opportunity assessment will catalog all available sources of potable and post-use water sources that could be used to create riparian flows and habitat. Research and expert knowledge for the conservation opportunity assessment are plentiful. Future growth scenario studies are particularly useful when identifying water resources, as increased populations not only increase water consumption, but also provide a source of wastewater that can be treated and made available for riparian restoration. A 2019 study conducted by the Pima Association of Governments assessed sub-county population projections for jurisdictions in Pima County, which included the middle-stretch town of Sahuarita where the population is expected to increase by 86% by 2050 (2018 pop: 30,575; 2050 pop: 56,938). Other studies whose geographic range includes—or are specific to the middle stretch of the Santa Cruz River—include assessments of: Central Arizona Project water from the Colorado River, agricultural water use, wellfield allocation and actual usage, and subpopulation growth projections.

Assembling a consortium of water managers will expand the available data to aid the assessment. Further, Pima County Regional Flood Control District (RFCD), Pima County Regional Wastewater Reclamation Department (RWRD), and Tucson Water (TW) will join the SCWC Technical Working Group led by Sonoran Institute in the conservation opportunity assessment. RFCD policies and planning requirements will prove essential to the success of this project. The 2020 RFCD Floodplain Management Plan identified actions, boundaries, and limitations that will aid our conservation assessment, as riparian ordinances reside within Pima County's floodplain ordinances. Using the Floodplain Management Plan, we can work within the bounds of RFCD's policies and build upon the planning goals. Further, as owners of the riverbed, of wastewater treatment facilities, and the reclaimed water in Green Valley, RFCD and RWRD, respectively will provide essential professional capacity to the conservation opportunity assessment. Tucson Water manages wellfields that recharge Central Arizona Project water throughout Pima County, including the wellfield at Pima Mine Road at the northern edge of Sahuarita. Tucson Water's capacity to generate new flows to the Santa Cruz River is demonstrated at the Heritage Project

reach in downtown Tucson. This managed flow came online in June 2019 and continues to add 800 gallons per minute into the Santa Cruz, which has created nearly a mile of new flow in a previously dry stretch of the riverbed. Other major water users will be invited to join the conservation opportunity assessment, including the Farmers Insurance Company (FICO) which manages the Green Valley Pecan Company, international mining firm Freeport-McMoRan, the Green Valley Domestic Water Improvement District, and the Community Water Company of Green Valley.

Project outcomes:

- Routine, monthly working group meetings of water managers, resource experts, and riparian restoration specialists.
- A full compilation of water holdings in study area, categorized by total water volumes, available water volumes, and expected demand.
- Quarterly reports that track project findings for use in the Strategy 2 prioritization evaluation shared with SCWC Coordinating Team and at semi-annual watershed forums.

STRATEGY 2: Prioritization evaluation

- Ranking prospective riparian restoration **projects' viability and volumes**
- Guidance documentation for riparian restoration design and planning

The year 1 programming will conclude with a prioritization evaluation in which Sonoran Institute and convening members of the conservation opportunity assessment will identify riparian restoration projects in the study area with the highest likelihood of success. A project evaluation matrix will guide the prioritization effort, where projects will be ranked with the following criteria:

- Existing water infrastructure
- Planned reduction of intended water use
- Total water volume available
- Multiple benefit, multiple use opportunity restoration
- Creation and expansion of critical habitat
- Connectivity to existing riparian habitat
- Restoration approach: active and passive

(Active restoration approach: restoration fundamentally incorporates construction and the introduction of structural riparian features, like pools, woody debris, and erosion control. Passive restoration approach: restoration relies on natural recruitment and establishment in response to introduced water; construction and engineering is limited to that needed to introduce water.)

Assembled from Santa Cruz River basin water managers and SCWC subject matter experts, the conservation opportunity assessment team will be the foremost experts in the prioritization criteria and their resources and best professional judgement will provide clarity and assurance to the prioritization effort.

All prioritized projects will be considered in the year 2 water budget and riparian restoration design planning, and will contain all requisite information: mapped location, infrastructure connectivity plans, projections of water use, water volume availability, and habitat assessments. Further, Sonoran Institute

will produce a layperson project summary that can be used for Reclamation review and stakeholder/public engagement efforts through SCWC.

Project outcomes:

- Middle Santa Cruz River riparian restoration projects, prioritized by feasibility, connectivity, and available water volumes (present and future)
- Project summary reporting for consideration in year 2 conceptual designs, for Reclamation review, and for public/stakeholder engagement.

STRATEGY 3: Water budget and riparian restoration plan design

- All prioritized projects will be analyzed to produce water budgets and conceptual designs

The scarcity of water resources in the middle Santa Cruz River will require water budgets and conceptual designs that maximize the available water resources. In year 2, Sonoran Institute will coordinate a report in which the highest priority, most viable riparian restoration projects receive GIS-based concept designs (i.e., schematic design of a riparian restoration site) based on the calculated and projected water volumes available. Recent riparian restoration projects in the Santa Cruz River will serve as models for **this project, including Tucson Water’s Heritage Project reach** (uses treated effluent) and the San Xavier District’s Hik:dan restoration project accompanied by groundwater-supported surface flows just north and downstream of the study area (using Colorado River water that Reclamation helped deliver to the tribe’s entitlement under the Arizona Water Settlements Act). **The Santa Cruz Watershed Collaborative’s** (SCWC) Restoring Flows and Floodplains working group has evaluated and proposed riparian restoration projects throughout the Santa Cruz River basin and will prove instructive and supportive in developing project designs and water budgets.

Project outcomes:

- Project designs for the highest priority projects, created and shared with water managers and local municipalities that will be considered for implementation
- Addendum to SCWC’s **Watershed Restoration Plan**
- A SCWC semi-annual watershed forum dedicated to project design review and identifying next steps

As the final phase of this proposed study, Sonoran Institute will present the riparian restoration project report to water managers/project partners from Pima County Regional Flood Control District, Pima County Regional Wastewater Reclamation Department, Tucson Water, the towns of Sahuarita and Green Valley, and stakeholders (FICO and Freeport McMoRan) as an instrumental tool for consideration in future efforts to allocate water to the Santa Cruz River. The middle reach of the Santa Cruz River has long been dismissed as a dry stretch, despite having flows in its semi-recent post-Anglo settlement, pre-modern history. As a corridor between two perennially flowing reaches—and an area with a decreasing agricultural presence and a concomitant increasing population and development—the middle Santa Cruz River is an ideal location for the study we propose. In isolation, water resource managers and municipal planners would likely face logistical challenges, inefficiencies, and data limitations should they attempt to coordinate planned expansion while allocating excess water and treated wastewater into the Santa Cruz River. Equipping these managers and water rights holders with detailed and pertinent

information will deem this consortium approach a success and will better allow the entities that are capable of sourcing water to the Santa Cruz to do so with maximum benefit to their residents, the river ecosystem, and their bottom line.

EVALUATION CRITERIA

Evaluation Criterion A—Watershed Group Diversity and Geographic Scope

A1. Watershed Group Diversity

The Santa Cruz Watershed Collective semi-annual watershed forums average more than 50 participants at each forum with generally over 40 entities represented by forum attendees (federal, state, local government agencies, tribes, organizations, businesses, and more). Partnership building through the coordinating team and working groups is ongoing and critical to recruit and strengthen partner diversity and representation across a range of watershed community sectors including tribes, underserved areas, farming, and mining. Membership in the Santa Cruz Watershed Collaborative is listed at the bottom of this section.

All residents living within the Santa Cruz River watershed are affected by water quantity and quality—and particularly those living in the dry middle reach of the river. Businesses operating within the watershed and any commuters living outside but working inside the watershed are also directly affected. As part of this effort, we will strive to ensure there is representation of all affected stakeholder groups within the watershed collaborative. The watershed lies within Pima County. According to the US Census Bureau Pima County is comprised of 52% White, 37% Hispanic, 4% Black or African American and 4% Native American. 18.9% of the population of Pima County lives below the poverty line, a number which is slightly greater than the national average of 14.7%.

Interests that are active within the watershed include agriculture (including livestock grazing), industry (including mining), federal, state, local governments, sovereign tribal nations, irrigation and water districts, non-profit organizations, private property owners, locals and seasonal visitors who recreate and engage in tourism, and municipal water suppliers.

As a leadership member of the Santa Cruz Watershed Collaborative, Sonoran Institute will seek support from within the diverse stakeholder and subject-matter expertise of the watershed group. Further, Sonoran Institute's established base of community partners in the middle Santa Cruz River watershed (e.g., Farmers Insurance Co., Freeport McMoran, Pima County Regional Flood Control District, Pima County Wastewater and Reclamation, Tohono O'odham San Xavier District). These stakeholders represent some of the many entities with whom Sonoran Institute is currently working or has recently collaborated.

Santa Cruz Watershed Collective representation:

SCWC Coordinating Team Members

- Kimberly Baeza, Pima County Regional Wastewater Reclamation Department (Nov 2020–present)
- Julia Fonseca, Pima County Office of Sustainability and Conservation (March 2020–present)
- Jonathan Goldman, Community Water Coalition of Southern AZ (2019–present)
- Eve Halper, Bureau of Reclamation (2017–present)
- Ashley Hullinger, University of Arizona Water Resources Research Center (2018–present)

- John Kmiec, Tucson Water (2020- present); Alternate Candice Rupprecht, Tucson Water (2017–present)
- Melissa Mauzy, non-affiliated (2019–present)
- Louise Misztal, Sky Island Alliance (2017–present); Alternate Emily Burns, SIA (2020-present)
- Paul Rosenboom, Tucson Department of Transportation & Mobility (November 2019–present)
- Catlow Shipek, Watershed Management Group (2017–present)
- Lisa Shipek, Watershed Management Group (2017–present)
- Don Swann, National Park Service (2017–present)
- Jennifer Varin, US Forest Service, Coronado National Forest (Dec 2020–present)
- Claire Zucker, Pima County Cooperative Extension Service (2017–present)
- Claire Zugmeyer, Sonoran Institute (2017–present)

SCWC Partners

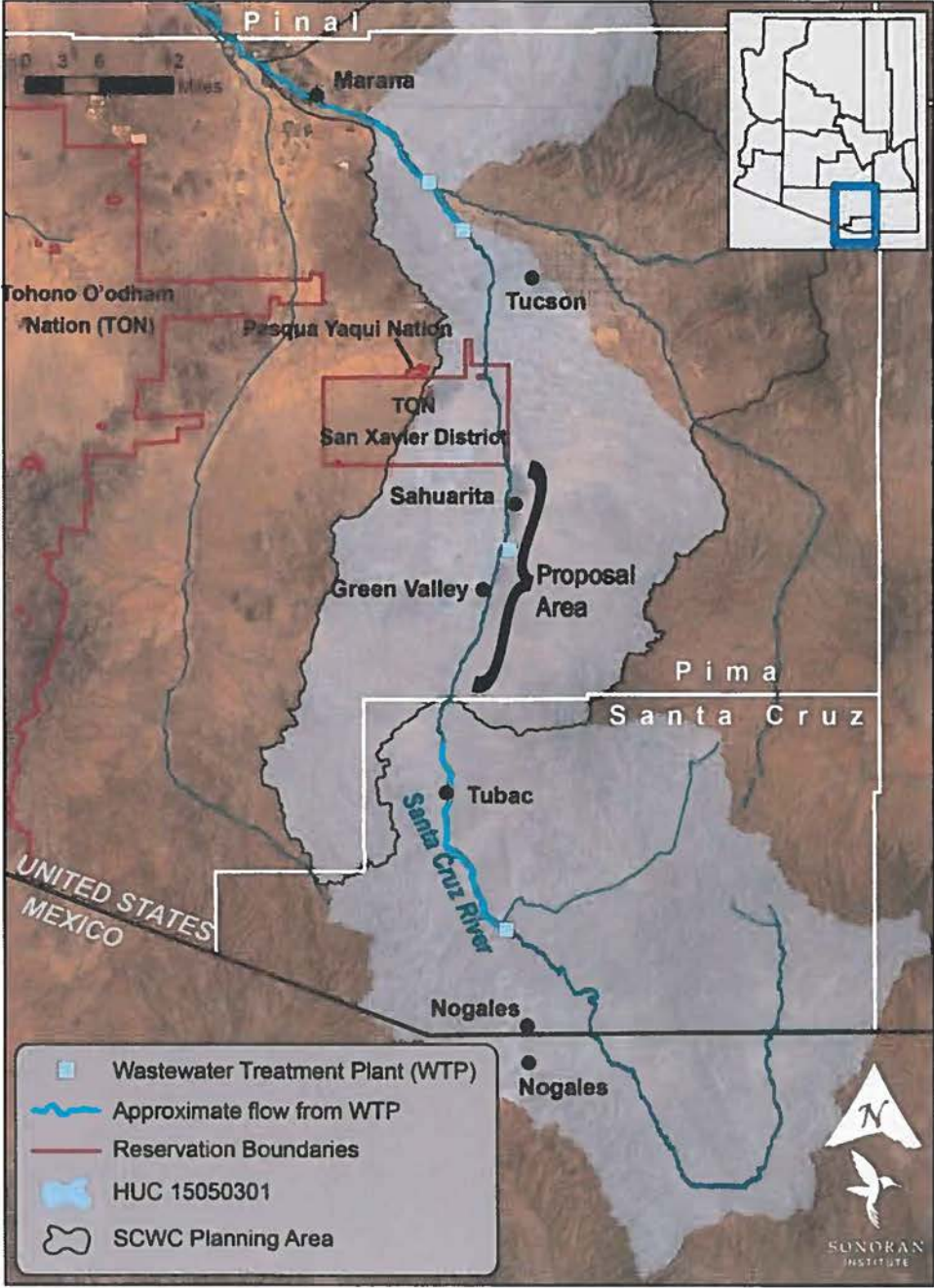
- All Coordinating Team member representative agencies
- Pima Association of Governments
- Local First Arizona
- San Xavier District-Tohono O'odham Nation
- Town of Marana Water Dept
- CAPLA University of Arizona
- Farmers Water Co (FICO)
- Arizona Game and Fish Department - Tucson Aquatic Wildlife Program
- Center for Climate Adaptation Science and Solutions
- Friends of Sonoita Creek
- Friends of El Rio Preserve (FERP)
- Tucson Audubon
- BKW FARMS
- SERI
- US Geological Survey
- Metro Water District
- Freeport-McMoRan Sierrita Operations
- Marana Parks & Recreation Department
- Friends of Tucson's Birthplace
- YWCA

A2. Geographic Scope

Described in the Project Location, the project area focuses on the middle Santa Cruz River with stakeholder groups existing throughout the entire upper Santa Cruz River watershed. The upstream portion begins at the Santa Cruz County–Pima County line and the downstream section is the southern extent of the Tohono O’odham San Xavier District. The middle Santa Cruz River/project area is between the two perennially flowing reaches of the Santa Cruz.

Respecting the sovereignty of the Tohono O’odham Nation and the partnership of the San Xavier District in the SCWC, the proposal does not include on-reservation elements at this time. Sonoran Institute and the SCWC will continue to engage with the Nation and District for their participation. Confirmation of authorization to include the portions of the project river reach on the tribal lands was not available prior to submittal. Should confirmation become available following proposal submittal, the Reclamation will be advised.

FICO, Freeport McMoRan, Green Valley, and Sahuarita are all within the proposed study area. Sonoran Institute and SCWC have engaged with all entities and have received letters of support from FICO. We have ongoing relationships with all groups and will seek their stakeholder support for this project in the interim.



Evaluation Criterion B—Addressing Critical Watershed Needs

B1. Critical Watershed Needs or Issues

The middle reach of the Santa Cruz River has one central watershed need—a lack of in-stream water—which has been caused by a variety of issues. As a dry reach, the river only receives water during increasingly infrequent precipitation events. The reaches of the Santa Cruz upstream and downstream receive perennial flows of treated effluent which has led to riparian restoration, the return of previously absent native fish species (i.e., the endangered Gila Topminnow), and aquifer recharge. While these flowing reaches have received effluent for decades, the middle reach study area has received no dedicated water.

The greatest need in the middle Santa Cruz watershed is a suite of dedicated water sources. As the SCWC Watershed Restoration Plan describes, a more immediate need, however, is evaluation and research to identify where those sources of water exist. The largest users of water in the middle Santa Cruz are all Sonoran Institute and SCWC partners. We have worked with the largest agricultural, mining, and municipal water users as they transition from their current high-water usage to longer-term, sustainable water use. We plan to include these users (FICO, Freeport-McMoRan, and the town of Sahuarita) in all evaluation and research phases of this proposed work plan.

B2. Developing Strategies to Address Critical Watershed Needs or Issues

Task A - Water Group Development

The Santa Cruz Watershed Collaborative is an established watershed group with a diverse stakeholder membership (see E.1.1.A1). Sonoran Institute has been working in the Santa Cruz River watershed for 25 years and has established partnerships with private, municipal, residential, industrial, and agricultural groups. The largest stakeholders in the project watershed are the town of Sahuarita, the town of Green Valley, Freeport-McMoRan, FICO, and the San Xavier District of the Tohono O’odham Nation. All parties are either already members of the SCWC, participate but have not officially joined, or have not joined but have existing relationships with Sonoran Institute.

Expanding the SCWC to include a focus on the middle reach of the Santa Cruz River would be a straightforward process and is a path that will lead to the success of this proposed scope of work. Full representation of major water users, water suppliers, water managers, and beneficiary stakeholders would ensure a full suite of representation when conducting the conservation opportunity assessment (Strategy 1) and prioritization evaluation (Strategy 2). When considering restoration opportunities and project prioritization, it is crucial for these parties to be involved. Including water managers like the Pima County Regional Flood Control District, Pima County Regional Wastewater Reclamation Department, and Community Water of Green Valley would benefit this proposed work and their own bottom lines as they have the most direct knowledge of water use, availability, distribution, and opportunity for reuse in riparian restoration.

Sahuarita: the SCWC has established a point of contact with the wastewater department of the town of Sahuarita and the town is considering joining the watershed collaborative. Sonoran Institute has worked with the town on exploratory scenario planning and assisted with their development of an annexation plan involving state trust lands.

Green Valley: though unincorporated, the water utility Community Water of Green Valley has participated in several SCWC sessions. The SCWC is currently working with Community Water of Green Valley to secure their partnership.

Freeport-McMoRan: one of the largest water users in the middle Santa Cruz River. They are currently an active member of the SCWC. Sonoran Institute has ongoing projects assessing water use and restoration opportunities in the upper Santa Cruz River and frequently discusses our findings with Freeport in our stakeholder reporting.

FICO (Farmers Insurance Co.): based in Green Valley are one of the largest water users in the middle Santa Cruz. They are active members in the SCWC. Former Sonoran Institute board chair Nan Walden is the co-owner of the Green Valley Pecan Company (whose parent company is FICO). Sonoran Institute developed the residential master plan for FICO as they transition from farming to residential use.

San Xavier District of the Tohono O’odham Nation: active members of the SCWC. The San Xavier District delineates the downstream limit of the proposed study area. As the immediate downstream party, the San Xavier District stands to benefit from expanded streamflow upstream of their land. Sonoran Institute has worked with the San Xavier District on upland and lowland riparian restoration, fish monitoring, and field protocols.

Task B - Watershed Restoration Planning

Strategies 1 and 2 (conservation opportunity assessment and prioritization evaluation, respectively) are the primary watershed restoration planning approaches. To best gather information regarding the critical issues and needs of the middle Santa Cruz River, Sonoran Institute will use the Santa Cruz Watershed Collaborative’s **Watershed** Restoration Plan as a guide. The Watershed Restoration Plan identifies restoration goals, strategies, and specific actions that can be used to restore watershed health and river flow throughout the watershed. Developed by the SCWC, this plan represents the needs and interests of stakeholders throughout the watershed. Critical issues and needs for the middle Santa Cruz will be evaluated by the working group, using existing strategies and actions as a guide—and adding additional goals, strategies, and actions where needed.

Additionally, the charge to participating working group members will be to provide a full assessment of their water use, availability, demands, and distribution. No other assessment of the sources and sinks of water use exists for the middle Santa Cruz, nor can there be an assessment until these stakeholders are brought together in a working group. The Pima County/Reclamation Tucson Basin Study process and results, which informed SCWC’s planning process, will also help to inform this project.

The new Pima County Floodplain Management Plan is the operative management document used by the county. It aligns the newest FEMA floodplain mapping with known flood risks to identify areas that would be unfit for development but would also provide insight as to where the most viable riparian restoration points exist. Pairing the strategies of the SCWC Watershed Restoration Plan with the geospatial boundaries in the Floodplain Management Plan would provide an instructive overlay to determine riparian restoration viability.

As the primary criteria for establishing a watershed restoration plan, establishing feasibility, connectivity, and identifying available water volumes are the tasks of the working group. Feasibility will be assessed as the likelihood that the introduction of water would create riparian habitat. Distance from the riparian corridor, surrounding land uses, and available water transportation infrastructure will guide the working group’s assessment. Connectivity refers to whether a riparian restoration project would increase surface water and groundwater connectivity with upstream and downstream flows. Connected riparian networks are preferred for both increasing river length and groundwater recharge potential.

Available water volumes are the ultimate focal point for riparian restoration. The central role of water providers and managers in this working group will be to report on water availability. In the downstream reaches of the Santa Cruz in Pima County, reclaimed effluent is allocated both into aquifer recharge/detention basins and into the river, where in-stream discharges create over 21 miles of perennial flow. With existing county facilities and the facilities operated by Community Water of Green Valley (and potentially other sources), there are sources of water in the form of reclaimed effluent. The task of this working group will be to determine how those sources could function as viable options for riparian restoration.

A matrix to gauge restoration projects will be drafted by Sonoran Institute and approved by the working group. Projects will be scored by feasibility, connectivity, and water volume—though additional criteria may be added during the conservation opportunity assessment. A working group-approved matrix will yield an ordinal ranking of projects. Further, the use of the matrix will reduce conflicts as it will be a consensus-built product of the working group. And while no apparent conflicts around riparian restoration exist in the middle Santa Cruz, there is a lack of knowledge around water resources. By establishing and collaborating in this working group, conflicts will be efficiently avoided rather than diffused.

Task C - Watershed Management Project Design

Strategy 3 (water budget and riparian restoration plan design) will occur in the second project year. The riparian restoration projects identified in the conservation opportunity assessment (Strategy 1) will be ranked using a matrix that weighs each project's feasibility, connectivity, and water volume to identify the highest-priority restoration opportunities (Strategy 2). These high-priority restoration opportunities will then be analyzed to create a water budget and riparian restoration plan design. Water budgets will consider the standard components of an average monthly hydrological cycle:

- precipitation
- evapotranspiration
- surface runoff
- groundwater recharge and outflow

Riparian restoration site plans will be built in ArcGIS. Plans will show ground elevation, floodplain delineations, water infrastructure, and a flow analysis indicating the possible restoration extent from the point where water is released. Where monitoring well data are available, those data will be presented to show the depth to groundwater.

The complete project timeline will be roughly divided by year, with Strategies 1 and 2 taking place in year 1 and Strategy 3 in year 2. Sonoran Institute will organize, lead, and participate in monthly project-specific working group meetings and will present results to the SCWC Restoring Flows and Floodplains working group during their monthly meetings. The project design is intended to maintain steady focus on the middle Santa Cruz watershed while building in checks with the SCWC coordinating team. Products of Strategies 1 and 2 will feed into Strategy 3 work in year 2. Strategy 3 water budgets and conceptual designs will be completed by Sonoran Institute and will rely on subject-matter expertise from the project-specific working group and the larger SCWC Restoring Flows and Floodplains working group.

Pima County Regional Flood Control District (as managers of the river and floodplain) and Pima County Regional Wastewater Reclamation Department (as the managers of the reclaimed water distribution infrastructure) will have a unique role in the feasibility assessment in the conservation opportunity

assessment (Strategy 1). Their reviews and preferences will be shared with the Bureau of Reclamation's environmental and cultural resource staff to determine whether any site-specific compliance will be required. Reclamation representation on the SCWC will ensure that the Bureau is aware of the project's progress, though routine check-ins with Reclamation environmental and cultural resource staff are incorporated in the project plan.

The Santa Cruz Watershed Collaborative's current work in the Restoring Flows and Floodplains working group has established a team of subject-matter experts whose advice from past restoration efforts will be used in all three strategies. Further, the SCWC Watershed Restoration Plan provides a guide for actions and strategies for restoration goals, many of which are appropriate for use in the middle Santa Cruz project area.

Evaluation Criterion C—Implementation and Results

C1—Project Implementation

Year 1

Task 1: Working group assembly

- Month 1
- Milestones
 - o Solicit participation from existing SCWC members and partners
 - o Solicit stakeholder involvement from town of Sahuarita, Community Water of Green Valley, and other SCWC-recommended stakeholder groups.
- Direct costs: Sonoran Institute staff time: 10h x \$70/h: \$699

Task 2: Establish mission for middle Santa Cruz River working group

- Month 2
- Milestones:
 - o Confirm workplan as proposed into the mission of the working group
- Direct costs: Sonoran Institute staff time: 5h x \$70/h: \$350

Task 3: Identify data needs for conservation opportunity assessment

- Months 2–3
- Milestones:
 - o Identify, review, and assemble existing research on water availability in the project area
 - Existing research includes:
 - Pima County/Reclamation Tucson Basin Study
 - SCWC Watershed Restoration Plan
 - Tucson Water 2100 OneWater plan
 - Sonoran Institute Tucson AMA hydrological analysis
 - o Identify new data needs in the project area
 - New data needs:
 - Pima County Wastewater and Reclamation water distribution budget
 - Community Water of Green Valley water budget
 - FICO/Green Valley Pecan Co., water use forecast
 - Freeport-McMoRan water use forecast
 - Other data needs as identified by working group
 - Direct costs: Sonoran Institute staff time: 50h x \$70/h: \$3,497

Task 4: Conservation opportunity assessment

- Months 3–9
- Milestones:
 - o Creation of riparian restoration project matrix for consideration during data review.
 - Includes quantitative data of available water volumes, geospatial mapping (i.e., connectivity). Also includes professional judgement around restoration feasibility.
 - o Working group review and consensus around riparian restoration projects
 - Complete assembly of Task 3 new and existing data
 - Creation of portfolio of all potential riparian restoration projects
 - o A full compilation of water holdings in study area, categorized by total water volumes, available water volumes, and expected demand.
 - o Quarterly reports that track project findings for use in the Task 5 prioritization evaluation, shared with SCWC Coordinating Team, at semi-annual SCWC forums, with BOR, stakeholders, and partners
- Direct costs: Sonoran Institute staff time: 240h x \$70/h: \$16,784
: 6 site visits @\$28/round trip at GSA rate: \$168

Task 5: Prioritization evaluation

- Months 9–12
- Milestones
 - o Review of all riparian restoration projects by subject matter experts in the SCWC and working group.
 - o Feasibility assessment of each riparian restoration project to determine feasibility of implementation.
 - o Matrix evaluation of all projects, considering feasibility, connectivity, and available water volume
 - o Produce a layperson project summary that can be used for Reclamation review and stakeholder/public engagement efforts through SCWC
- Direct costs: Sonoran Institute staff time: 120h x \$70/h: \$8,392

Year 2

Task 6: Water budgets

- Months 13–17
- Milestones
 - o Identify SCWC members, SCWC partners, and other subject-matter experts to assist in development of water budgets for the top-rated riparian restoration projects from Task 5.
 - o Develop water budgets for top-priority riparian restoration projects with subject-matter experts with middle Santa Cruz River–specific hydrological knowledge.
 - o Present water budgets to SCWC working groups.
- Direct costs: Sonoran Institute staff time: 160h x \$70/h: \$11,189

Task 7: Riparian restoration conceptual project design

- Months 15–22
- Milestones

- Data assembly for concept designs, including: ground surface elevation, floodplain delineations, water infrastructure, flow analysis indicating the possible restoration extent from the point where water is released, and if possible, depth to groundwater.
- Produce riparian restoration site plans using ArcGIS.
- Case study report for each riparian restoration project design.
- Vet and share project designs with water managers and local municipalities.
- **Addendum to SCWC's Watershed Restoration Plan**
- A SCWC semi-annual watershed forum dedicated to project design review and identifying next steps
- Direct costs: Sonoran Institute staff time: 100h x \$70/h: \$6,993

Task 8: Project summary report

- Months 22–24
- Milestones
 - Production of project summary report including background, methods, and findings from Strategies 1–3.
 - Presentation of project findings to all participating working group partners.
 - Presentation of project findings to prospective water managers, municipalities, stakeholders, and BOR.
 - Establish an outreach plan to bolster support for logistical and policy needs surrounding riparian restoration projects from Task 7.
- Direct costs: Sonoran Institute staff time: 100h x \$70/h: \$6,993

C2—Building on Relevant Federal, State, or Regional Planning Efforts

This project's proposed activities will happen in concert with at least three ongoing water plans. The middle Santa Cruz River as described in this proposal exists within the Tucson Active Management Area (TAMA) and the lower Santa Cruz River basin. The Bureau of Reclamation and Pima County Lower Santa Cruz River Basin Study is examining demand projections, groundwater modeling, and strategies to preserve riparian ecosystems, and the proposed study area is at the upstream end of this system. The riparian restoration conservation opportunities assessment and prioritization will provide Reclamation and Pima County with essential, high-resolution data on ideal restoration locations.

The Santa Cruz River Watershed Collaborative Watershed Restoration Plan establishes restoration goals, strategies, and actions that can be taken throughout the project area to protect riparian habitat and replenish groundwater. Specific goals in the SCWC restoration plan that align with the proposed work includes managing treated effluent for riparian recharge, protecting and restoring riparian habitat, and supporting attendant research to accomplish those goals. As a partner with the SCWC, Sonoran Institute aims to support the SCWC Watershed Restoration Plan through this proposed project and through SI's own mission.

The Tucson Water 2100 OneWater plan establishes a portfolio of water resource and infrastructure projects, with riparian restoration being a facet of the plan. Aligned with Tucson Water's planned future scenario assessment of surface water, reclaimed water, stormwater, and groundwater, the strategies in this proposal will directly interface with the Tucson Water master plan, providing water budget data and riparian restoration design plans. The scope of work in this project incorporates the full suite of water resources that are outlined in the OneWater plan, and as a partner in the SCWC, Tucson Water will be an active participant in all three Strategies described in this proposal.

Evaluation Criterion D— Department of the Interior and Bureau of Reclamation Priorities

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:

As the ongoing drought and aridification of the Southwest continues, precipitation-sourced riparian systems in the Santa Cruz watershed have become increasingly rare and intermittent. As demonstrated by the other perennially flowing reaches of the Santa Cruz River, managed riparian systems can provide multiple benefits to the human and natural environment. The expanded working group that will explore restoration opportunities will use the most current water use and water availability data. Land and water managers have relied on similar working group datasets to create the current flows in the Santa Cruz, and as working group members for this project, would do so again.

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

The Santa Cruz Watershed Collective includes an impressive list of conservation organizations and this working group would use and build upon those member groups. Additionally, by including municipalities and major water users in the working group, these stakeholder organizations can further the missions of the SCWC, Sonoran Institute, and themselves as conservation-minded organizations

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;

Restored portions of the middle Santa Cruz River would have immediate benefits for expanded relationships with private, public, and tribal entities. At the downstream border of the middle Santa Cruz basin is the San Xavier District of the Tohono O’odham Nation. Using water with Reclamation oversight, the District has created flows in the Santa Cruz River within their lands. Additional groundwater recharge would benefit the neighboring communities and industries (Sahuarita, Green Valley, FICO, and Freeport McMoRan—the latter two being SCWC members).

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

This proposed work includes the input and advice of local governments (Pima County, Tucson, Green Valley, Sahuarita) and the Tohono O’odham Nation. Any restored flows would also benefit these entities by recharging the aquifer, increasing tourism, and improving their natural resources through riparian restoration. Ideally, the unified drive to restore riparian sections of the Santa Cruz would create a dialog between the partner entities and the state government as these projects would create a strong case for a revision of the in-stream groundwater recharge crediting program (as occurred in the other flowing stretches of the Santa Cruz through the Drought Contingency Plan).

Bureau of Reclamation Priorities

4. Address Ongoing Drought

By assessing the possibility of—and ideally implementing—riparian restoration, the middle Santa Cruz River would have a return of flows that have ceased due in part to the ongoing drought. Using existing

resources (reclaimed effluent) to create new flows would build resilience to drought conditions while providing benefits to the river ecosystem and the build environment that borders it.

Required Permits or Approvals

The activities proposed for this project that will be supported by Reclamation WaterSMART funding and do not include any ground disturbing activities, so we foresee no environmental impacts.

Budget

Project Budget

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity type	TOTAL COST over 2 years
	\$/year	Quantity		
Salaries and Wages				
Luke Cole	\$65,078	0.35	percent	\$ 46,238
Claire Zugmeyer	\$38,786	0.11	percent	\$ 8,661
Fringe Benefits				
Full-time staff (12.1% + \$513/mo medical			percent, fixed	\$ 16,385
Travel				
Trips 1–6	\$28/round trip	6	round trips	\$ 168
Equipment				
NA				-
Supplies and Materials				
NA				-
Contractual/Construction				
SCWC project support	\$2,500	2	project support	\$ 5,000
Other				
IT services, telephone, occupancy			operational support	\$ 5,875
TOTAL DIRECT COSTS				\$ 82,327
Indirect Costs				
Type of rate	20%	\$base		\$ 16,465
TOTAL ESTIMATED PROJECT COSTS				\$ 98,792

Budget narrative

Salaries and wages

- Luke Cole, Associate Director: Luke will oversee all items in the proposed scope of work. Focus will in the development of the working group, facilitating and leading working group meetings, and coordinating the product development of Strategies 1–3.
 - o Reclamation Funding
 - Year 1 salary of \$65,078 x 35%: \$29,611
 - Year 2 salary of \$67,030 x 35%: \$30,434

- Claire Zugmeyer, Ecologist: Claire will provide subject matter expertise and logistical support. Claire will also oversee design of Strategy 3 products and distribution to stakeholders.
 - o Reclamation Funding
 - Year 1 salary of \$38,786 x 11%: \$5,546
 - Year 2 salary of \$39,949 x 11%: \$5,692

Total staff time Reclamation funding: \$54,899

Fringe benefits

Sonoran Institute's fringe rate is a combination of fixed costs and percentages as follows:

- Health insurance: \$513/month, fixed
- Worker's compensation: 2.19%
- Short-term unemployment: 2.0%
- Long-term disability: 2.1%
- Life insurance: 0.15%
- Social security: 6.2%
- Medicare: 1.45%

Total fringe costs: \$16,385

Consultants and outside services

Reclamation funds will be used to support Santa Cruz Watershed Collaborative programming at a rate of \$2,500 per year for 2 years

Consultant costs: \$5,000

Travel

We expect no more than 6 trips to the middle Santa Cruz River to assess riparian restoration sites (50 miles round trip) at the GSA rate of \$0.56/mile.

Travel costs: \$168

Equipment

- We are not including equipment costs

Materials and supplies

- We are not including materials and supplies costs

Other/Operating costs

Operating costs are calculated separately from indirect costs as follows:

- IT services: \$1,165/y total: \$2,331
- Telephone: \$300/y total: \$600
- Occupancy: \$1,472/y total: \$2,994

Total other/operating costs: \$5,875

Indirect costs

Sonoran Institute does not have a federally approved indirect cost rate. In addition to supporting administrative salaries, the 20% indirect costs go toward payroll accounting and development software, facilities maintenance, support services, and administrative expenses.

Total indirect costs: \$16,465

Letters of support

Farmers Investment Co.

Pima County Regional Flood Control District

Pima County Regional Wastewater Reclamation Department

Santa Cruz Valley Heritage Alliance

Santa Cruz Watershed Collaborative

Tucson Water

Watershed Management Group

Official Resolution

At the time of submittal, we are waiting for final official review and approval from the Sonoran Institute Board. The resolution will: identify the official with the legal authority to enter into an agreement, verify that Sonoran Institute governing body has reviewed and offered support for the application submitted, and confirm that Sonoran Institute's project official will work with the Bureau of Reclamation to meet established deadlines for entering into this agreement. This resolution will be executed and submitted within the 30-day allowance indicated in the Funding Opportunity Announcement.

FARMERS INVESTMENT CO.

P.O. BOX 7 SAHUARITA, ARIZONA 85629-0007 U.S.A.

**FARMING AND FARM
MANAGEMENT:
SANTA CRUZ VALLEY FARM, AZ
SAN SIMON FARM, AZ
BLUE THREE GROVES, GEORGIA**

**PROCESSING, MARKETING & WATER:
THE GREEN VALLEY PECAN COMPANY
THE PECAN STORE
GREEN VALLEY PECANS
FARMERS WATER CO.**

EST. 1937

Dear Mr. Weakland,

As owners of Farmers Investment Co.(FICO); Farmers Water Co. (FWC) and the Green Valley Pecan Company (GVPC) and as a family who has lived and worked in the Santa Cruz Valley for more than eighty years, we strongly support the Sonoran Institute and Santa Cruz Watershed Collaborative proposal "Assessment, prioritization, and design of riparian restoration opportunities in the middle Santa Cruz River, Arizona." We applaud the Department of Interior's Bureau of Reclamation in its creation and expansion of watershed groups. We hope that that this proposal qualifies for funding through the WaterSMART Cooperative Watershed Management grant program.

We have a long history with the Sonoran Institute (SI). Nan has served as Chairman of the Board, and a multi-year supporter and member. We asked SI to facilitate a comprehensive, multi-year planning process for the land and river assets associated with our 10,000-acre property that includes over 14 miles of the Santa Cruz River. This project will build upon the BOR-funded work that the Santa Cruz Watershed Collaborative has undertaken and will advance our shared desire to see conservation and restoration the Santa Cruz River. SI is ideally suited to be the convener, having worked for more than 25 years in the Santa Cruz Valley in with numerous stakeholders in communities and countries throughout the West.

In bringing together counties, municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle Santa Cruz, a once-flowing reach of the river may once again have riparian habitat. Further, any projects that are identified through this project—if implemented—would yield additional benefits, including groundwater recharge, expanded wildlife habitat, and recreation opportunities in an area where few currently exist.

The Tohono O'odham Nation, Pima and Santa Cruz Counties have all pioneered large-scale water and land conservation programs. Combined with tools enabled by the Arizona's 1980 Groundwater Act, the opportunities for collaboration and innovation are outstanding. In fact, we recently completed a close to twenty-year plan to make our farm a Groundwater Savings Facility (GSF) and to complete a privately funded extension of the Central Arizona Project Pipeline to enable this GSF.

Thank you for your consideration and we hope you will support this endeavor.

Sincerely,

Richard S. Walden

Nan Stockholm Walden



1137 N. Dodge Blvd.
Tucson, AZ 85716
www.watershedmg.org

Bureau of Reclamation
Financial Assistance Operations
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O. Box 25007
Denver, CO 80225

January 15, 2021

Re: Letter of Support for Proposal to USBR WaterSMART CWMP Phase 1, FOA No. BOR-DO-21-F003

Dear Mr. Weakland,

Watershed Management Group (WMG) supports the Sonoran Institute and Santa Cruz Watershed Collaborative (SCWC) proposal **“Assessment, prioritization, and design of riparian restoration opportunities in the middle Santa Cruz River, Arizona.”** WMG is a founding member of the SCWC and recipient of a Phase 1 BOR grant two years ago to help develop and formalize the Collaborative and create a Watershed Restoration Plan.

This project will build upon the BOR-funded work that the Santa Cruz Watershed Collaborative has undertaken and will advance our vision of **“People working together to ensure a healthy urban watershed with flowing rivers and streams.”** Through our Watershed Restoration planning process, we’ve identified many opportunities to coordinate and collaborate on restoration efforts in the middle Santa Cruz River stretch. WMG supports Sonoran Institute in their grant proposal, as they have a 25-year history in the Santa Cruz facilitating water managers and stakeholders to work collectively expand their capacity while maintaining and expanding riparian habitat in the Santa Cruz.

In bringing together municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle Santa Cruz, a once-flowing reach of the river may once again have riparian habitat. Further, any projects that are identified through this project—if implemented—would yield additional benefits, including groundwater recharge, expanded wildlife habitat, and recreation opportunities in an area where few currently exist.

Thank you for investing in the Santa Cruz Watershed Collaborative, and we encourage you to consider funding this proposal to expand our efforts.

Sincerely,

Lisa Shipek, Executive Director



WASTEWATER RECLAMATION
201 NORTH STONE AVENUE
TUCSON, ARIZONA 85701-1207

PH: (520) 724-6500
FAX: (520) 724-6545

JACKSON JENKINS
DIRECTOR

January 13, 2021

Bureau of Reclamation
Financial Assistance Operations
Attention: Mr. Edmund Weakland
Mail Code: 84-27132
P.O. Box 25007
Denver, CO 80225

RE: Letter of Support for Proposal to USBR WaterSMART CWMP Phase 1, FOA No. BOR-DO-21-F003

Dear Mr. Weakland,

As Director of Pima County's Regional Wastewater Reclamation Department, I write to you in support of the Sonoran Institute and Santa Cruz Watershed Collaborative proposal "Assessment, prioritization, and design of riparian restoration opportunities in the middle section of the Santa Cruz River, Arizona." Throughout the American West, the Department of Interior's Bureau of Reclamation has supported the creation and expansion of watershed groups, and we believe that this project warrants funding through the WaterSMART Cooperative Watershed Management grant program.

This project will build upon the BOR-funded work that the Santa Cruz Watershed Collaborative has undertaken and will advance our shared desire to see a restored Santa Cruz River. Our Department supports the Sonoran Institute in this endeavor, as we have a proud history of direct collaboration with them on the Lower Santa Cruz Living River Project.

In bringing together municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle section of the Santa Cruz River, a once-flowing reach of the river may once again have riparian habitat. Further, any projects that are identified through this project, if implemented, would yield additional benefits, including groundwater recharge, expanded wildlife habitat, and recreation opportunities in an area where few currently exist.

I encourage you to consider funding this important effort.

Sincerely,


Jackson Jenkins, Director
Regional Wastewater Reclamation Department

PIMA COUNTY
FLOOD CONTROL

January 13, 2021

Mr. Edmund Weakland
Bureau of Reclamation
Financial Assistance Operations
Mail Code: 84-27132
P.O. Box 25007
Denver, CO 80225

Subject: USBR WaterSMART CWMP Phase 1, FOA No. BOR-DO-21-F003 Proposal – Letter of Support

Dear Mr. Weakland:

The Pima County Regional Flood Control District(District) supports the Sonoran Institute's proposal, *Assessment, Prioritization, and Design of Riparian Restoration Opportunities in the Middle Santa Cruz River, Arizona*. Throughout the American West, the U.S. Department of the Interior's Bureau of Reclamation has supported the creation and expansion of watershed groups, and we believe that this project warrants funding through the WaterSMART Cooperative Watershed Management Grant Program.

This project will support the goals and actions identified in Pima County's Floodplain Management Plan for this part of the Santa Cruz River. As such, the District supports the Sonoran Institute in this endeavor. They have a 25-year history in the Santa Cruz River facilitating water managers and stakeholders to work collectively to expand their capacity while maintaining and expanding riparian habitat in the Santa Cruz corridor.

In bringing together municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle Santa Cruz, a once-flowing reach of the river may once again have riparian habitat. Further, any projects that are identified through this project, if implemented, would yield additional benefits including restoring natural floodplain function, groundwater recharge, expanding wildlife habitat, and recreational opportunities in an area where few currently exist.

The District encourages you to consider funding this important effort.

Sincerely,



Eric Hepp, P.E.
Deputy Director and Floodplain Administrator

ES/tj

c: Suzanne Shields, P.E., Director – Regional Flood Control District



Bureau of Reclamation
Financial Assistance Operations
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O. Box 25007
Denver, CO 80225

January 11, 2021

Re: Letter of Support for Proposal to USBR WaterSMART CWMP Phase 1, FOA No. BOR-DO-21-F003

Dear Mr. Weakland,

On behalf of the Santa Cruz Valley Heritage Alliance, I offer our support of the Sonoran Institute and Santa Cruz Watershed Collaborative proposal "Assessment, prioritization, and design of riparian restoration opportunities in the middle Santa Cruz River, Arizona." Throughout the American West, the Department of Interior's Bureau of Reclamation has supported the creation and expansion of watershed groups, and we believe that this project warrants funding through the WaterSMART Cooperative Watershed Management grant program.

The Santa Cruz Valley Heritage Alliance was created in 2004 and is the local coordinating entity for the Santa Cruz Valley National Heritage Area, which was designated by Congress in early 2019. Our mission is to connect people to the cultural, historic, and natural treasures of the Santa Cruz Valley through education, preservation and promotion of its unique resources and living traditions. Riparian restoration projects such as this one align with the goals and objectives of the Santa Cruz Valley National Heritage Area.

This project will build upon the BOR-funded work that the Santa Cruz Watershed Collaborative has undertaken and will advance our shared desire to see a restored the Santa Cruz River. We support Sonoran Institute in this endeavor, as they have a 25-year history in the Santa Cruz facilitating water managers and stakeholders to work collectively expand their capacity while maintaining and expanding riparian habitat in the Santa Cruz.

In bringing together municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle Santa Cruz, a once-flowing reach of the river may once again have riparian habitat. Further, any projects that are identified through this project—if implemented—would yield additional benefits, including groundwater recharge, expanded wildlife habitat, and recreation opportunities.

We encourage you to consider funding this important effort.

Sincerely,

A handwritten signature in blue ink that reads "Vanessa Bechtol".

Vanessa Bechtol
President of the Board of Directors
Santa Cruz Valley Heritage Alliance, Inc.



**SANTA CRUZ
WATERSHED
COLLABORATIVE**

SantaCruzWatershedCollaborative.net

People working together to ensure a healthy urban watershed with flowing rivers and streams

From: Santa Cruz Watershed Collaborative Coordinating Team
Re: Letter of Support for Proposal to USBR WaterSMART CWMP Phase 1,
FOA No. BOR-DO-21-F003

January 12, 2020

Dear Mr. Weakland-

The Coordinating Team of the Santa Cruz Watershed Collaborative (SCWC) is pleased to provide this letter of endorsement to the Bureau of Reclamation WaterSMART Cooperative Watershed Management grant program, for the Sonoran Institute's proposal "**Assessment, prioritization, and design of riparian restoration opportunities in the middle Santa Cruz River, Arizona,**" which is on the Collaborative's behalf. The Sonoran Institute's aim is to lead a stakeholder process to identify river restoration opportunities along the middle reach of the Santa Cruz, stretching from the Santa Cruz–Pima county border to the San Xavier District, is in line with the mission and goals of the SCWC, and within the geographic area we serve.

Throughout the American West, the Department of Interior's Bureau of Reclamation (BOR) has supported the creation and expansion of watershed groups, including SCWC itself, and based on the priorities in our adopted Watershed Restoration Plan we have ascertained this project warrants funding. The proposed project will build upon the BOR-funded work that the SCWC has accomplished to date, and will advance our vision to restore flows to the Santa Cruz River. The Sonoran Institute is an active partner within SCWC, and has a 25-year history in the Santa Cruz facilitating water managers and stakeholders to work collectively to benefit riparian habitat. Bringing together municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle reach of the Santa Cruz, greatly improves the potential for collaborative projects that enhance and expand riparian habitat. The projects that develop from this identification process will enhance groundwater recharge, wildlife habitat, and recreation opportunities in the tributaries and mainstem of the Santa Cruz River.

This letter has the full support of the SCWC through our consensus-based decision-making process, and we encourage you to consider funding this crucial step in collaborative restoration planning. Thank you for your consideration of this proposal.

Sincerely,

Santa Cruz Watershed Collaborative Coordinating Team

Ashley Hullinger, Research Analyst, UA Water Resources Research Center
Catlow Shippek, Policy and Technical Director, Watershed Management Group
Claire Zucker, Director, Pima County Cooperative Extension
Claire Zugmeyer, Ecologist, Sonoran Institute
Don Swann, Biologist, Saguaro National Park
Eve Halper, Natural Resource Specialist, Bureau of Reclamation



A proud part of the City of Tucson



January 11, 2021

Bureau of Reclamation
Financial Assistance Operations
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O. Box 25007
Denver, CO 80225

Re: Letter of Support for Proposal to USBR WaterSMART CWMP Phase 1, FOA No. BOR-DO-21-F003

Dear Mr. Weakland,

As a representative of the City of Tucson Water Department, I write to you in support of the Sonoran Institute and Santa Cruz Watershed Collaborative proposal "Assessment, prioritization, and design of riparian restoration opportunities in the middle Santa Cruz River, Arizona." Throughout the American West, the Department of Interior's Bureau of Reclamation has supported the creation and expansion of watershed groups, and we believe that this project warrants funding through the WaterSMART Cooperative Watershed Management grant program.

This project will build upon the BOR-funded work that the Santa Cruz Watershed Collaborative has undertaken and will advance our shared desire to see a restored Santa Cruz River. Tucson Water supports the Sonoran Institute in this endeavor, as they have a 25-year history in the Santa Cruz facilitating water managers and stakeholders to work collectively and expand their capacity while maintaining and expanding riparian habitat in the Santa Cruz.

In bringing together municipalities, water managers, stakeholders, and subject-matter experts to identify and evaluate opportunities for conservation in the middle Santa Cruz, a once-flowing reach of the river may once again have riparian habitat. Further, any projects that are identified through this project—if implemented—would yield additional benefits, including groundwater recharge, expanded wildlife habitat, and recreation opportunities in an area where few currently exist.

The City of Tucson Water Department encourages you to consider funding this important effort.

Sincerely,

John Kmiec

John Kmiec
Deputy Director
Tucson Water

P.O. Box 27210 • Tucson, AZ 85726-7210

520.791.4331 • tucsonaz.gov/water   