WaterSMART: Water Marketing Strategy Grant FY 2019

Central Arizona Water Clearinghouse

APPLICANT:

City of Phoenix
200 W. Washington Street
Phoenix AZ, 85003
602-262-6011
www.phoenix.gov

Funding Opportunity Announcement No. BOR-DO-19-F006

PROJECT MANAGER:

Cynthia Campbell, Water Resources Management Advisor
City of Phoenix Water Services Department
200 W. Washington St., 9th Floor
Phoenix, AZ 85003
Cynthia.campbell@phoenix.gov

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1. Executive Summary (Submitted July 31, 2019)

This response to Funding Opportunity Announcement No. BOR-DO-19-F006 is submitted by the City of Phoenix located in Maricopa County, Arizona. The City of Phoenix proposes to work with a diverse team including experienced water managers, water professionals and environmental non-profits to develop a Central Arizona Water Clearinghouse (Clearinghouse). For the last four years, the City of Phoenix, along with American Rivers (a non-profit river conservation organization), the city of Tucson, and others have been building an effort to conceptualize the role, structure and goals of a new entity to foster and promote water exchanges, trades and infrastructure to help Arizona adapt to increased water scarcity. This application proposes outreach and partnership building, scoping and planning and water market strategy design activities that the City and its partners will undertake to bring the Clearinghouse concept to life. If awarded, funding from the Bureau of Reclamation (BOR or Reclamation) will be used 1) to convene an Advisory Group to assist in project work, and, in tandem, conduct broader outreach activities to gather input and socialize the concept of the Clearinghouse and its role, design and functions; 2) conduct supply and demand and water market analyses to support scoping and planning for founding the Clearinghouse; 3) develop a water marketing strategy document that provides a clear blueprint and action plan for startup and early phase operation of the Clearinghouse; and finally 4) initiate at least two pilot Clearinghouse transactions.

This FOA "supports collaborative planning efforts to develop water markets that will proactively address water supply reliability and increase water management flexibility." The Central Arizona Water Clearinghouse is meant to provide a tool to help water users and water managers adapt to cuts in water supply resulting from the recent Lower Basin Drought Contingency Plan agreement (LBDCP) and to water scarcity as a new-normal long-term condition. The Clearinghouse will foster transactions involving both water and use of infrastructure, giving water managers who might currently lack one or the other, the opportunity to fill critical needs, while also enabling water managers to leverage strengths in either or both water supply and infrastructure access.

The project team expects the work proposed in this application to take approximately two years from the date funding begins. Work on this project will take place largely within central Arizona though the project will consider water supply and other issues outside of this region where applicable. The largest Reclamation facility within this geographic area is the Central Arizona Project, owned by Reclamation and operated by the Central Arizona Water Conservation District.

2. Technical Proposal and Evaluation Criteria

2.1 Background Data

2.1.1 Project Location

The Central Arizona Water Clearinghouse would be located in central Arizona. However, Arizona's current and potential future water supplies come from a diverse geographical region. Most of the state's water use and principal water users are located in central Arizona, but, with the exception of some groundwater, the region's water supplies are imported from distant sources (e.g. the Verde, Salt, and Colorado Rivers). The focus area of this work will be primarily central Arizona. However, to achieve the long-term goals of the Clearinghouse, a broader focus will be

required. For example, the state has explored the potential of importing groundwater pumped out of aquifers outside of central Arizona. Some of these potential supplies may be explored at a high level for this project but the focus will be on central Arizona and its existing water supply sources.

FIGURE 1: PROJECT AREA OVERVIEW AND DETAIL

2.1.2 Project Area Description

Central Arizona has three primary sources of water supply. First, surface water supply is provided primarily by the Gila River, Salt River and Verde River (Figure 1), and storage projects located within those watersheds. Second, there is a water supply from groundwater resources, both those naturally within underlying aquifers and supplies augmented by surface water banking programs. Third, the Central Arizona Project (CAP), owned by Reclamation and managed by the Central Arizona Water Conservation District (CAWCD), delivers Arizona's Colorado River supplies to central Arizona (Figure 1). CAWCD estimates that CAP deliveries serve approximately 5.3 million people, or approximately 81% of Arizona's population.[1] Colorado River water supplies are allocated by the Colorado River Compact and related law throughout the seven Colorado River Basin states.[2]

In the past eighteen years, the Colorado River Basin has experienced significant drought. While there have been some years of relief from a dryer than normal hydrograph (for example, the recent wet winter of 2018-19), the system runoff has been "comparable to or less than that in multi-decade mega-droughts identified in the paleo record."[3] As a result, in early 2019, parties in the Lower Basin agreed to a landmark Lower Basin Drought Contingency Plan (LBDCP), altering the water supply landscape for the Basin as a whole and central Arizona in particular.[4] Under the LBDCP and conditions as of May, 2019, Arizona could be facing a 192 thousand-acre-foot (KAF) shortfall in their Colorado River allocation in 2020 (considered a so-called Tier-0 shortage under the LBDCP). Depending on the severity of shortage, the region could face up to

[1] See https://www.cap-az.com/departments/planning/service-area-planning

[2] See http://www.azwater.gov/AzDWR/StatewidePlanning/CRM/default.htm; http://www.cap-az.com/departments/water-operations/allocations

[3] https://www.cap-az.com/documents/public-information/State-of-the-River-2014.pdf

[4] See https://www.usbr.gov/dcp/docs/final/Attachment-B-LB-DCP-Agreement-Final.pdf

720 KAF in cuts under the LBDCP. Looking further into the future beyond the term of the LBDCP, severe water shortages could become the new norm.

2.1.3 Past Working Relationship with Reclamation

The applicant, the City of Phoenix has a variety of past and ongoing working relationships with Reclamation. From 2007 to 2016, the City of Phoenix was awarded grant funding for its Water Conservation Device Retrofit and Residential Water Use Audit Program (Residential Retrofit Program). The Residential Retrofit Program completes water audits and replaces old, inefficient plumbing fixtures in low-income and single-family residences. Awarded funds include the Water Conservation Program (07FG320850), High Efficiency Toilets (R10AP32075), Water Conservation (R15AS00020) and WaterSMART 2015 (R15AS00002) that were used to purchase High Efficiency Toilets (HET) throughout Phoenix.

The City of Phoenix was also awarded $300,000 of funding from the Bureau's Drought Response Program (R15AP00187). This award was active from 01/01/2015—06/30/2019 for the construction of an Aquifer Storage and Recovery (ASR) well at the Deer Valley Water Treatment Plant in Phoenix.

The City of Phoenix applied for grant funding announcement BOR-DO-17-F010 Drought Response Program to provide funding up to $300,000 towards the construction of another Aquifer Storage and Recovery (ASR) well at 4902 East Ashler Hills Drive in Phoenix. The City's application under this FOA was not successful.

2.1.4 Project Description and Milestones

The Central Arizona Water Clearinghouse project is seeking funding from Funding Group II to support continued development of a water market strategy for central Arizona. As the state comes to terms with the likelihood of long-term, potentially severe, water scarcity, increasing efficient use of current supplies and infrastructure will be the region's first line of adaptation. A second line of adaptation will be built around innovative ways for water managers to work together to share infrastructure and exchange water supplies to meet mutual needs. The Clearinghouse proposed in this application would provide a critical platform to support this goal.

Voluntary, self-directed and mutually beneficial transactions between water providers and users to maximize use of infrastructure, storage capacity, and water supplies can help Arizona communities invest resources and use water more efficiently in the face of shortage. The basic vision for the Clearinghouse revolves around a market platform that serves as a hub for water managers to access to information, seek expertise and capacity, and explore and pursue water and infrastructure exchange opportunities in the region.

The Clearinghouse will house, maintain and make available thorough, credible and up-to-date data about Arizona's water supplies, provide templates and supporting information to model a range of transaction types, and offer credible evaluation of and guidance about potential transactions. The Clearinghouse will also act as a market-maker – seeking out participants for exchanges and trades and bringing them together to finalize transactions. This application proposes four broad steps for developing the Clearinghouse: outreach and partnership building, scoping and planning, development of a water marketing strategy, and pilot project initiation.

Outreach and Partnership Building

This project element will focus on obtaining input from potential market participants and stakeholders in central Arizona to ensure that the Clearinghouse serves the needs of water

managers in the region and to foster trust and credibility in the institution itself and the process used to design and develop it. Outreach and partnership building will include two specific lanes of work. First, the Clearinghouse project team will recruit additional collaborators to participate in a project advisory group. The advisory group will work closely with the project team, meeting at regular intervals during the project, to steer Clearinghouse design and ensure alignment with regional needs and goals. The advisory group will be made up of a group of 5-10 regional water management experts and will invite participation from a diverse cross-section of interests including municipal water managers, academic institutions, conservation-focused NGOs, agricultural water users, tribal water managers, non-partisan think-tanks, state/federal water managers, and others. The key role of the advisory group will be to review outputs from the project team such as the water marketing strategy document, and to assist with additional outreach activities to the broader central Arizona and Colorado River Basin water community. The second lane of work will be a series of workshops and small meetings convened with potential Clearinghouse users and regional stakeholders and interests who are not involved in the advisory group. These workshops and meetings will effectively socialize the concept and functions of the Clearinghouse by presenting key documents and outputs from the project process. As the project progresses, this broader audience will provide feedback and help identify pilot transaction opportunities. The project team will also create opportunities for sharing with a broad public audience such as an email list/newsletter and public workshops.

Milestones: The project team will conduct regular meetings with the advisory group throughout the grant/project period. It is anticipated that the advisory group will meet at least six times per year and sub-committees of this group may be developed and meet with the project team more often. Workshops and small group meetings will also be conducted, though less frequently, and these meetings will begin later in the project timeline to allow the project team time to develop the required content and materials for these meetings. The project team will document participants at all meetings as well as keep detailed minutes of advisory group meetings for inclusion as part of the final project report. (A detailed timeline is included in attached Appendix 1).

Scoping and Planning Activities

This project element involves several focused data collection and analysis efforts that will inform the water marketing strategy development and Clearinghouse operation. These include regional supply and demand data analysis and water market and trading activity data collection and analysis. The foundation of a successful Clearinghouse effort is developing a comprehensive database of regional water supply information. One promise of the Clearinghouse is to bring as much data as possible into one place so that Clearinghouse customers can access a holistic regional water supply and demand view. Over the past four years, the project team has made important strides in developing an operational "rule set" that identifies the tapestry of the water management system components (i.e. infrastructure, user groups, water supplies, and delivery priorities and timing) and how they interact spatially, temporally and volumetrically. This foundational water supply database gives the project team a head-start on understanding the system and enables the team to ask deeper and more complex questions that are essential to a well-functioning Clearinghouse. In addition to supply data, more work remains on undertaking demand analyses. Using existing population and other demographic and economic growth studies, the project team will analyze and characterize potential future demand that could be met through water and infrastructure trades and sharing. As noted above, the Clearinghouse will be

designed to address a portion of the region's water shortage problems and so this step of the project is critical to determine the Clearinghouse's best role in closing water shortfalls.

Another analysis planned under this project element is an analysis of past water marketing in central Arizona. The focus of this analysis will be on what types of trades and infrastructure sharing has been successful in the past along with as much market detail as possible (i.e. prices, volumes, and other key transaction terms). A secondary purpose of this analysis will be to summarize existing legal and policy pathways for trades in the region. Analyzing past market data and law and policy pathways will provide critical guidance to developing a water marketing strategy for the Clearinghouse.

Milestones: The project team will develop drafts of three analyses under this project element: a supply study, a demand study, and an analysis of past water marketing activities in the region. Each draft analysis will be reviewed by the Advisory Group before being finalized. Key outcomes from these reports will then be rolled into the water marketing strategy document discussed below.

Development of a Water Marketing Strategy Document

Based on the outcomes from the outreach and partnership building and scoping and planning activity elements above, this project element consists of a detailed written strategy document describing the approach to developing and implementing the Clearinghouse. The Clearinghouse Strategy will be comprised of four sections: 1) Implementation Plan, 2) Legal Framework, 3) Monitoring Strategy, and 4) Stakeholder Input/Support.

In Section 1, the project team will develop an Implementation Plan that lays out a detailed framework for Clearinghouse operations and policies. Key elements of the Implementation Plan. will include:

- Clearinghouse institutional form – describes where the Clearinghouse will be housed, what form the Clearinghouse will take (for example, a program nested within an existing institution vs. a standalone institution) and what implications this choice has for implementation and longevity.
- Clearinghouse functions – describes the specific role that the Clearinghouse will play in fostering water supply and infrastructure trades/sharing in central Arizona; this section will also discuss alternatives considered for Clearinghouse functions and support the recommended functions/approach. Importantly, directly participating in transactions (i.e. serving as a water bank) will not be among the functions to be considered at this time.
- Clearinghouse operations – details how the Clearinghouse will operate on a day-to-day basis, specific strategies for outreach and advertising to participants/customers and other administrative issues.
- Clearinghouse oversight and governance – this section will lay out how the Clearinghouse will be governed (for example by a formal board of directors or advisory board) and a recommendation for the specific make up and roles of the governing body; delineation of the role of the governance body in relation to day to day operations and Clearinghouse functions will be a critical element of this section.
- Clearinghouse funding and longevity – explains how the Clearinghouse can become a financially sustainable entity; this will include both a short-term fundraising strategy and

discussion of options for a long-term business plan to make the Clearinghouse self-sustaining through fees for services, memberships or other options.

- Transaction tracking monitoring – articulates the role of the Clearinghouse in transactions it has fostered, including options for tracking market activity and what part the market platform will play in monitoring transaction outcomes; it is important to note that the project team does not want the Clearinghouse to become an additional enforcement/regulation authority on water managers in the region. Accordingly, this section will describe how the Clearinghouse will build confidence in transaction outcomes while remaining a neutral party and not adding to water managers' oversight and regulatory responsibilities.
- Stakeholder support and input – describes how the Clearinghouse will continually solicit and incorporate feedback from users of the platform, stakeholders and a broader audience.
- Instream flows and water quality benefits – explores how the Clearinghouse can promote instream, water quality and other environmental benefits in the region by promoting standalone environmental transactions and/or promoting environmental benefits in other transaction types.
- Barriers – finally, the implementation plan will discuss issues identified in the outreach and planning phases, as well as other known possible impediments, that will need to be addressed before the Clearinghouse can be successful.

The next section of the marketing strategy document analyzes the legal and policy landscape in which the Clearinghouse will operate. Members of the project team have already developed a conceptual map of how, when, and where water flows through the system - and completed significant in-depth analysis of law and policy related to trade and transfer of water in central Arizona. This analysis will summarize work to date and relate it specifically to the functions described above for the Clearinghouse. This section will also discuss how the Clearinghouse will develop contract and deal templates for customers to use to develop water supply and infrastructure trades and sharing and identify key legal requirements for these templates. Finally, this section of the strategy will explain how the Clearinghouse plans to operate within existing law and policy boundaries.

A Monitoring Strategy will also be developed. The key to the Clearinghouse Monitoring Strategy will be ensuring that transactions are successful, having systems in place to identify potential problems before they happen, and maintaining a transparent, credible database of transaction and market activity. Sustained success will require the Clearinghouse to be able to tell the story of how it helps central Arizona meet its water supply challenges and the Monitoring Strategy is the foundation of this effort. The final section of the Water Marketing Strategy document will review the outreach and partnership building efforts of the project, including who participated, and also explain how input from this process was incorporated into strategy development. Importantly, this section will also detail how the Clearinghouse will seek ongoing feedback from a diverse range of parties in the region to ensure that the platform keeps up with changing needs and the ever changing regional and Colorado River context as a whole.

Milestones: The project team will develop a draft Water Marketing Strategy and share it with the Advisory Group for feedback and editing. The project team will then create a draft final

Water Marketing Strategy and solicit a final round of feedback. Feedback on the draft final document may include workshops to gather feedback from a wider circle of parties than the Advisory Group. A final Water Marketing Strategy document will then be provided to BOR for review before being incorporated into the final project report.

Pilot Project Initiation
The FOA for this grant suggested including pilot project activity within the Water Marketing Strategy document. However, the project team believes that pilot project activity is worth discussing separately in this proposal and planning for pilot projects can be included in the strategy document. As part of the effort for which the project team is seeking funding, one key goal will be to initiate at least two water supply and/or infrastructure trades/sharing projects. We do not anticipate fully completing pilot projects during the term of this project, however, identifying participants and designing implementation of at least two projects is a critical proof of concept to show that the Clearinghouse can be successful. The Clearinghouse project team, working with the Advisory Board, will conduct targeted outreach to water managers in the region that are identified as having high potential to see gains from a water supply trade or infrastructure sharing agreement and will begin to develop these projects during the term of this grant.

Milestones: At least two pilot projects initiated by the completion of the funding cycle for this grant.

Final Project Report
The project team will complete a final project report at the conclusion of the grant period for submission to BOR according to WaterSMART funding guidelines. It is anticipated that the primary body of this report will be the Water Marketing Strategy document along with appendices including: records of outreach and partnership building meetings; meeting minutes of Advisory Group meetings, the three reports outlined above under the Scoping and Planning project element, and reports on the outcomes of pilot project initiation. Any additional reporting requested or required by BOR will be completed by the project team.

3. Evaluation Criteria

3.1 Evaluation Criterion A – Water Marketing Benefits

3.1.1 Explain whether the water market/water marketing strategy project will address a specific water supply shortfall and describe the extent of benefits to different sectors

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

Arizona's single largest water supply comes from the Colorado River and this supply, in turn, is directly linked to the surface elevation of Lake Mead.[5] Due to a long-running "structural deficit" in Lake Mead (more water is released and evaporates from the lake each year than flows into the lake), Mead's level has been steadily declining (Figure 2). A long-term drought has exacerbated

[5] The 2007 Interim Guidelines detail how Lake Mead and Lake Powell are operated and, in particular, how the surface elevation of Lake Mead affects Arizona's water supply. See https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf

this condition. In an attempt to prevent Lake Mead from reaching critically low levels, the LBDCP implemented water use cuts for Lower Basin states that go into effect before the cuts agreed to in the 2007 Guidelines. In early 2018, BOR conducted "stress test" modeling to show a range of possible futures for Lake Mead and Lower Basin water supply. The results of the stress test modeling painted a potentially dire picture including a non-zero chance that Lake Mead could drop precipitously to elevations that would severely curtail Lower Basin water supplies in the near future (Figure 3). An abnormally wet winter and spring in late 2018 and 2019 has changed the risk calculus in the short-term, however long-term risk remains high.

Arizona is facing a range of possible reductions in water supply, both under the LBDCP and also as a result of future changes to the region's climate, population and hydrology. In the short-term, a cut of at least 192 KAF is likely under the LBDCP. Depending on climate and other hydrologic variables, cuts of up to 720 KAF are possible under the agreement. The bulk of these cuts, though not all of them, will be felt in the CAP service area in central Arizona. Beyond the cuts agreed to in the LBDCP, the region is likely to experience water scarcity into the foreseeable future. Water scarcity, in other words, will be the region's new normal. The Clearinghouse is meant to provide an additional tool for the region to adapt to this new challenge.

FIGURE 2: ILLUSTRATING LAKE MEAD'S STRUCTURAL DEFICIT[6]

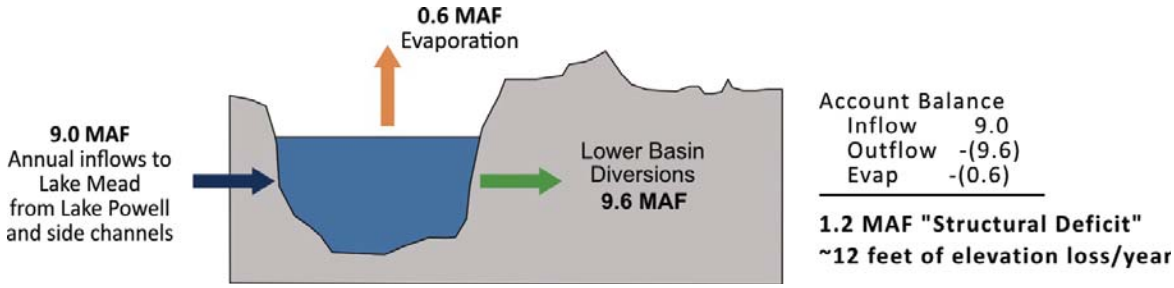
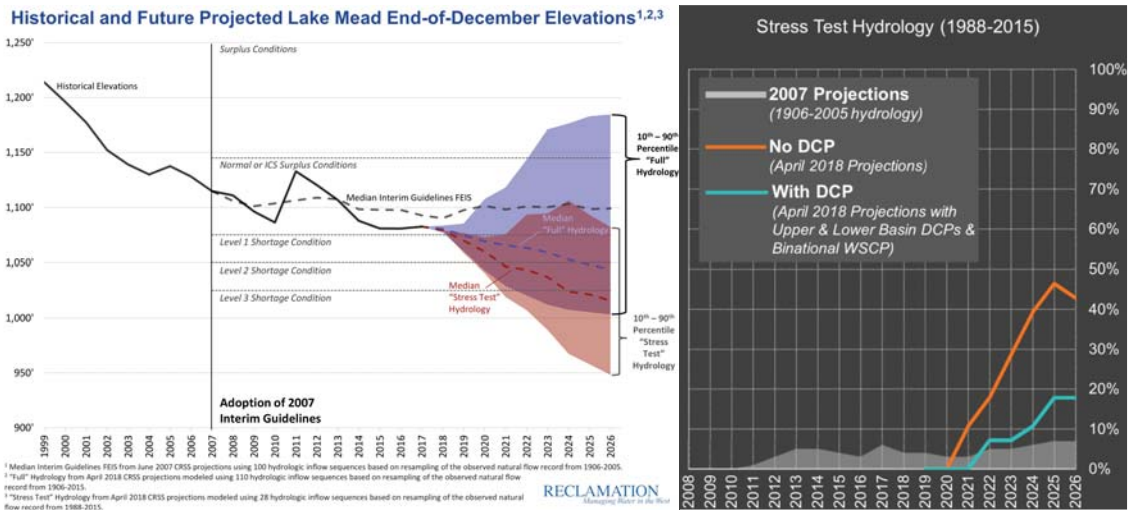


FIGURE 3: APRIL 2018 LAKE MEAD ELEVATION PROJECTIONS AND RISK OF LAKE MEAD BELOW '1025

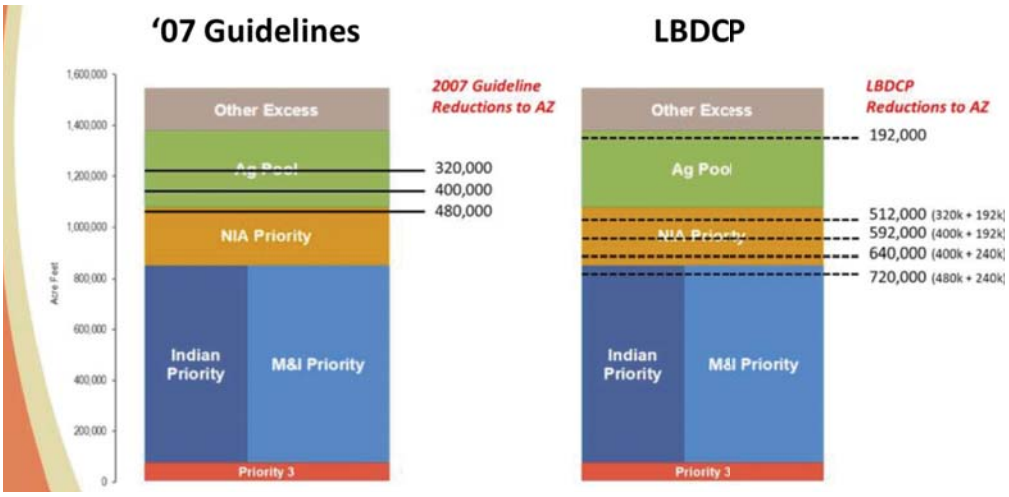


[6] See https://www.amwua.org/where-we-stand/issues/colorado-river-structural-deficit

What is the nature and severity of the shortfall, and which sectors are affected?

All water users in Arizona will be affected in some way by the water supply cuts under the LBDCP, and, more broadly, by long-term water scarcity. While the effects of shortages will vary somewhat between water use sectors, central Arizona's Colorado River water supply is the most junior water right within Arizona's allocation and will therefore feel the cuts first and most acutely. Within central Arizona, Municipal and Industrial (M&I) and Tribal allocations are the highest priority and will not be broadly affected by the lowest tier (Tier 0) of LBDCP cuts (192 KAF). However, if Lake Mead levels continue to fall, triggering additional tiers of LBDCP cuts, even M&I and Tribal allocations could see reductions. The first central Arizona users to experience cuts under LBDCP are users of so-called Other Excess water. These include the Arizona Water Banking Authority and the Central Arizona Groundwater Replenishment District, among others. In addition to these users, agricultural water users will also be affected by Tier 0 cuts (though Arizona has worked out some mitigation measures to assist these users). Finally, users of so-called Non-Indian-Agricultural water (NIA) will also feel some effects at every level of LBDCP cuts. A number of M&I users in central Arizona have at least some NIA water as part of their supply portfolio, so NIA cuts will impact a broad swath of water users. Some municipalities depend to a large extent on NIA water and these users will therefore be most impacted (Figure 4).

FIGURE 4: 2007 INTERIM GUIDELINES AND LBDCP CUTS ACROSS ARIZONA WATER USE SECTORS



Despite the fact that M&I supplies other than NIA water might not be directly affected by initial LBDCP cuts, these users will still be impacted by short and long-term reductions in supplies. For example, the Arizona Water Bank was designed to provide water to M&I users during times of shortage, but current cuts to the Water Bank reduce the amount of water being stored for future recovery and put M&I users at greater long-term risk. More broadly, reduced Colorado River deliveries across Central Arizona will likely lead to more groundwater pumping and the potential for declining aquifer levels in parts of central Arizona – including areas that directly support M&I and Tribal users.[7] Various senior water users (tribes, cities) are also participating in helping mitigate cuts to agriculture meaning that they are voluntarily taking some cuts in the short-term.

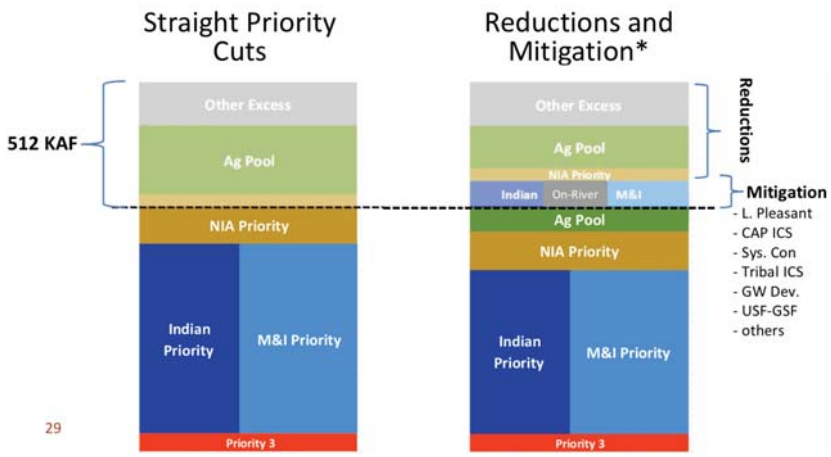
[7] See https://kjzz.org/content/969431/arizona-budget-includes-money-groundwater-infrastructure-pinal

How and to what extent will the water market/water marketing strategy activities, once implemented, address the shortfall?

A Central Arizona Water Clearinghouse is not a silver bullet solution to water scarcity. Rather, it is one of several important tools the region needs to develop to address current and future shortfalls. Potential water supply reductions to the region under the LBDCP range from 192 KAF under current conditions to 720 KAF under severely dry hydrologic scenarios.[8] The Clearinghouse is not intended to close these and future supply gaps by itself. The Clearinghouse will, however, increase the number and diversity of ways that water users can both seek additional water supply and leverage existing infrastructure.

This increased flexibility will address water shortfalls in two ways: first, the Clearinghouse will make it easier to fully utilize whatever water is physically available under shortage by making water supplies and/or infrastructure that may currently be inaccessible to some water managers more accessible through a market-based platform; and second, by facilitating exchanges and trades to supplement water supplies – taking advantage of opportunities to move water between users and uses. Figure 5 below shows an example of how Tribal, M&I and other supplies are being flexibly used for mitigation under the LBDCP to reduce the burden on agricultural and NIA water users. Tribal and M&I users are voluntarily giving up some water in the short-term to provide water to users who will be affected by the first tier of LBDCP cuts. This illustrates one of the benefits of the flexibility that will be continued and promoted by the Clearinghouse.

FIGURE 5: ILLUSTRATION OF HOW FLEXIBILITY HELPS ADDRESS WATER SHORTFALLS[9]



Will the water market/water marketing strategy activities benefit multiple sectors and/or types of water uses? If so, to what extent, and which sectors and water user will benefit?

The Clearinghouse is meant to benefit all water use sectors, though the bulk of anticipated transaction activity will likely come from municipal water users. That said, municipal water users will be able to take advantage of the Clearinghouse in many ways, not just for increasing municipal water supply. The Clearinghouse will also help municipalities store water for future

[8] See http://www.cap-az.com/documents/departments/planning/colorado-river-programs/CAP-DCP-Fact-Sheet-2019.pdf

[9] See http://www.cap-az.com/documents/meetings/2018-10-04/1718-9-Report-on-DCP.pdf at Page 15.

use by facilitating water storage agreements, recover water that has already been stored by facilitating stored water recovery agreements, and provide additional avenues for exchanges and other projects involving treated effluent – allowing users who cannot currently put treated effluent to use with access to buyers of that resource and/or access (via infrastructure agreements) to the facilities necessary to use effluent as a water supply. The Clearinghouse could also be used as a platform for helping to mitigate water supply cuts to agriculture or other sectors as was illustrated in the agreements underlying the LBDCP (Figure 5). One of the strengths of the Clearinghouse is that it will exist to help solve a range of challenges. It is not meant to be a one or even two-dimensional market platform, but rather to be a creative force, bringing together any parties that can develop mutually-beneficial transactions. At its heart, the Clearinghouse is intended to help find synergy among trading and sharing partners with different strengths and weaknesses. For example, Phoenix and Tucson have already demonstrated the power of an agreement between one partner with excess groundwater storage and recovery capacity (Tucson) and another partner with excess surface water supply (Phoenix) (Figure 6).[10] Under the Phoenix/Tucson agreement, Tucson is storing excess Phoenix surface water now and will pump that stored water under shortage conditions while Phoenix uses an equal amount of Tucson's surface water allocation. The Clearinghouse is being designed to promote more of these types of water sharing agreements.

FIGURE 6: ARIZONA DAILY STAR HEADLINE ABOUT TUCSON/PHOENIX WATER SHARING AGREEMENT


Tucson, Phoenix herald water sharing deal at White House summit

By Tony Davis Arizona Daily Star Mar 23, 2016

3.1.2 Explain how and to what extent the proposed water market/water marketing strategy activities will improve water supply reliability in general in the area upon implementation of the strategy

Reduce the likelihood of conflicts over water

Scarcity is at the root of most water conflicts. As water scarcity grows, competition for limited supplies can result in winners and losers. The Clearinghouse is a powerful tool for changing the dynamic from one of conflict, to one of collaboration for mutual benefit. Rather than seeking zero-sum outcomes such as permanently selling water from one user to another, the Clearinghouse will focus on creative, mutually beneficial water supply trades and infrastructure sharing. By helping the region maximize existing supplies and infrastructure, the Clearinghouse will promote solutions that avoid conflict by increasing flexibility and approaching the challenge of water scarcity through collaboration and reciprocal benefits. Promoting diverse transactions in the region and providing a platform and support for these transactions will increase the ability for those who hold water rights, treated effluent, storage capacity, transmission capacity or groundwater storage capacity to leverage different levels of assets vis-à-vis other users in the

[10] See https://tucson.com/news/local/govt-and-politics/tucson-phoenix-herald-water-sharing-deal-at-white-house-summit/article_a4d2dda5-7d92-52aa-9fe5-bde852f17731.html

system. The Clearinghouse will offer different users the opportunity to assist each other during a time of diminishing supplies, rather than being in conflict over scarce resources. As an example, the Clearinghouse could provide a platform for municipal and tribal sectors to create storage and recovery transactions with the agricultural sector, which is most vulnerable to initial CAP supply reductions.

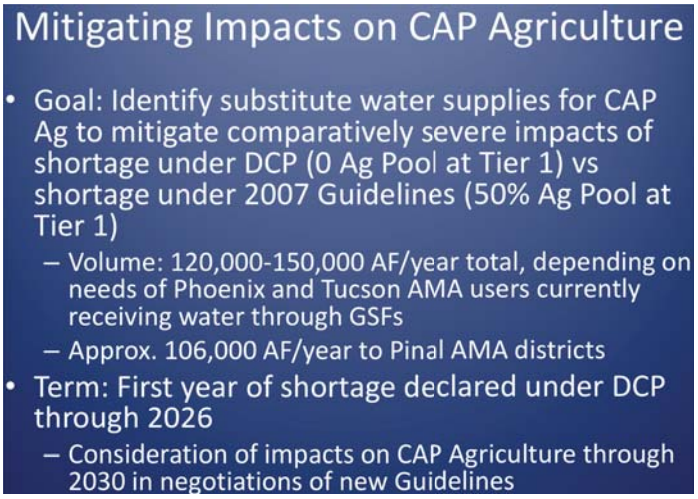
Increase resiliency to drought

The Merriam-Webster definition of resilience is "an ability to recover from or adjust easily to misfortune or change."[11] Resilience to long-term drought then, means an ability to adjust to water supply changes, especially water scarcity. The complexities of water law and water management can make change difficult – especially in a context like central Arizona with numerous overlapping state, federal, tribal and local jurisdictions and intricate infrastructure connections. One of the central goals of the Clearinghouse will be to simplify and provide resources that reduce these difficulties and increase the region's ability to adjust to water supply changes. The ability to efficiently complete water supply trades and infrastructure sharing agreements will greatly increase water manager's flexibility in responding to changing conditions.

Sustain agricultural communities

The Clearinghouse is meant to provide a resource for all water managers in the region. As such, it will help sustain agricultural communities in several ways. First, irrigation districts and agricultural water users will be able to access the Clearinghouse platform to look for water supply trading opportunities. Second, the Clearinghouse will also be a center for creative solutions to water problems, including agricultural water shortages. For example, the Clearinghouse will be a platform where future deals that are similar to the agricultural water mitigation agreements within the recently approved LBDCP could be identified and implemented (Figure 7).[12]

FIGURE 7: AGRICULTURAL MITIGATION IN THE LBDCP



Finally, the Clearinghouse will also be a platform where non-agricultural water users can work with agricultural water users to find infrastructure and other creative sharing mechanisms with

[11] https://www.merriam-webster.com/dictionary/resilience

[12] See https://new.azwater.gov/sites/default/files/DCP%20Ag%20Mitigation%20Presentation.pdf

mutual benefit. For example, under Arizona's Groundwater Management Act, irrigation districts can be designated as Groundwater Savings Facilities, working with partners who have access to surface water supplies to create long-term storage credits by forgoing groundwater pumping. Within the Clearinghouse, there may be creative ways for entities with Colorado River Supplies to work with irrigation districts to expand or modify existing groundwater storage agreements in innovative ways.

Demonstrate a water marketing approach that is innovative, and which may be applied by others

The most innovative element of the Clearinghouse is its multiple water supply and infrastructure focuses. Making the best use of water requires not only that water be available, but that water managers be able to access water cost-effectively when and where it is needed. Many existing water markets focus primarily on the sale and lease of water only. The Clearinghouse therefore places as much emphasis on infrastructure sharing and innovative exchanges (i.e. water for water trades rather than sales or leases) as it does on leasing and buying water. By providing a platform to leverage opportunities to share infrastructure *and* water, the Clearinghouse is an innovative and holistic water marketing approach. Lessons learned from adopting this approach in central Arizona could be applicable in other areas where infrastructure and water supply challenges are closely linked.

Provide instream flows for species, recreation or water quality objectives

Plans for the water marketing strategy described above include an exploration of how the Clearinghouse can promote environmental benefits from transactions. The project team has identified several opportunities and will explore additional opportunities through the water marketing strategy design process. Potential pathways for environmental benefits from Clearinghouse transactions include: finding opportunities for transactions that include groundwater recharge via existing surface streams that could benefit from recharge water; opportunities to create or send more water to existing artificial or natural wetlands; and charging a small "cut to the aquifer" for certain groundwater transactions to sustain local groundwater levels and groundwater dependent ecosystems.

3.1.3 Explain the extent to which the water market/water marketing strategy activities will be ready to proceed upon completion of the strategy, addressing each of the following:

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

The project proposed here is a two-year project. The Project team plans to initiate two or more pilot transactions as part of this project. Upon completion of this project, the first goal would be to, within one year of project completion, see those pilot projects fully implemented. At the same time, upon completion of this project, the project team and Advisory Group would also continue to seek out additional transactions that could be completed under the Clearinghouse umbrella to build upon the pilot projects. Additionally, within one year of completion of this project, the project team's goal is to have formalized the Clearinghouse as an institution, likely housed within an existing entity; this means the Clearinghouse would have convened and seated a formal board/advisory committee, would have finalized its initial operating procedures and policies, and would have secured startup funding through several different sources (likely including foundation support, membership fees, administrative fees and possibly other public investments). In years two through five after completing the project proposed here, the Clearinghouse would prioritize

bringing in additional projects for implementation and finalizing a business plan to get to long-term sustainability and self-sufficiency (i.e. through a membership program and/or administrative fees for services and transactions).

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

The Clearinghouse project team intends to develop the water market concept within existing boundaries of law and policy. Central Arizona has a broad set of existing mechanisms that support water trading, exchanges and infrastructure sharing.[13] While not all of these mechanisms are easy to use, the intent of the Clearinghouse is not to seek changes to existing law and policy, but rather to develop templates and other resources to make navigating existing options more user-friendly and broadly accessible.

Explain whether previous planning, outreach and/or water marketing activities have been completed, including work on any of the three required project components.

Several previous efforts have been completed that will help provide a basis for the outreach, scoping and planning and marketing strategy design under this project:

- **Conceptual map of the water supply and delivery system:** Conversations about a Central Arizona Water Clearinghouse begin roughly four years ago with the City of Phoenix, American Rivers, Environmental Defense Fund, and other managers, academics, and consultants. To visualize how a Clearinghouse would help water move more freely within the system to meet supply needs, utilize infrastructure, conform to the current legal and policy context, and safeguard groundwater supplies, the initial team developed a "rule set" that conceptually mapped water flows, legal requirements, and projected supply needs. The rule set allowed the team to test broad conceptual ideas for various exchanges and affirmed that a Clearinghouse would be both a possible and useful concept to help the region adapt to reduced and variable future water supply conditions.
- **Ongoing meetings of the core project team:** The City of Phoenix and American Rivers have been convening a small group of water managers and professionals over the last 3 years to discuss the concept of a water clearing house. The impetus to submit this grant application came from these ongoing discussions.
- **Development of the report "*Benefits Challenges and Incentives for Water Sharing and Conservation in Central Arizona*":** With funding from the Walton Family Foundation and assistance from AMP Insights (a consulting firm), American Rivers (part of the project team for this project) published a report detailing law and policy related to existing water sharing mechanisms in Arizona.
- **Initial database development:** Also, with funding from the Walton Family Foundation, American Rivers, AMP Insights and Martin & McCoy (consultants), and

[13] See: https://static1.squarespace.com/static/56d1e36d59827e6585c0b336/t/5d412417771f1c0001297f4d/1564550195117/AR_WaterSharingReportLayout_FinalV4_Web.pdf; and https://www.cap-az.com/documents/departments/planning/service-area-planning/CAP-SYSTEM-USE-AGREEMENT-2-1-2017.pdf

several other conservation NGOs have initiated development of the water supply database that will become a central asset of the Clearinghouse.

3.2 Evaluation Criterion B – Level of Stakeholder Support and Involvement

3.2.1 Stakeholders who have *committed to be involved* in the planning process.

Stakeholders in the planning area who have *committed to be involved* in the planning process:

1. City of Phoenix (applicant)
2. City of Tucson (pending letter of commitment)
3. American Rivers

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

1. City of Phoenix: The City of Phoenix will lead the project and provide in-kind services throughout the project's life.
2. City of Tucson: City of Tucson staff will be a core part of the project team and provide support in the form of in-kind services throughout the project's life.
3. American Rivers: American Rivers will be a core part of the project team, supporting Phoenix's role as project lead. American Rivers will contribute both funding (in the form of non-federal grant funds) and in-kind match (including staff time going forward as well as funding already expended since January 1, 2019 on staff time and contract services to develop the Clearinghouse concept).

Please explain whether the proposed project is supported by a diverse set of stakeholders (appropriate given the types of interested stakeholders within the watershed and the scale, type and complexity of the proposed strategy).

3.2.2 Stakeholders in the planning area who have *expressed their support* for the planning process, whether or not they have committed to participate

1. Arizona Municipal Water Users Association (AMWUA): AMWUA, a collection of municipal water managers, has expressed support for the concept of a Clearinghouse and transactions to help increase water supply flexibility.
2. Kyl Center for Water Policy, Arizona State University (letter of support drafted, pending)
3. Environmental Defense Fund (letter of support attached)
4. Western Resources Advocates (letter of support attached)
5. Walton Family Foundation (letter of support attached)
6. Audubon Society (letter of support attached)

3.2.3 Is there opposition to the proposed strategy? If so, describe and explain.

At this time, there is no identified opposition to the Clearinghouse. However, there has in the past been concern over certain types of water trades. Much of the concern has focused on permanent sales. Most recently, a proposed permanent transfer of water from an on-river irrigation district to central Arizona was opposed by irrigators and the local community. Similarly, proposed permanent transfers of tribal on-river water rights to central Arizona have been controversial. The Clearinghouse addresses this type of opposition first by not promoting permanent water right sales. While permanent transactions are the primary focus of some water markets, the Clearinghouse differs from this and is focused on a broad range of more limited-

term transactions including water exchanges (water for water trades rather than water for money trades) as well as infrastructure sharing agreements.

3.2.4 Do any separate planning efforts express support for the proposed water marketing activities? Or, will the proposed water marketing strategy complement other ongoing or recent planning efforts within the area?

LBDCP: In 2019, Arizona signed onto a set of agreements between the federal government, the Lower Basin states, water users and Mexico collectively called the Lower Basin Drought Contingency Plan. The LBDCP is designed to protect the Colorado River system through voluntary reductions in water use and increased water conservation. While the LBDCP did not directly address water marketing, Arizona's path to signing the agreement was paved through several large-scale water exchanges and other collaborative, market-like agreements. For example, the Gila River Indian Community agreed to sell a large amount of Long-Term Storage Credits to the Central Arizona Groundwater Replenishment District. Other water users agreed to provide some Colorado River water supplies to agriculture to mitigate for cuts to these users. Both of these examples illustrate the potential that water market strategies have to help the region adapt to water supply cuts and therefore support the development of the Clearinghouse.

WaterSMART Basin Study: A WaterSMART Basin Study was completed for the Colorado River basin in December 2012. BOR's Upper and Lower Colorado Regions, in collaboration with representatives of the seven Colorado River Basin States began the Colorado River Basin Study. The Study identified the Basin's current and future (50 years) imbalances in water supply and demand. The Study also developed and analyzed adaptation and mitigation strategies to resolve those imbalances, including through exchanges, operation/infrastructure optimization and conservation practices similar to those that the Clearinghouse will promote and facilitate.[14]

Water Management Plan: Arizona's efforts for a water management plan and how this project can fit with those efforts is within in the Governor's Water Augmentation Council Strategic Vision for Water Supply Sustainability, described in more detail below in Section 3.2.5.

Water Conservation Plan: Arizona's efforts for a water conservation plan and how this project can fit with those efforts is within in the Governor's Water Augmentation Council Strategic Vision for Water Supply Sustainability, described in more detail below Section 3.2.5.

State Water Plans: Arizona's efforts for a state water plan and how this project can fit with those efforts is within in the Governor's Water Augmentation Council Strategic Vision for Water Supply Sustainability, described in more detail below Section 3.2.5.

Colorado River Basin Ten Tribes Partnership Tribal Water Study (Tribal Water Study): Reclamation has worked to support completion of the Tribal Water Study. The Tribal Water Study complements the technical foundation of the Colorado River Basin Water Supply and Demand Study (Basin Study) and will also inform this project if this grant is awarded. The Tribal Water Study identified obstacles to water trades and exchanges as a challenge for Tribal

[14] Colorado River Basin Water Supply and Demand Study, Executive Summary; available at https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBSExecutiveSummaryFINAL.pdf at page 14.

Water management.[15] The Tribal Water Study further stated "The Partnership Tribes are hopeful that the information obtained through the Tribal Water Study will provide an opportunity to evaluate and pursue establishing a variety of voluntary use options such as transfers, leases, water banking, exchanges, and deferral and forbearance agreements, which offer opportunities for Partnership Tribes as well as other communities to develop mutually beneficial use of tribal water."[16] The Clearinghouse is intended to engage with tribes to help navigate these and other challenges.

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

LBDCP: Described above in Section 3.2.4.

Recovery Planning Advisory Group (RPAG): In 2018, the Arizona Water Banking Authority, CAWCD and ADWR convened a large group of stakeholders to review and provide guidance on recovery of water stored by the Bank for use during shortage. This process has illuminated several different types of possible infrastructure sharing and water exchange opportunities as well as working towards clarifying how Banked water will be recovered during shortages.

System Use Agreement: In 2017, CAP and the Bureau of Reclamation, with assistance from ADWR, executed the System Use Agreement authorizing the use of the CAP system to implement the final, critical, pieces of the innovative water banking program the State of Arizona has been engaged in since the mid-1990s. The Agreement also resolves legal, financial and operational issues related to wheeling.[17] The Agreement allows CAP to wheel non-project water supplies through the CAP system; wheeling by the Bureau of Reclamation is also authorized. Finally, the Agreement helps maximize the beneficial use of the CAP system by expanding the ability of long-term contract holders to exchange portions of their allocation with another party.

Governor's Water Augmentation Council: In 2014, Arizona completed its Strategic Vision for Water Supply Sustainability, which identified key priorities, timelines and action items for the State's future water sustainability (including management and conservation). Following this effort, Arizona Governor Ducey signed Executive Order 2015-13, to implement the Arizona Water Initiative. One of the steps in this process is to identify the role of in-state water transfers. In the Governor's Water Augmentation Council's 2016 Report, the following observation encourages developing a strategic analysis for in-state water transfers: *"A source of significant controversy across the State, in-State water transfers have been the focus of much debate throughout Arizona's history. A comprehensive analysis of water transfer policy is needed in Arizona. Evaluation of long-term versus*

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[15] See: Colorado River Basin Ten Tribes Partnership Tribal Water Study, Study Report available at: https://www.usbr.gov/lc/region/programs/crbstudy/tws/docs/Ch.%207%20Challenges%20and%20Opportunities%2012-13-2018.pdf, bottom of Page 7-2.

[16] *Ibid.* at page 7-3

[17] Wheeling involves using existing infrastructure to move water supplies that were not originally meant to be included in that infrastructure. See: https://www.cap-az.com/departments/planning/service-area-planning/cap-system-use-agreement

short-term transfers may actually provide insight into how water transfers can be developed to protect or even benefit local communities. Lessons from other western states that have adopted more market-based water rights transfer models may be worthy of review as part of this analysis."

LBDCP: Described above in Section 3.2.4.

3.2.6 Describe efforts that *you will undertake* to ensure participation by a *diverse* array of stakeholders in developing the water marketing strategy.

The project will seek participation from a diverse array of stakeholders including:

Tribal water users/managers: One or more tribal representative will be sought for participation on the Advisory Group and our outreach and planning work will also focus on inviting participation from this group in workshops and small meetings as the project progresses. As sovereign nations, and as some of the largest individual water right holders in Arizona, the project team will devote considerable effort to including tribal representation at every possible step of project development.

Municipal water managers: Municipal water managers are part of the project team. Additional individuals will be sought for participation on the Advisory Group (not all municipalities are the same, so a diversity of different sizes, interests, etc. will be sought), by individual outreach to cities and managers as well as outreach to organizations like the West Valley Water Users and Arizona Municipal Water Users Associations.

State/federal/local agencies: The project team will conduct specific outreach and hold meetings with representatives of state/federal/local agencies and seek their input and guidance on development of the water marketing strategy. In particular, the project team will solicit feedback and participation from the Arizona Department of Water Resources, the Salt River Project and the Central Arizona Water Conservation District.

Industrial water users: the project team will consider adding at least one business representative to the Advisory Group and will invite participation from this group in workshops and small meetings as the project progresses.

Developers: the project team will consider adding at least one representative from the development community to the Advisory Group and will invite participation from this group in workshops and small meetings as the project progresses. The project team will either reach out to individual developers or to the association that represents developers in the region.

Agricultural water users/managers: One or more representatives of agricultural water use will be sought for participation on the Advisory Group, and our outreach and planning work will also focus on inviting participation from this group in workshops and small meetings as the project progresses. The project team will reach out to both central Arizona farmers and associations/districts but also on-river irrigators.

NGO Community: NGO representatives (American Rivers) are part of the project team. In addition, one or more representatives of another NGO in the community will be sought for participation on the Advisory Group and our outreach and planning work will also focus on inviting participation from this group in workshops and small meetings as the project progresses.

The public at large: the project team and Advisory Group will develop outreach materials that can be accessed by interested members of the public at large. It is anticipated that workshops conducted by the project team will also be open to the public.

3.3 Evaluation Criterion C – Ability to Meet Program Requirements

3.3.1 Describe how the three required project components of a water marketing strategy grant will be addressed within the required timeframe.

A detailed timeline is included as Appendix 1. The project team anticipates being able to complete the proposed work within twenty-four months of the date of funding. Three pieces of prior planning work by the project team will be integrated into the scoping and planning and water marketing strategy design work elements. These include 1) past work to develop a "rule-set" that maps out how water moves both physically and legally within central Arizona (See Section 3.1.3 above); 2) past work by the project team to collect and analyze water supply and demand data; and 3) the "Water Sharing Report" prepared by American Rivers that analyzes the law and policy landscape related to water trades and transfers in central Arizona.

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

- CAP water delivery and allocation data (delivery data updated monthly; more than a decade data record); recently updated to include data by priority and allocation type. CAP recently updated their approach to reporting water use and allocation data. This data is now being reported with more detail related to priority and type (i.e. Tribal, NIA, etc.) than was previously available.
- Bureau of Reclamation Lower Colorado River Operations data (including various climate models/stress tests) will be used to look at current water supply and model future supplies and potential for shortages.
- ADWR Groundwater Data: ADWR recently debuted a new online GIS tool for searching and analyzing groundwater rights in central Arizona Active Management Areas; additionally, ADWR keeps up-to date records on groundwater storage, long-term storage credits, and permitted groundwater recovery wells.
- The project team will work with SRP and Tribal representatives (as well as consulting the Tribal Water Study) to obtain and analyze data and any available modelling for these water supply sources.
- The project team will work with municipal water managers to obtain current data on treated effluent production and use and will consult data from the past report "*Water Reuse in Central Arizona"* by Arizona State University.[18]
- The project team will work with BOR, ADWR and others to identify additional data and models that could be used to support Clearinghouse strategy development, scoping and planning and other activities.

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

Cynthia Campbell, City of Phoenix Water Resource Management Advisory will manage the project for applicant. Campbell has more than two decades of experience in water resource and

[18] https://d3dqsm2futmewz.cloudfront.net/docs/dcdc/website/documents/DCDC_WaterReuse_Final.pdf

environmental matters and has practiced law in both Arizona and Illinois. Campbell is responsible for policy development and management of Phoenix's water resource portfolio and works with city executive staff, the mayor, and with members of the City Council on a variety of water issues. Campbell also serves as the city's liaison with the Salt River Project, the Central Arizona Project and the Arizona Department of Water Resources. Before taking on her current role, Campbell was Phoenix assistant city attorney, representing the city's interests in water matters, including adjudication of water rights claims. Prior to her tenure with the city, she served the State of Arizona for eight years as water quality compliance manager at the Arizona Department of Environmental Quality, managing statewide compliance of the Clean Water Act, Safe Drinking Water Act and Arizona's Aquifer Protection Program. She also represented the state as an assistant attorney general in the Environmental Enforcement Section.

The project team plans to contract with one or more qualified consultants to assist with the project. Consultants with water market, water transaction and natural resources economics expertise, as well as consultants with background and expertise in Arizona water law and policy, politics and social/community dynamics will be sought to assist in outreach, scoping and planning, and water market strategy design.

3.3.4 If pilot activities are to be a part of the project, please include the following:

Describe any permits or approvals that will be required, along with the process for obtaining such permits or approvals.

Proposed pilot activities under this application will not require any permits or approvals.

Identify and describe any engineering or design work performed specifically, in support of the proposed pilot activities.

No engineering or design work will be required to support pilot activities for this project.

Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?

No environmental compliance estimate is required.

3.4 Evaluation Criterion D – Department of the Interior Priorities

3.4.1 Restoring Trust with Local Communities

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

Arizona, like all western states, is a complex patchwork of federal, private, state and tribal sovereign lands. These land ownership categories also critically impact water rights and water use. The Clearinghouse will be designed to provide a hub for dialogue, relationship and trust building and collaboration about how different water supply sources and water infrastructure can be used to benefit all of the region's different landowners and water users. Because the Clearinghouse will not limit the types of water rights, infrastructure or land that can be involved in exchanges and sharing agreements, it will encourage new connections between neighbors as it facilitates innovative transactions. Agreements between Tribal and non-tribal water users were a critical part of Arizona approving and implementing the LBDCP. The success of these agreements demonstrates the power of collaboration and dialogue between neighbors connected by water supply concerns. The Clearinghouse will expand on this existing collaboration, promoting positive, cooperative relationships between all landowner types in the project area.

4. Project Budget

4.1 Funding Plan and Letters of Commitment

Non-federal funding support for the proposed project will come in three primary forms: in-kind support from the applicant and project partners American Rivers and the City of Tucson, funding from foundation grants for work completed by American Rivers and contractors between January 1, 2019 and July 31, 2019, and grant funding from private foundations that will be sought by American Rivers. A letter of commitment from American Rivers is attached as Appendix 3 that describes American Rivers' in-kind contributions, work funded and completed to date and additional grant funding being sought from foundations.

The City of Tucson has also been working with the project team for four years as the team has worked to develop water marketing concepts for the project area. City of Tucson staff who have participated in project development were unavailable at the time of submitting this grant. The timeline for submitting a letter of commitment from the City of Tucson is within one month of grant submission (by September 1, 2019). The City of Tucson verbally committed to contribute in-kind services roughly equal to those by the applicant. The amount and value of in-kind services from the city of Tucson have been estimated for the grant submission and will be verified by the forthcoming letter of commitment.

Going forward, American Rivers expects to expend approximately $6,350 over the remaining months of 2019 and $8,300 during calendar year 2020 in previously secured funding. These expenditures will cover staff time for Jeffrey Odefey, Matt Rice and Fay Hartman. Additionally, American Rivers plans to seek approximately $150,000 in grant funding to supplement funds requested from BOR in this proposal. At the time of grant submission, these funds have not been secured. American Rivers is in active discussion with a prospective funder who has invited a grant proposal. The timeline for this proposal involves submission of an application in the late Fall of 2019 with a funding decision at or shortly after the end of the calendar year. Additional match of some or all of this amount may be provided by a second foundation.

Failure to secure additional grant funding by early 2020 would not be fatal to the proposed project. American Rivers has a successful and active fundraising program and the organization would continue to pursue additional grant funding to complement an award from BOR.

4.2 Project Costs Incurred Prior to Award

The budget proposal below includes cost-share resulting from project-related costs incurred prior to this grant proposal submission. In-kind contributions from American Rivers include funds previously expended to support the development of a Central Arizona Water Clearinghouse. This funding was provided by a private philanthropic foundation and was tied to accomplishment of specific deliverables related to advancing the Clearinghouse concept. In total, American Rivers staff time and travel directly related to the proposed project amounted to $51,450. American Rivers also delivered an additional $50,000 from the same funder to Martin & McCoy as a pass through subgrant to support Clearinghouse development. Martin & McCoy, in turn, contracted with AMP Insights for additional support services. With these funds, American Rivers, Martin & McCoy, and AMP Insights researched, analyzed, and reported on existing water exchange mechanisms in the state of Arizona, undertook research and data

compilation relating to distribution of water supply and demand in the Central Arizona Project service area, convened numerous meetings of the current project team to iterate the Clearinghouse concept; and met with other key stakeholders to obtain feedback on the Clearinghouse concept and process.

4.3 Budget Proposal

Table 1 below shows the proposed total project budget.

TABLE 1: PROJECT BUDGET PROPOSAL

Budget Item Description	Computation		Type	Total Cost
	$/Unit	Quantity		
Salaries and Wages				
City of Phoenix (COP), Water Resources Management Advisor	$58.38	288	Hours	$16,813.44
COP Principal Planner	$39.00	240	Hours	$9,360.00
COP Water Resources Specialist	$26.54	768	Hours	$20,382.72
COP Administrative Assistant II	$35.00	192	Hours	$6,720.00
Fringe Benefits	**Fringe Rate**			
Full-Time Employees	1.4421	-	Fringe	$23,553.39
Travel				
N/A				
Equipment				
N/A				
Supplies and Material				
N/A				
Contractual				
American Rivers (NGO Partner)	$87.00	805	Hours	$70,000.00
AMP Insights	$136.00	390	Hours	$53,000.00
Martin & McCoy	$150.00	353	Hours	$53,000.00
Culp and Kelly	$350.00	185	Hours	$64,750.00
Third-Party In-Kind Contributions				
American Rivers				$125,100.00
City of Tucson (Pending letter of commitment)				$50,000.00
Additional Non-Federal Grant Funds				
American Rivers (foundations, unsecured)				$150,000.00
Total Direct Costs				**$642,679.55**
Indirect Costs				
N/A				-
Total Estimated Project Costs				**$642,679.55**

Table 2 below shows the proposed funding sources for the budget presented above. In-kind funding will come from the applicant and from project partners City of Tucson (pending a letter of commitment to be supplied by September 1, 2019) and American Rivers. The applicant is also proposing to contribute funding in the form of cash for contractual services. American Rivers

proposes to contribute both in-kind funding and cash funding to be sourced from foundation grants (see Section 4.1 above).

TABLE 2: PROPOSED BUDGET FUNDING SOURCES

Funding Sources	Amount
Non-Federal Entities	
1. City of Phoenix (In-Kind)	$76,830
2. City of Phoenix (Contractual)	$40,750
2. City of Tucson (In-Kind, pending)	$50,000
3. American Rivers (In-Kind)	$125,100
4. American Rivers (foundation grants to be secured)	$150,000
Non-Federal Subtotal	**$442,670**
Other Federal Entities	
N/A	
Requested Reclamation Funding	**$200,000**
Total Project Budget	**$642,680**

Table 3 below provides additional detail on how funds will be used. In particular, Table 3 shows where federal funds and cost-share provided by applicant and American Rivers will be used.

TABLE 3: BUDGET BREAKDOWN OF FEDERAL VS. COST SHARE FUNDING

	Applicant		Partners				Contractors			
	City of Phoenix		City of Tucson*		American Rivers		Contractual		Total	
	Fed	Cost Share	Fed	Cost Share	Fed	Cost Share	Fed	Cost Share	Fed	Cost Share
Object Class Categories										
a. Personnel	$0	$53,276	$0	$30,000	$0	$191,316			$0	$274,592
b. Fringe benefits	$0	$23,553	$0	$20,000					$0	$43,553
c. Travel									$0	$0
d. Equipment									$0	$0
e. Supplies									$0	$0
f. Contractual		$40,750			$70,000	$83,784	$130,000		$200,000	$124,534
g. Construction									$0	$0
h. Other									$0	$0
i. Total Direct Charges (sum a-h)	$0	$117,580	$0	$50,000	$70,000	$275,100	$130,000	$0	$200,000	$442,680
j. Indirect Charges									$0.00	$0.00
Totals (i+j)	$0	$117,580	$0	$50,000	$70,000	$275,100	$130,000	$0	$200,000	$442,680
*Cost share by Tucson is estimated pending final approval and will be provided (along with a letter of commitment) by September 1, 2019.							**Total Budget**		**$642,680**	

4.4 Budget Narrative

4.4.1 Salaries and Wages

City of Phoenix Water Resources Management Advisor: Cynthia Campbell will provide an in-kind match of 288 hours for the length of the project at a total value including fringe benefits of $24,247.66. Campbell will provide project oversight and work on all aspects of the project and with all associated team members.

Table 4: COP Water Resource Management Advisor Budget by Task

Task	COP Water Resources Management Advisor			
	Hrs	Rate/Hr	Fringe Rate	Cost
1. Outreach and Partnership Building	40	$58.38	1.4421	$3,367.59
Task 1 Subtotal	**40**			**$ 3,368**
2. Scoping and Planning				
2A. Water Supply	20	$58.38	1.4421	$1,683.80
2B. Water Demand	20	$58.38	1.4421	$1,683.80
2C. Past Water Market Activity Analysis	20	$58.38	1.4421	$1,683.80
Task 2 Subtotal	**60**			**$ 5,051**
3. Water Marketing Strategy Design				
3A. Implementation Plan	10	$58.38	1.4421	$841.90
3B. Legal and Policy Landscape	28	$58.38	1.4421	$2,357.31
3C. Monitoring Strategy	10	$58.38	1.4421	$841.90
3D. Outreach and Partnership Buidlng	20	$58.38	1.4421	$1,683.80
Task 3 Subtotal	**68**			**$ 5,725**
4. Pilot Project Initiation	100	$58.38	1.4421	$8,418.98
Task 4 Subtotal	**100**			**$ 8,419**
5. Final Project Report	20	$58.38	1.4421	$1,683.80
Task 5 Subtotal	**20**			**$ 1,684**
Grand Total for All Tasks and Subtasks	**288**			**$ 24,247**
Total Budget	**$24,246.66**			

City of Phoenix Principal Planner: will provide a total value including fringe benefits of $13,498.06 of in-kind services over 240 hours. The Planner's time will primarily be devoted to Scoping and Planning activities and assistance with Pilot Project initiation.

Table 5: Principal Planner Budget By Task

Task	COP Principal Planner			
	Hrs	Rate/Hr	Fringe Rate	Cost
1. Outreach and Partnership Building	0	39	1.4421	$ -
Task 1 Subtotal	**0**			**$ -**
2. Scoping and Planning				
2A. Water Supply	80	39	1.4421	$ 4,499
2B. Water Demand	80	39	1.4421	$ 4,499
2C. Past Water Market Activity Analysis	0	39	1.4421	$ -
Task 2 Subtotal	**160**			**$ 8,999**
3. Water Marketing Strategy Design				
3A. Implementation Plan	10	39	1.4421	$ 562
3B. Legal and Policy Landscape	10	39	1.4421	$ 562
3C. Monitoring Strategy	10	39	1.4421	$ 562
3D. Outreach and Partnership Buidlng	10	39	1.4421	$ 562
Task 3 Subtotal	**40**			**$ 2,250**
4. Pilot Project Initiation	40	39	1.4421	$ 2,250
Task 4 Subtotal	**40**			**$ 2,250**
5. Project Reporting	0	39	1.4421	$ -
Task 5 Subtotal	**0**			**$ -**
Grand Total for All Tasks and Subtasks	**240**			**$ 13,498**
Total Budget	**$13,498.06**			

City of Phoenix Water Resources Specialist: will provide a total value including fringe benefits of $29,393.92 of in-kind services over 768 hours. This staff person will assist and support all aspects of the project and assist with required project reporting.

Table 6: Water Resources Specialist Budget by Task

Task	COP Water Resources Specialist			
	Hrs	Rate/Hr	Fringe Rate	Cost
1. Outreach and Partnership Building	78	26.54	1.4421	$ 2,985
Task 1 Subtotal	**78**			**$ 2,985**
2. Scoping and Planning				
2A. Water Supply	100	26.54	1.4421	$ 3,827
2B. Water Demand	100	26.54	1.4421	$ 3,827
2C. Past Water Market Activity Analysis	100	26.54	1.4421	$ 3,827
Task 2 Subtotal	**300**			**$ 11,482**
3. Water Marketing Strategy Design				
3A. Implementation Plan	100	26.54	1.4421	$ 3,827
3B. Legal and Policy Landscape	100	26.54	1.4421	$ 3,827
3C. Monitoring Strategy	80	26.54	1.4421	$ 3,062
3D. Outreach and Partnership Buidlng	10	26.54	1.4421	$ 383
Task 3 Subtotal	**290**			**$ 11,099**
4. Pilot Project Initiation	80	26.54	1.4421	$ 3,062
Task 4 Subtotal	**80**			**$ 3,062**
5. Project Reporting	20	26.54	1.4421	$ 765
Task 5 Subtotal	**20**			**$ 765**
Grand Total for All Tasks and Subtasks	**768**			**$ 29,394**
Total Budget	**$29,394**			

City of Phoenix Administrative Assistant II: will provide a total value including fringe benefits of $9,690.91 of in-kind services over 192 hours. This staff person will primarily support outreach efforts for both the Outreach and Partnership Building task and the Pilot Project Initiation task. This staff person will also be responsible for financial and project reporting.

Table 7: Administrative Assistant II Budget By Task

Task	COP Administrative Assistant II			
	Hrs	Rate/Hr	Fringe Rate	Cost
1. Outreach and Partnership Building	56	35	1.4421	$ 2,827
Task 1 Subtotal	**56**			**$ 2,827**
2. Scoping and Planning				
2A. Water Supply	0	35	1.4421	$ -
2B. Water Demand	0	35	1.4421	$ -
2C. Past Water Market Activity Analysis	0	35	1.4421	$ -
Task 2 Subtotal	**0**			**$ -**
3. Water Marketing Strategy Design				
3A. Implementation Plan	10	35	1.4421	$ 505
3B. Legal and Policy Landscape	10	35	1.4421	$ 505
3C. Monitoring Strategy	10	35	1.4421	$ 505
3D. Outreach and Partnership Buidlng	10	35	1.4421	$ 505
Task 3 Subtotal	**40**			**$ 2,019**
4. Pilot Project Initiation	60	35	1.4421	$ 3,028
Task 4 Subtotal	**60**			**$ 3,028**
5. Project Reporting	36	35	1.4421	$ 1,817
Task 5 Subtotal	**36**			**$ 1,817**
Grand Total for All Tasks and Subtasks	**192**			**$ 9,691**
Total Budget	**$9,691**			

4.4.2 Travel, Equipment, Materials and Supplies

Applicant does not anticipate costs under this project for travel, equipment, materials and supplies. Any travel required by contractors will be included in contracts with selected firms and is incorporated in the contractual budget.

4.4.3 Contractual

Applicant intends to rely on contractors to assist the project team in all phases of work under this project with an emphasis on support for technical, legal and other analyses. A detailed contractor task budget is attached as Appendix 5. Appendix 5 identifies several contractors who have worked with applicant on similar work in the past. However, applicant understands that actual contracting if the project is funded will necessitate compliance with all BOR procurement requirements. The contractors identified in Appendix 5 were included because they are representative of the range of expertise required for this project and rates charged by contractors providing the services needed for this project.

Table 8 below shows the proposed budget for contractual work to be performed by American Rivers. American Rivers for this project. This work is proposed to be supported by a combination of federal grant funds requested in this application ($70,000) and funds from foundations to be raised by American Rivers. American Rivers will seek $150,000 in foundation funding of which $66,216 will be used to fund their own work on the project and $83,784 will be used to hire contractors to work on this project (that portion is represented in the detailed contractor budget in attached Appendix 5).

TABLE 8: AMERICAN RIVERS CONTRACTUAL BUDGET BY TASK

Task	American Rivers, Jeff Odefey		
	Hrs	Rate/Hr	Cost
1. Outreach and Partnership Building	350	87	$ 30,450
Task 1 Subtotal	**350**		**$ 30,450**
2. Scoping and Planning			
2A. Water Supply	120	87	$ 10,440
2B. Water Demand	120	87	$ 10,440
2C. Past Water Market Activity Analysis	100	87	$ 8,700
Task 2 Subtotal	**340**		**$ 29,580**
3. Water Marketing Strategy Design			
3A. Implementation Plan	216	87	$ 18,766
3B. Legal and Policy Landscape	120	87	$ 10,440
3C. Monitoring Strategy	120	87	$ 10,440
3D. Outreach and Partnership Buidlng	120	87	$ 10,440
Task 3 Subtotal	**575.7**		**$ 50,086**
4. Pilot Project Initiation	200	87	$ 17,400
Task 4 Subtotal	**200**		**$ 17,400**
5. Final Project Report	100	87	$ 8,700
Task 5 Subtotal	**100**		**$ 8,700**
Grand Total for All Tasks and Subtasks	**1565.7**		**$ 136,216**
Total Contractor Budget	**$136,216**		

4.4.4 Third-Party In-Kind Contributions

American Rivers and the City of Tucson will both provide in-kind contributions to the project (City of Tucson's participation is pending receipt of a letter of commitment which is anticipated by September 1, 2019).

American Rivers: American Rivers will provide a total matching contribution of $275,100. This contribution includes $125,100 of in-kind contributions (described above in Section 4.2 and in the commitment letter in attached Appendix 3). Of this in-kind contribution, $101,450 was contributed between January 1, 2019 and June 30, 2019. $23,650 will be contributed as in-kind match if this proposal is funded. American Rivers will be integral to all phases of this project and will serve as a co-lead with the applicant in carrying out project tasks. Table 9 below shows American Rivers budget by task for the $23,650 of in-kind services to be provided.

TABLE 9: AMERICAN RIVERS IN-KIND CONTRIBUTION BY TASK

Task	American Rivers			
	Hrs	Rate/Hr	Fringe Rate	Cost
1. Outreach and Partnership Building	40	66	1.3186	$ 3,481
Task 1 Subtotal	**40**			**$ 3,481**
2. Scoping and Planning				
2A. Water Supply	30	66	1.3186	$ 2,029
2B. Water Demand	30	66	1.3186	$ 2,029
2C. Past Water Market Activity Analysis	30	66	1.3186	$ 2,029
Task 2 Subtotal	**90**			**$ 6,086**
3. Water Marketing Strategy Design				
3A. Implementation Plan	30	66	1.3186	$ 2,029
3B. Legal and Policy Landscape	38	66	1.3186	$ 2,586
3C. Monitoring Strategy	30	66	1.3186	$ 2,029
3D. Outreach and Partnership Buidlng	40	66	1.3186	$ 2,705
Task 3 Subtotal	**138.25**			**$ 9,348**
4. Pilot Project Initiation	40	66	1.3186	$ 2,705
Task 4 Subtotal	**40**			**$ 2,705**
5. Final Project Report	30	66	1.3186	$ 2,029
Task 5 Subtotal	**30**			**$ 2,029**
Grand Total for All Tasks and Subtasks	**338.25**			**$ 23,649**
Total Budget	**$23,649**			

City of Tucson: The City of Tucson will provide a total in-kind contribution of approximately $50,000. This number will be finalized upon receipt of a letter of commitment from Tucson.

TABLE 10: CITY OF TUCSON IN-KIND CONTRIBUTIONS BY TASK

Task	Tucson			
	Hrs	Rate/Hr	Fringe Rate	Cost
1. Outreach and Partnership Building	180	55	1.44	$ 14,256
Task 1 Subtotal	**180**			**$ 14,256**
2. Scoping and Planning				
2A. Water Supply	60	55	1.44	$ 4,752
2B. Water Demand	60	55	1.44	$ 4,752
2C. Past Water Market Activity Analysis	40	55	1.44	$ 3,168
Task 2 Subtotal	**160**			**$ 12,672**
3. Water Marketing Strategy Design				
3A. Implementation Plan	50	55	1.44	$ 3,960
3B. Legal and Policy Landscape	51	55	1.44	$ 4,064
3C. Monitoring Strategy	20	55	1.44	$ 1,584
3D. Outreach and Partnership Buidlng	20	55	1.44	$ 1,584
Task 3 Subtotal	**141.31**			**$ 11,192**
4. Pilot Project Initiation	120	55	1.44	$ 9,504
Task 4 Subtotal	**120**			**$ 9,504**
5. Final Project Report	30	55	1.44	$ 2,376
Task 5 Subtotal	**30**			**$ 2,376**
Grand Total for All Tasks and Subtasks	**631.31**			**$ 50,000**
Total Budget	**$50,000**			

*Note: hourly rate and fringe rate in the table above are estimates only.

5. Environmental and Cultural Resources Compliance

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

No impact to the surrounding environment will occur as a result of work under the proposed project. Analyses and other work proposed above, including initiating pilot projects, will only involve office research and analysis combined with various meetings in different conference and office facilities.

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

No impact to species will occur as a result of work under the proposed project.

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

No impacts to wetlands or other surface waters that potentially fall under CWA jurisdiction as Waters of the United States will occur as a result of work under the proposed project.

When was the water delivery system constructed?

Central Arizona has multiple interconnected water delivery systems. The largest system in terms of cost, length and water delivered in the region, the CAP Canal, was completed in 1993.

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

The proposed project will not result in any modifications of or effects to individual features of an irrigation system.

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

The project is not located within an irrigation district.

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

The project area for this project is very broad. Central Arizona and Arizona more broadly has many archeological sites. However, none of these sites will be impacted by the work proposed under this project.

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

The proposed project will not have a disproportionately high and adverse effect on low income or minority populations.

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

The proposed project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

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

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the project area.

6. Required Permits or Approvals

No permits or approvals are required or anticipated for the work planned to be completed for this project.

7. Existing Analysis Contributing to the Water Marketing Strategy

With funding from the Walton Family Foundation and assistance from AMP Insights (a consulting firm specializing in water markets), American Rivers published a report detailing law and policy related to existing water sharing mechanisms in Arizona. The report, "*Benefits Challenges and Incentives for Water Sharing and Conservation in Central Arizona*" can be found at:

https://static1.squarespace.com/static/56d1e36d59827e6585c0b336/t/5d412417771f1c0001297f4d/1564550195117/AR_WaterSharingReportLayout_FinalV4_Web.pdf .

8. Letters of Support

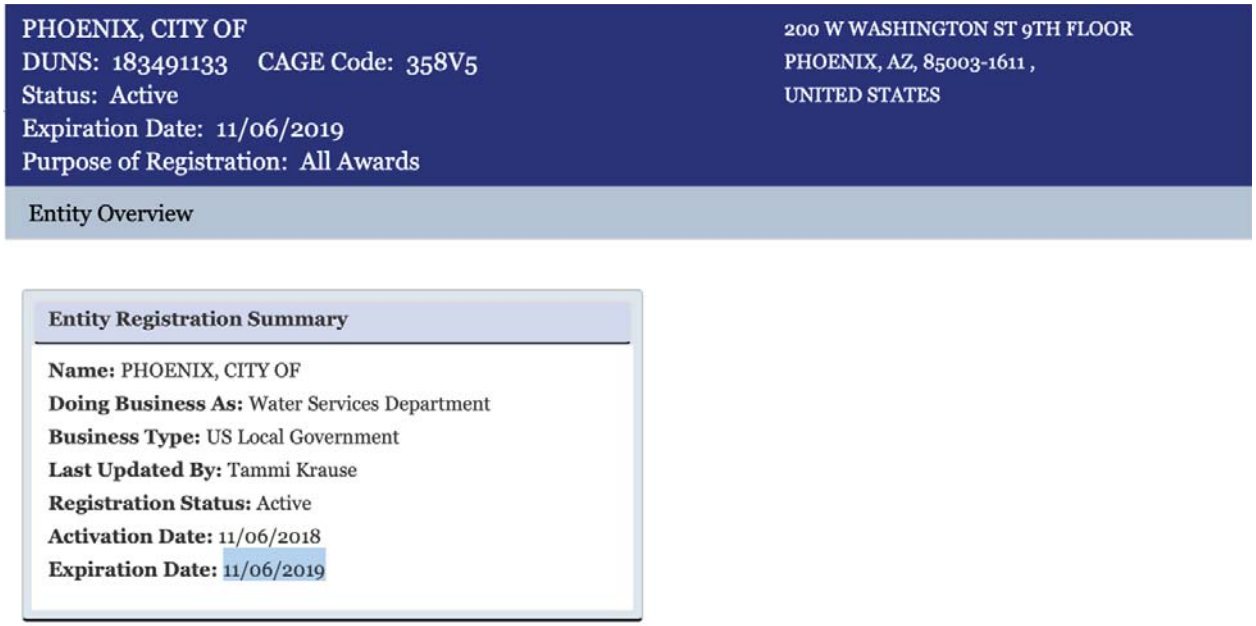
Letters of support are attached as Appendix 2.

9. Official Resolution

An Official Resolution adopted by the City of Phoenix City Council is attached to this application as Appendix 4.

10. Unique Entity Identifier

FIGURE 8: CITY OF PHOENIX WATER SERVICES DEPARTMENT UNIQUE ENTITY IDENTIFIER



Appendix 1: Project Timeline

Appendix 1: Project Implementation Timeline

Quarter Year	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021
1. Outreach and Partnership Building								
Inception meeting								
Identify advisory group members								
Convene adviosry group meetings								
Convene public and other outreach meetings								
2. Scoping and Planning								
Collect and QA/QC water supply data								
Collect and QA/QC water demand data								
Analyze water supply and demand data								
Finalize initial water supply and demand analysis								
Collect past water market activity data and conduct research								
Finalize past water market analysis								
3. Water Marketnig Strategy Development								
Develop implementation plan								
Legal and policy landscape analysis								
Monitoring strategy								
Review outreach and partnership building								
Solicit feedback on strategy development from adivsory group								
Solicit feedback on strategy development from stakeholders								
Finalize draft water marketing strategy document								
Final draft of water marketing strategy document								
4. Pilot Project Initiation								
Identify potential pilot projects								
Pilot project outreach								
Finalize pilot project selection								
Pilot project implementation research								
Draft pilot project transaction and implementation design								
5. Final Project Reporting								
Draft final project report								
Solicit review of final project report fr advisory group and others								
Finalize report and submit to BOR								

Appendix 5: Detailed Contractor Budget

Appendix 5: Detailed Contractor Budget by Task

Task	Sub-Task	AMP Insights		Martin & McCoy		Culp & Kelly	
		Hrs	Cost	Hrs	Cost	Hrs	Cost
1. Outreach and Partnership Building	Project Inception Meeting	10	$1,360.00	10	$1,500.00	10	$3,500.00
	Outreach to potential additional Advisory Board members	4	$544.00	20	$3,000.00	4	$1,400.00
	Facilitate Advisory Board meetings	30	$4,080.00	60	$9,000.00	10	$3,500.00
	Stakeholder/other outreach	10	$1,360.00	40	$6,000.00	4	$1,400.00
	Facilitate stakeholder/other outreach mtgs	10	$1,360.00	40	$6,000.00	0	$0.00
	Document comments/outputs	2	$272.00	8	$1,200.00	2	$700.00
	Conduct ongoing outreach	4	$544.00	20	$3,000.00	2	$700.00
2a. Scoping and Planning: Water Supply	CAP water supply data collection and QA/QC	20	$2,720.00	50	$7,500.00	10	$3,500.00
	Groundwater supply data collection and QA/QC	20	$2,720.00	30	$4,500.00	8	$2,800.00
	SRP water supply data collection and QA/QC	10	$1,360.00	20	$3,000.00	4	$1,400.00
	Effluent and other water supply data collection and QA/QC	10	$1,360.00	30	$4,500.00	4	$1,400.00

Appendix 5: Detailed Contractor Budget by Task

Task	Sub-Task	AMP Insights		Martin & McCoy		Culp & Kelly	
		Hrs	Cost	Hrs	Cost	Hrs	Cost
2A. Scoping and Planning (Continued)	Water supply summary analysis	30	$ 4,080.00	30	$ 4,500.00	8	$ 2,800.00
2B. Scoping and Planning: Water Demand	Central Arizona current water demand data collection and QA/QC	20	$ 2,720.00	40	$ 6,000.00	10	$ 3,500.00
	Central Arizona water demand forecasting data collection and QA/QC	10	$ 1,360.00	30	$ 4,500.00	6	$ 2,100.00
	Water demand summary analysis	10	$ 1,360.00	20	$ 3,000.00	4	$ 1,400.00
2C. Past Water Market Activity Analysis	Past water market activity research and literature review	30	$ 4,080.00	8	$ 1,200.00	2	$ 700.00
	Water market activity summary and analysis	40	$ 5,440.00	10	$ 1,500.00	2	$ 700.00
3A. Water Marketing Strategy Development: Implementation Plan	Select and design: institutional form	20	$ 2,720.00	4	$ 600.00	2	$ 700.00
	Select and design: Clearinghouse functions	25	$ 3,400.00	8	$ 1,200.00	2	$ 700.00
	Select and design: operations, oversight and guidance	40	$ 5,440.00	10	$ 1,500.00	2	$ 700.00
	Select and design: funding plan	20	$ 2,720.00	4	$ 600.00	2	$ 700.00
	Select and design: transaction monitoring plan	20	$ 2,720.00	4	$ 600.00	2	$ 700.00

Appendix 5: Detailed Contractor Budget by Task

Task	Sub-Task	AMP Insights		Martin & McCoy		Culp & Kelly	
		Hrs	Cost	Hrs	Cost	Hrs	Cost
3A. Water Marketing Strategy Development: Implementation Plan	Integrate stakeholder input	2	$ 272.00	10	$ 1,500.00	0	$ -
	Analyze and incorporate policies to promote environmental benefit	40	$ 5,440.00	10	$ 1,500.00	2	$ 700.00
	Analyse potential barriers to Clearinghouse implementation	40	$ 5,440.00	10	$ 1,500.00	8	$ 2,800.00
3B. Water Marketing Strategy Development: Legal and Policy Landscape	Review existing "rule-set"	8	$ 1,088.00	4	$ 600.00	2	$ 700.00
	Review other literature/existing law and policy analyses	8	$ 1,088.00	4	$ 600.00	4	$ 1,400.00
	Summarize law/policy related to Clearinghouse	30	$ 4,080.00	4	$ 600.00	10	$ 3,500.00
	Develop transation templates	40	$ 5,440.00	8	$ 1,200.00	20	$ 7,000.00
3C. Water Marketing Strategy Development: Monitoring Strategy	Develop Clearinghouse monitoring strategy	16	$ 2,176.00	4	$ 600.00	2	$ 700.00
	Draft transaction monitoring and communication policies	8	$ 1,088.00	8	$ 1,200.00	2	$ 700.00
3D. Water Marketing Strategy Development: Outreach and Partnership Buidlng	Document outreach and partnership activities	2	$ 272.00	4	$ 600.00	0	$ -
	Develop adaptive management response to ongoing outreach	8	$ 1,088.00	4	$ 600.00	0	$ -

Appendix 5: Detailed Contractor Budget by Task

Task	Sub-Task	AMP Insights		Martin & McCoy		Culp & Kelly	
		Hrs	Cost	Hrs	Cost	Hrs	Cost
4. Pilot Project Initiation	Research and identify possible pilot projects	16	$ 2,176.00	8	$ 1,200.00	4	$ 1,400.00
	Conduct outreach to possible pilot participants	4	$ 544.00	8	$ 1,200.00	4	$ 1,400.00
	Finalize pilot project selection	4	$ 544.00	4	$ 600.00	1	$ 350.00
	Meetings with pilot project participants	16	$ 2,176.00	16	$ 2,400.00	0	$ -
	Law and policy research	20	$ 2,720.00	4	$ 600.00	8	$ 2,800.00
	Infrastrcuture research	10	$ 1,360.00	8	$ 1,200.00	8	$ 2,800.00
	Draft transaction and implementation design	50	$ 6,800.00	8	$ 1,200.00	8	$ 2,800.00
5. Final Project Report	Draft final report	60	$ 8,160.00	30	$ 4,500.00	8	$ 2,800.00
	Share final report draft with Advisory Group for feedback	2	$ 272.00	4	$ 600.00	0	$ -
	Revised final report	40	$ 5,440.00	10	$ 1,500.00	4	$ 1,400.00

Appendix 5: Detailed Contractor Budget by Task

Subtotals and Grand Total						
	AMP Insights		Martin & McCoy		Culp & Kelly	
Task	Hrs	Cost	Hrs	Cost	Hrs	Cost
1. Outreach and Partnership Building	70	$ 9,520	198	$ 29,700	32	$ 11,200
Task 1 Subtotal	**70**	**$ 9,520**	**198**	**$ 29,700**	**32**	**$ 11,200**
Task 1 Total Contractor Budget	**$50,420.00**					
2. Scoping and Planning						
2A. Water Supply	90	$ 12,240	160	$ 24,000	34	$ 11,900
2B. Water Demand	40	$ 5,440	90	$ 13,500	20	$ 7,000
2C. Past Water Market Activity Analysis	70	$ 9,520	18	$ 2,700	4	$ 1,400
Task 2 Subtotal	**200**	**$ 27,200**	**268**	**$ 40,200**	**58**	**$ 20,300**
Task 2 Total Contractor Budget	**$47,500.00**					
3. Water Marketing Strategy Design						
3A. Implementation Plan	82	$ 11,152	30	$ 4,500	10	$ 3,500
3B. Legal and Policy Landscape	86	$ 11,696	20	$ 3,000	36	$ 12,600
3C. Monitoring Strategy	24	$ 3,264	12	$ 1,800	4	$ 1,400
3D. Outreach and Partnership Buidlng	10	$ 1,360	8	$ 1,200	0	$ -
Task 3 Subtotal	**202**	**$ 27,472**	**70**	**$ 10,500**	**50**	**$ 17,500**
Task 3 Total Contractor Budget	**$55,472.00**					
4. Pilot Project Initiation	120	$ 16,320	56	$ 8,400	33	$ 11,550
Task 4 Subtotal	**120**	**$ 16,320**	**56**	**$ 8,400**	**33**	**$ 11,550**
Task 4 Total Contractor Budget	**$36,270.00**					
5. Final Project Report	102	$ 13,872	44	$ 6,600	12	$ 4,200
Task 5 Subtotal	**102**	**$ 13,872**	**44**	**$ 6,600**	**12**	**$ 4,200**
Task 5 Total Contractor Budget	**$24,672.00**					
Grand Total for All Tasks and Subtasks	**694**	**$ 94,384**	**636**	**$ 95,400**	**185**	**$ 64,750**
Grand Total Contractor Budget	**$254,534.00**					
Contractor Budget Requested from BOR	**$130,000.00**					
Contractor Budget Funded by Grant Funds from American Rivers	**$83,784.00**					
Contractor Budget Funded by Cost-Share from Applicant	**$40,750.00**					