

The Arizona Water Initiative



Annual Report
July 1, 2016

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Acronyms and Abbreviations

Acre-Feet	AF
Active Management Area	AMA
Arizona Department of Water Resources	ADWR
Arizona's Next Century: A Strategic Vision for Water Supply Sustainability	Strategic Vision
Arizona Water Atlas	Atlas
Best Management Practices	BMP
Central Arizona Project	CAP
Coconino Plateau Water Advisory Council	CPWAC
Coconino Plateau Watershed Partnership	CPWP
Colorado River Basin Water Supply and Demand Study	The Basin Study
Community Water Systems	CWS
Defense Authorization Act of 2004	2004 Act
Gila River Watershed Partnership	GWP
Governors Water Augmentation Council	GWAC
Groundwater Management Act	GMA
Irrigation Non-Expansion Area	INA
Little Colorado River Watershed Coordinating Council	LCRWCC
Million Acre-Feet	MAF
Modified Non-per Capita Conservation Program	MNPCCP
Mohave County Water Authority	Authority
Palo Verde Nuclear Generating Station	Palo Verde
Upper San Pedro Partnership	USPP
Water Resources Development Commission	WRDC

Executive Summary

The Arizona Water Initiative (Water Initiative) was implemented through Executive Order 2015-13 on December 16, 2015, establishing the Governor's Water Augmentation Council (GWAC) and the Planning Area Process. The goal of the Water Initiative is to continue the Arizona legacy of proactive strategic water planning by working with key stakeholders statewide. The GWAC will investigate long-term water augmentation strategies, and other opportunities to secure water supplies for the future. The Planning Area Process will allow local stakeholders to participate in development of better water demand information and a consensus-driven set of solutions for future water supply and demand imbalances.

This first Annual Report of the Arizona Water Initiative summarizes the history of water management planning in the state and reiterates the tenets under which the Water Initiative will operate as it builds on the past work done when creating Arizona's Strategic Vision for Water Supply Sustainability. Although activities started late in the calendar year, the Annual Report also includes information regarding the initial meetings of the GWAC and the early work completed in the Cochise and West Basins Planning Areas. An important early step in the Water Initiative process was hiring and training additional personnel to staff these innovative programs.

The Executive Order that created the GWAC states that the Annual Report shall describe the recommendations of the GWAC. In discussions held during this inaugural year, the GWAC developed a set of recommendations that fall into three categories: recommendations regarding the general tenets of the GWAC; recommendations for discussion topics that will be the focus of the next year of GWAC meetings; and recommendations regarding actions to be taken by the Arizona Department of Water Resources (ADWR). The recommendations of the GWAC, by category, are presented below.

Recommendations regarding the general tenets of the GWAC:

1. A role of the Council is to provide direction to the Director of ADWR, upon the Director's request, on any issues that the Director determines may impact water management;
2. The GWAC advocates for continued implementation of water conservation measures in all water use sectors throughout the state and makes additional recommendations regarding actions to be taken by ADWR with respect to conservation;
3. Among other things, the GWAC seeks to identify augmentation opportunities as a means to resolve water resource conflicts or improve water supply availability to ensure legal certainty for water users and investors.

Recommendations regarding topics of focus for GWAC discussions in Fiscal Year 2016-2017:

1. Development of a communication plan for the State to accurately convey the status of its water supply resiliency and its efforts to maintain that status moving forward;
2. The potential for augmentation through reuse and the utilization of reclaimed and poor quality water to significantly reduce the future demand and supply imbalance;
3. Funding for augmentation infrastructure;

4. The potential for augmenting groundwater supplies through enhanced natural and constructed recharge and conservation, to include possible incentives and infrastructure needs;
5. Identification of large-scale augmentation opportunities.

Recommendations regarding actions to be taken by ADWR:

1. In recognition of past, present, and proposed investments in water-demand reduction by the State, public and private water providers, as well as the industrial and agricultural communities, the GWAC recommends that ADWR continue to lead Arizona water conservation efforts and bring applicable conservation concepts to the GWAC for consideration;
2. Assess the potential for additional conservation actions as an element of the Planning Area Process. As ADWR addresses each planning area, it should review existing conservation tools with the stakeholders for inclusion in the solution set that will be created for each area;
3. Identify municipal and private water providers outside Active Management Areas (AMAs) whose lost and unaccounted water exceeds 10 percent and explore with those providers potential actions that may reduce the lost and unaccounted water to below 10 percent.

Current Water Management Planning in Arizona

For over a century, Arizonans have faced challenges in ensuring the state has sufficient and sustainable water supplies and have successfully overcome those challenges by developing secure and sustainable water supplies for agricultural, industrial and domestic uses. Arizona has aggressively taken the actions necessary to ensure that those supplies are available for its long-term economic stability. While diverse, these actions shared a common premise: they are solution-oriented, meeting not only the immediate needs of the State, but also addressing the future challenges that residents of Arizona may face.

However, Arizona's past success cannot sustain our economic development forever and the State must continue to plan and invest in water resources. Recent studies have identified the potential for a long-term imbalance between available water supplies and projected water demands over the next 100 years. In 2014, recognizing that Arizona was facing the next challenge in water supply security, the ADWR published "Arizona's Next Century: A Strategic Vision for Water Supply Sustainability" (Strategic Vision). This Strategic Vision identified the actions Arizona could take to meet future water supply challenges. The State began implementing the Strategic Vision in 2016, through the Water Initiative.

The Arizona Water Initiative

Arizona Governor Doug Ducey announced his water planning initiative for the state in the fall of 2015. This initiative set out to continue the legacy of long-term strategic water planning in Arizona by furthering the work and recommendations in the Strategic Vision. The Arizona Water Initiative was implemented with the signing of Executive Order 2015-13 on December 16, 2015 (see Appendix I). Through the Water Initiative, ADWR began working with key stakeholders statewide on two parallel tracks, the Planning Area Process and the GWAC.

The Planning Area Process is a stakeholder-driven analysis of the 22 Planning Areas identified in the Strategic Vision (see Figure 1), beginning with rural areas, with a goal of analysis of all areas within five years. In this process, ADWR will work with local stakeholders to identify issues that are resulting in water demand and supply imbalances and to develop a consensus-driven set of solutions.

The GWAC was created to investigate long-term water augmentation strategies, additional water conservation opportunities and funding and infrastructure needs to help secure future water supplies for Arizona. The GWAC is comprised of 29 members appointed by the Governor (see Appendix II) who represent water resource experts, watershed groups, local governments, non-governmental organizations, and industry leaders in Arizona agriculture, mining and home-building. The GWAC will meet at least quarterly to discuss potential solutions to Arizona's projected future water demand and supply imbalance. Per Executive Order 2015-13, the GWAC will produce this Annual Report for the Governor and will describe the activities and the recommendations of the GWAC, as well as the activities of the Planning Area Process.

This is an important time in Arizona to discuss maintaining sustainable water supplies and planning for the future. Arizona has the advantage of being "ahead of the game" regarding water management, with decisions made in the context of preparation instead of desperation. This is a time for building upon Arizona's past successes of water supply planning and management.



Figure 1. Strategic Vision Planning Areas

The Strategic Vision – the Cornerstone of the Arizona Water Initiative

The Strategic Vision was based on work completed by previous water management planning groups with which ADWR participated – specifically, the work of the Water Resources Development Commission (WRDC) and the U.S. Bureau of Reclamation in the Colorado River Basin Water Supply and Demand Study (Basin Study). Both of these efforts resulted in a comprehensive water supply and demand analysis and identification of a long-term imbalance between available supplies and projected water demands over the next century.

The Strategic Vision was innovative in that it was a statewide evaluation of the water-related issues that Arizonans face. Additionally, the statewide evaluation was completed through a systematic process based on “strategic” Planning Areas instead of other hydrologic or geopolitical divisions. For the first time, the state was organized into solution-oriented Planning Areas or areas with similar hydrology, similar water-

use patterns and similar characteristics affecting water demand and supply availability. Consequently, the state's 22 Planning Areas have similar strategies for meeting future water demands.

Regional Strategies

The Strategic Vision concluded that no single strategy can address projected water supply imbalances across the State and that a portfolio of strategies would need to be implemented depending on the needs of the local area. The Strategic Vision also noted the importance of the unique character of each Planning Area and a need for a more thorough regional overview and evaluation of the water supply needs of each Planning Area. The Water Initiative's Planning Area Process is a refinement of the initial work completed for each Planning Area through the Strategic Vision.

Statewide Strategic Priorities

The Strategic Vision identified a number of statewide strategic priorities that ADWR felt would be critical to moving water management forward within Arizona. For some priorities, the Strategic Vision proposed action items within the 10-year action plan. Table 1 summarizes the priorities with proposed action items.

Strategic Vision Priority	Strategic Vision Action Item¹
Resolution of Indian and Non-Indian Water Rights Claims	Establish Adjudication Study Committee
Continued Commitment to Conservation and Expand Reuse of Reclaimed Water	Review Legal and Institutional Barrier to Direct Potable Reuse of Reclaimed water – Develop and implement plan for resolutions
Supply Importation – Desalination	Begin Discussion on Ocean Desalination: <ul style="list-style-type: none"> • Exchange Options: California, Mexico • Direct Options: Mexico
Develop Financing Mechanism to Support Water Supply Resiliency	Begin Discussion on Water Development Financing

Table 1. Strategic Vision Priorities and Action Items

The strategic priorities identified under the Strategic Vision include the following:

- Resolution of Indian and Non-Indian Water Rights Claims

The water rights claims of 13 of the 22 federally recognized Indian tribes in Arizona have been resolved, either in whole or in part, providing substantial benefits to both Indian and non-Indian water users.² However, the general stream adjudications, which began in the 1970s, remain incomplete. Completion of the general stream adjudications will result in the Superior Court issuing a comprehensive final decree of water rights. Until that process is complete, uncertainty regarding the nature, extent and priority of water rights will make it difficult to identify all the

¹Arizona Department of Water Resources, 2014, Arizona's Next Century: A Strategic Vision for Water Supply Sustainability, *Ten Year Action Plan Outline*, Pg. 17.

²Arizona Department of Water Resources, 2014, Arizona's Next Century: A Strategic Vision for Water Supply Sustainability, Pg. 17.

strategies necessary for meeting projected water demands. ADWR believes that options need to be developed by the State to accelerate this process. Creation of a Study Committee to develop options in a short time frame could help provide guidance to ADWR so adequate funding can be identified and obtained to complete the necessary technical work to support completion of this process. Development of options could initially focus on conceptualization of water rights administration in a post-adjudicated Arizona. This will streamline the Court's and ADWR's effort to collect and evaluate only that information that will assist in administering the final water rights decrees.

- Continued Commitment to Conservation and Expand Reuse of Reclaimed Water

Conservation is the foundation of sustainable water management in our arid State. See Appendix III for a detailed discussion regarding water conservation in Arizona. The continued commitment to using all water supplies as efficiently as possible is necessary to stretch our existing water supplies and has delayed the need to acquire other, more expensive, supplies. Additionally, many non-potable uses are currently being met by reclaimed water including: landscape irrigation of parks and golf courses; agricultural irrigation; and streamflow augmentation benefitting ecosystems. In many areas of the state, reclaimed water is produced consistently and is available throughout the year, with limited seasonal fluctuation. Using reclaimed water limits use of potable water for non-potable purposes and saves potable water for drinking water supplies. However, as demands increase and potable water supplies become stressed, the need to explore and invest in direct potable reuse of reclaimed water for drinking water supplies will become necessary.

- Expanded Monitoring and Reporting of Water Use

Metering and reporting water use across the State would serve to support and enhance analysis of current water use trends. However, monitoring of water use outside of the Active Management Areas (AMAs) and Irrigation Non-Expansion Areas (INAs) is limited. Hydrologic data collection is also a crucial element in the development of groundwater models, which have proven to be invaluable management tools throughout the State, and provide a method for evaluating future conditions and potential impacts of new uses and/or alternative water management strategies.

- Identifying the Role of 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 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.

- Supply Importation – Desalination

Importation of water from outside of Arizona will likely be required to allow the State to continue its economic development without water supply limitations. Supplies derived from ocean water

desalination can be imported directly into Arizona to meet the water needs of municipal and industrial water users, while at the same time providing aesthetic, recreational and ecological benefits. Alternatively, desalination can be done in partnership with other Colorado River water users in exchange for water from Lake Mead. Potential partners for ocean water desalination include higher priority Colorado River entitlement holders in Arizona and California, the State of California, or Mexico. Projects of this magnitude are expensive and energy intensive, although unit capital and operating costs have significantly reduced as technology has improved. More importantly, because of the need to identify partners and develop agreements, such projects will require a significant investment of time – up to 20 years to bring to fruition. Because of the time it takes to develop these projects, and the more pressing need for water supplies in certain parts of the State, exploration of this strategy should begin immediately.

- Develop Financing Mechanism to Support Water Supply Resiliency

The strategies identified above, both statewide and regional, will require capital investment. Some areas of the State need immediate assistance in developing water projects, specifically in portions of rural Arizona. Unfortunately, these are areas where limited populations cannot finance the required water infrastructure. The Water Resources Development Revolving Fund was created by the Arizona State Legislature to provide financial backing for these communities, but has not been funded to date. Seed money and a source of sustained funding for this revolving fund will be very important to meet the immediate needs of rural communities and provide long-term water supply security for many Arizonans.

Financing of large-scale projects is another issue. For many years, the water community has attempted to develop options for funding water supply acquisition and infrastructure development. These conversations and analyses have largely been conducted in the absence of substantial financial expertise and have failed to develop a plan that will generate capital. It is time to elevate this conversation and address Arizona's future water supply needs, and only Arizona's community, political, and business leaders are capable of garnering financial resources and mechanisms necessary to meet these needs. While the water supply needs may not be immediate, addressing the financing of future large-scale water projects needs to begin as soon as possible to ensure Arizona's industries and citizens have secure water supplies into the future.

Future Water Supplies & Demands

The Strategic Vision noted that, although Arizona has an existing solid foundation in water management, water demands driven by future economic development are expected to outstrip existing supplies. Additionally, drought conditions have continued to reduce the availability of surface water locally and throughout the Colorado River Basin. What's more, questions regarding future climate conditions added still more uncertainty to the ability to maintain an appropriate balance between demands and supply.

Arizona has been actively evaluating future water demand and supply conditions for decades. This long-term evaluation includes an ADWR assessment of water demand and supply conditions in each of the State's five AMAs every 10 years, primarily to evaluate the ability to achieve the management goals identified by the Legislature for each AMA under the Groundwater Management Act (GMA). In 2009 and 2010, in anticipation of the next Management Plan, ADWR developed a supply and demand assessment for each of the AMAs to: (1) evaluate the AMAs' current status and ADWR's ability to achieve the statutory

water management goals for these five areas and (2) to frame the discussions of alternative management strategies needed to meet and maintain those goals. ADWR also produced the Arizona Water Atlas (Atlas) in 2010, providing water-related information on a local, regional and statewide level to frame and support water planning and development efforts. The development of the Atlas also spurred the creation of a statewide water resources data repository housed at ADWR, which is continuously updated as water use information is reported and collected. Arizona has also developed, or partnered in, comprehensive and prospective statewide and multi-state planning efforts.

Opportunities and Challenges

The Strategic Vision recognized that Arizona contains widely diverse geographic zones, ranging from forested mountains to arid deserts. The resultant dissimilar climates and precipitation regimes have led to great variability in the presence of and accessibility to, surface water supplies. Arizona is also geologically complex, which impacts the availability, quality and accessibility of groundwater supplies. Arizona is also unique in its land ownership patterns. Less than 18 percent of the land within the State is under private ownership. State Trust Land, administered by the Arizona State Land Department comprises almost 13 percent of the land, with the remaining 69 percent in either Federal or Tribal ownership. Land ownership is also often fragmented, with federal, state, and private land holdings assembled in a “checkerboard” fashion that further complicates the development and execution of comprehensive and cohesive land and water management strategies.

Another factor contributing to the complexity of developing water supplies is Arizona’s bifurcated water law system, whereby two separate statutory and regulatory schemes apply to the administration of groundwater and surface water. While laws and regulations affecting groundwater primarily apply inside AMAs and INAs, surface water laws are administered statewide. Colorado River supplies are managed in cooperation with the State, but contracts for Colorado River water are initiated through the U.S. Secretary of the Interior and administered by the Bureau of Reclamation. Reclaimed water is managed under a completely different set of regulations and policies, and its management framework has been significantly influenced by case law.³ This legal complexity adds to the challenge of ensuring that adequate supplies exist to meet the demands across the State.

Over the next 25 to 100 years, Arizona will need to identify and develop additional water supplies to meet projected water demands.⁴ In some cases, there may be viable local water supplies that have not yet been developed, but in others, water supply acquisition and/or importation will be required to meet water demands. The Strategic Vision identified the following examples of potential water supplies:

- 1) Non-Indian Agricultural Priority CAP water;
- 2) Reclaimed water or water reuse for which there is not yet delivery or storage infrastructure constructed to put it to direct or indirect use;
- 3) Groundwater in storage (both potable and brackish supplies);
- 4) Water supplies developed from revised watershed management practices;

³ See *Arizona Public Service Co. v. Long*.

⁴ Arizona Department of Water Resources, 2014, *Arizona’s Next Century: A Strategic Vision for Water Supply Sustainability*, pg. 16.

- 5) Water supplies developed through weather modification;
- 6) Water supplies developed from large-scale or macro rainwater harvesting/storm water capture;
and
- 7) Importation or exchange of new water supplies developed outside of Arizona (e.g., ocean desalination).

Summary

The Strategic Vision identified and created a framework for analysis of potential strategies and provided the context for addressing the needs of multiple water users across the State. It has provided information regarding water supplies that will be the topic of discussion of the GWAC. The Strategic Vision has provided a framework that will be utilized by both the GWAC and Planning Area processes in the course of water management planning for the future.

A History of Water Management Success

Arizona has a storied history of adapting and thriving in one of the most challenging climatic regions in North America. Even in these challenging conditions, new ways to utilize and manage water resources throughout the region have been developed. The Hohokam people constructed a vast network of canals throughout much of the Salt and Gila River Valleys in order to manage water and sustain both crops and life. Settlers would later find the remnants of these ancient canals and improve them to provide a dependable water supply. The current canals within “The Valley of the Sun” were born from the insight and concepts applied throughout the centuries.

A tradition of water management and planning is what sets Arizona apart from other regions of the country. Arizona has set a standard in our ability to adapt to an arid climate while still answering the needs of a rapidly growing population. Arizona may be perceived as a harsh environment, but those with great vision and leadership have harnessed the natural resources needed to support a thriving Arizona economy. This vision started well before statehood. First, beginning with the passage of the 1902 National Reclamation Act and the efforts of the Salt River Valley Water User’s Association, more than 200,000 acres of private ranching and farm lands in the Phoenix area were pledged as collateral for the construction of Roosevelt Dam in 1903, with a reservoir storage capacity of nearly 1.4 MAF.⁵ This was followed by the Yuma Project, authorized in 1904, to provide irrigation water for 65,000 acres of land in the Colorado River floodplain. Today, in-state surface water accounts for 17 percent of Arizona’s supply, while the Colorado River accounts for an additional 40 percent.

Groundwater is also a significant source of supply in Arizona, currently accounting for over 40 percent of water supplies in the state.⁶ For decades Arizona’s groundwater regulation was developed by the courts on an *ad hoc* basis. In 1980, however, the Arizona Legislature adopted a comprehensive groundwater management strategy, known to this day as the 1980 Groundwater Management Act (GMA). The framework of the GMA was intended to protect existing water users and serve new uses with non-groundwater supplies, preserving the groundwater supply. The GMA established a timeline for reduction and elimination of groundwater pumping in certain areas of the State, creating AMAs for this purpose. While the 1980 Groundwater Management Act is viewed as the cornerstone of Arizona water management and policy, there have been many other important events throughout our state’s history that have contributed to our water management success. The timeline in Appendix IV provides a summary of water management efforts statewide.

Other landmarks in the story of Arizona’s water success are the formations of the Salt River Project in 1903, the Central Arizona Project Association in 1946, and the establishment of the Arizona Water Banking Authority in 1996. These important entities, along with the statutory framework provided by the GMA, have helped to provide water certainty for Arizonans.

⁵From 1989 to 1996, the dam was modified by the U.S. Bureau of Reclamation. In addition to raising the dam's height 77 feet in elevation, the modification included construction of two new spillways, installation of new outlet works, and power plant modifications, increasing its water conservation storage capacity by 20 percent.

⁶<http://www.azwater.gov/AzDWR/PublicInformationOfficer/ABCofWater.htm>.

The achievements outlined above and in Appendix IV serve as a guide for future planning as they are the result of strong commitments and significant investments in time and money to realize the benefits of the projects. Establishing and pursuing a vision for water security for future generations of Arizonans must begin well in advance of the need in order to ensure orderly development, avoid economic disruption, and protect the unique and precious environment that we all enjoy. Many of the elements of Arizona's water development history were shaped by creative public/private partnerships. Such arrangements are likely to become more common and necessary, as the federal government's role in water development projects continues to evolve.

Governor's Water Augmentation Council – Annual Activities

February 19, 2016 Meeting

The first meeting of the Governor's Water Augmentation Council was held on February 19, 2016, at the Arizona Department of Water Resources. Twenty-seven of the twenty-nine appointed Council Members and forty-eight stakeholders and members of the public were in attendance. The goal of the first meeting was to evaluate the potential for additional water conservation activities within water use sectors to address the projected future statewide supply and demand imbalance. ADWR staff presented information regarding water conservation potential for discussion. A copy of the presentation is available on the GWAC webpage.⁷ See Appendix III for additional discussion on water conservation activities within Arizona.

Council Members discussed the volumes of water that could be conserved by implementation of additional conservation activities above and beyond the existing regulatory and non-regulatory implementation of conservation measures. A key tenet of the discussion was the importance of planning for the future of water sustainability while recognizing Arizona's past accomplishments in water management. There was consensus that understanding the past accomplishments is an important launching point when planning for future water savings. The history of managing Arizona's water serves as a foundation upon which the future of water conservation, reuse, and augmentation can be constructed.

Other topics of discussion included:

- The cost, actual water savings, challenges and barriers, and impact of lining irrigation ditches and canals;
- The purpose or use of conserved water;
- The interstate and international impacts of conservation;
- How the GWAC can define problems to which conservation can be a part of the solution

May 13, 2016 Meeting

During the May 13, 2016 GWAC meeting, ADWR staff provided answers to the questions asked at the February 19th meeting. Following the presentation, the GWAC discussed the Annual Report, which was drafted by ADWR staff and sent out to the Council Members prior to the meeting. Discussion was primarily focused on the recommendations section, and Council Members edited the recommendations, as well as amended the timeline of water history success in Arizona. The GWAC opted to continue the discussion of the Annual Report at the June 10th meeting. Revised and updated versions of the final draft were sent out to the Council Members for any further comment.

⁷http://www.azwater.gov/AzDWR/Arizona_Water_Initiative/documents/GWAC_Presentation.pdf

June 10, 2016 Meeting

The meeting on June 10th provided opportunity for final comment on the draft Annual Report and approval by the Council prior to transmittal to the Governor's Office.

Conclusion

Following discussion at the February meeting, the GWAC determined that the potential for additional conservation to create a volume of water large enough to significantly impact the future demand and supply imbalance was limited. It was noted that the major water use sectors in the State have implemented, and will continue to implement water conservation activities, and that implementation of such activities has improved, and will continue to, improve water security within the State.

The Meetings on May 13th and June 10th dealt primarily with modifying the recommendations section of the Annual Report and a brief review of the entire document. Council Members received draft versions of the Report in advance of the meetings and were able to submit written feedback that was incorporated into the next draft.

Planning Area Process – Annual Activities

The Planning Areas Process of the Arizona Water Initiative is a stakeholder-driven analysis of each of the 22 Planning Areas identified in the Strategic Vision. Through this process, ADWR will work closely with local stakeholders to update data, identify issues that are resulting in water supply and demand imbalances, and to develop strategies for addressing those imbalances. The West Basins, Cochise, and Northwest Basins Planning Areas have been identified as the focus of the Planning Areas Process for the 2016 calendar year.

Cochise Planning Area

The Cochise Planning Area is located in the southeast corner of Arizona. It is comprised of the Sulphur Springs, San Simon, and San Bernardino Valleys, covers portions of Cochise and Graham Counties, and consists of the Willcox, Douglas, and San Bernardino Valley Groundwater Basins and the San Simon Valley Sub-basin.

Summary of Stakeholder Meetings

An initial meeting was held March 5, 2016 at the Willcox Community Center. This meeting was introductory in nature, and included presentations regarding the Planning Areas process, Planning Area hydrology, and existing groundwater management tools and options.

This meeting also included significant time dedicated to public comment, which provided the opportunity for attendees to report their water concerns to the ADWR. There were approximately 150 attendees, 18 attendees made verbal comments, and two attendees submitted written comments.

A subsequent set of meetings was held April 19, 2016 at the Willcox Community Center. One meeting focused on existing municipal, agricultural, and industrial water demand data and stakeholder discussions regarding how that data might be updated. The other meeting focused on published background information and existing mitigation strategies for the Cochise Planning Area, and stakeholder discussions on how to expand upon, correct, and refine information and previously discussed strategies. The first meeting had approximately 50 attendees, the second had approximately 40 attendees, and both meetings had a high level of stakeholder engagement, discussion, and participation.

Additional meetings are being scheduled, at which stakeholders will further develop and analyze ideas gathered from the first several meetings and various other sources, with the goal of creating a final report, including a compilation of the data and feedback from the Planning Area stakeholders.

Stakeholder Identified Issues

The economy in the Cochise Planning Area is heavily reliant on agriculture, with an emerging wine industry. With minimal surface water availability, agriculture is heavily reliant on pumping groundwater for irrigation. Many areas in the Planning Area have experienced notable declines in groundwater levels and are in a state of overdraft. In some cases, this overdraft has resulted in land subsidence and earth fissures and local reports of wells going dry.

Much of the Douglas Basin is within an INA, but the rest of the Planning Area is not subject to similar groundwater regulation. In early 2015, ADWR received a petition for the initiation of procedures to designate an INA for the San Simon Valley Sub-basin. After following required statutory requirements, including conducting a public hearing, the Director of ADWR issued findings and a decision that the San Simon Valley Sub-basin of the Safford Basin shall not be designated as an INA.

There have been discussions by local stakeholders of creating an INA or an AMA in the Willcox Basin by local initiation. There are those in the area who oppose such a move due to concerns that it might damage property values and harm the local emerging wine industry. There are also concerns that looming regulation is causing a rush to irrigate new land in order to avoid losing the right to do so.

There has been an effort by local stakeholders to develop an alternative statutory framework for groundwater management to protect aquifers while limiting adverse economic impacts in the Willcox Basin. At this time draft legislation for such a change has not been presented to the Legislature.

ADWR will continue to meet with stakeholders throughout 2016 to develop and refine strategies for water sustainability in the Cochise Planning Area. A Hydrologic Monitoring Report for southeastern Arizona was released in May 2016, and a Groundwater Model for the Willcox Basin is in development by ADWR. The Department will also work with stakeholders to update planning area water supply and demand projections and intends to publish a final report with all data and recommendations for the Cochise Planning Area in early 2017.

West Basins Planning Area

The West Basins Planning Area is located in the central western portion of the State and is comprised of the Butler Valley, McMullen Valley, Ranegras Plain, Tiger Wash, and Harquahala Valley Groundwater Basins. The Planning Area is within portions of La Paz, Yuma, Yavapai, and Maricopa Counties. Communities within the Planning Area include Aguila in the northeast, Brenda in the southwest, and Vicksburg, Hope, Harcurvar, and Salome in the central portion of the Planning Area.

Summary of Stakeholder Meetings

The first West Basins Planning Area meeting was held in Wenden on January 30, 2016. During this meeting ADWR Deputy Assistant Director Gerry Walker gave a presentation on the Planning Area process as well as a brief presentation of management tools available. ADWR Chief Hydrologist Frank Corkhill presented hydrology data on the West Basins groundwater basins. This meeting also included significant time dedicated to public comment, which provided the opportunity for attendees to report their water concerns to the ADWR. Sixteen stakeholders submitted speaker cards and commented. All questions asked were documented, and ADWR responded to all of them in writing on ADWR's website.

Two additional meetings were held on March 28, 2016 in Wenden. The first meeting involved data gathering. ADWR staff presented information from the Strategic Vision and the Water Resource Development Commission's Final Report, including background information on the West Basins, current water supplies available to the West Basins, and water demand data for the municipal, agricultural, and demand sectors. In

the second half of the meeting, the stakeholders broke out into small working groups to discuss the information that had been presented and offered suggestions for how the current data could be improved.

The second meeting focused on narrowing down the water challenges stakeholders are facing. Stakeholders broke into small groups to discuss the water issues they were facing and then reported back with a summary.

Stakeholder Identified Issues

Several stakeholders have expressed their concern that they will not be able to drill new wells fast enough or afford to drill new wells in order to keep up with the significant pumping occurring on irrigated land. Many residential wells have reportedly gone dry, including a church well, requiring residents to haul water. Seasonal residents who are not registered to vote in Arizona expressed concern that they will not have a say on possible new regulations in the area, even though they own land in the West Basins.

ADWR is in the process of identifying the large industrial water users in the area so that industrial water demand data may be updated to reflect the current use. Background information, water supply availability, and water demand for the municipal and agricultural sectors is also being updated. Once this information is updated, ADWR can begin working with stakeholders to develop a set of solutions to solve the water supply challenges they are facing.

Northwest Basins Planning Area

ADWR will hold the first Northwest Basins meeting on June 29, 2016. Future Northwest Basins Planning Area updates will be included in upcoming reports.

Recommendations

The Executive Order that created the GWAC states that the Annual Report shall describe the recommendations of the GWAC. In discussions held during this inaugural year, the GWAC developed a set of recommendations that fall into three categories: recommendations regarding the general tenets of the GWAC; recommendations for discussion topics that will be the focus of the next year of GWAC meetings; and recommendations regarding actions to be taken by the Arizona Department of Water Resources (ADWR). The recommendations of the GWAC, by category, are presented below.

Recommendations regarding the general tenets of the GWAC:

1. A role of the Council is to provide direction to the Director of ADWR, upon the Director's request, on any issues that the Director determines may impact water management;
2. The GWAC advocates for continued implementation of water conservation measures in all water use sectors throughout the state and makes additional recommendations regarding actions to be taken by ADWR with respect to conservation;
3. Among other things, the GWAC seeks to identify augmentation opportunities as a means to resolve water resource conflicts or improve water supply availability to ensure legal certainty for water users and investors.

Recommendations regarding topics of focus for GWAC discussions in Fiscal Year 2016-2017:

1. Development of a communication plan for the State to accurately convey the status of its water supply resiliency and its efforts to maintain that status moving forward;
2. The potential for augmentation through reuse and the utilization of reclaimed and poor quality water to significantly reduce the future demand and supply imbalance;
3. Funding for augmentation infrastructure;
4. The potential for augmenting groundwater supplies through enhanced natural and constructed recharge and conservation, to include possible incentives and infrastructure needs;
5. Identification of large-scale augmentation opportunities.

Recommendations regarding actions to be taken by ADWR:

1. In recognition of past, present, and proposed investments in water-demand reduction by the State, public and private water providers, as well as the industrial and agricultural communities, the GWAC recommends that ADWR continue to lead Arizona water conservation efforts and bring applicable conservation concepts to the GWAC for consideration;
2. Assess the potential for additional conservation actions as an element of the Planning Area Process. As ADWR addresses each planning area, it should review existing conservation tools with the stakeholders for inclusion in the solution set that will be created for each area;
3. Identify municipal and private water providers outside Active Management Areas (AMAs) whose lost and unaccounted water exceeds 10 percent and explore with those providers potential actions that may reduce the lost and unaccounted water to below 10 percent.

Appendix I: Executive Order 2015-13

Relating to the Implementation of the Arizona Water Initiative (Supersedes and Rescinds Executive Order 2014-10)

Whereas, in January of 2014, the Arizona Department of Water Resources released "Arizona's Next Century: A Strategic Vision for Water Supply Sustainability" (Strategic Vision) that identified key priorities, timelines and action items to maintain sustainable water supplies for Arizona into its next century;

Whereas, the Strategic Vision divided the state into twenty-two planning areas and analyzed the water demands and supplies for each and identified strategies for meeting water demands into the future;

Whereas, sustainable water supplies are essential to the economic vitality and quality of life for Arizona and its citizens;

Whereas, the proactive measures taken by the State of Arizona have resulted in a current state of resiliency with respect to its water supplies;

Whereas, Arizona Governor Janice K. Brewer established the Governor's Council on Water Supply Sustainability on November 4, 2014 that published an Initial Report on December 31, 2014;

Whereas, the Initial Report recommended that working groups be formed to develop, evaluate and prioritize recommendations and potential partnerships regarding water supply augmentation and water supply infrastructure needs;

Whereas, the Initial Report proposed workgroups to address desalination, funding, rural issues, and stakeholder engagement;

Whereas, implementation of the Strategic Vision and the recommendations of the Initial Report is imperative for the future of Arizona;

Whereas, on October 5, 2015, I announced a Water Initiative that will implement the Strategic Vision and address the recommendations of the Initial Report through two tracks to insure the certainty of Arizona's water supply into the future;

Whereas, the first track will focus on a stakeholder driven analysis of the twenty-two Strategic Vision planning areas and the second track will be a council that will investigate long-term water augmentation strategies for the state;

Executive Order 2015-13

Page 2

NOW, THEREFORE, I, Douglas A. Ducey, Governor of the State of Arizona, by virtue of the authority vested in me by the Constitution and laws of the State of Arizona, hereby order as follows:

- 1) The Arizona Department of Water Resources shall provide staffing and technical support to complete the first track of the Water Initiative.
- 2) The Governor's Water Augmentation Council (Council) shall be created to implement the second track of the Water Initiative.
- 3) The Council shall meet quarterly.
- 4) The Council shall consist of members appointed by the Governor who shall serve at the pleasure of the Governor.
- 5) The Arizona Department of Water Resources shall provide staffing and technical support to the Council.
- 6) The Council shall consider the need to create additional working groups and, if formed, Council members shall serve on working groups that may also include non-Council members.
- 7) The Council shall consider a communication plan for the State to accurately convey the status of its water supply resiliency and its efforts to maintain that status moving forward
- 8) The Council shall prepare an annual report and submit it to the Governor by July 1, 2016 and by July 1 every year thereafter.
- 9) The annual report shall describe the activities and the recommendations of the Council and activities undertaken pursuant to the first track of the Water Initiative.
- 10) Executive Order 2014-10 is hereby superseded by this Order and Executive Order 2014-10 is rescinded.

IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Arizona.



GOVERNOR

DONE at the Capitol in Phoenix on this Sixteenth day of December in the year Two Thousand and Fifteen and of the Independence of the United States of America the Two Hundred and Fortieth.

ATTEST:



Secretary of State



Appendix II: Members of the Governor's Water Augmentation Council

Member	Representing
Aja, Basilio F	Arizona Cattle Feeders' Association
Atkins, Lisa A.	Arizona Land Department
Brown, David	Brown & Brown Law Offices, P.C.
Buschatzke, Thomas (Chair)	Arizona Department of Water Resources
Cabrera, Misael	Arizona Department of Environmental Quality
Camacho, Chris	Greater Phoenix Economic Council
Cooke, Ted	Central Arizona Project
Doba, Ronald V.	Northern Arizona Municipal Water Users Association
Fabritz-Whitney, Sandra	Freeport-McMoRan
Gammage, Grady	Gammage and Burnham
George, Maureen R.	Mohave County Water Authority
Graham, Patrick James	The Nature Conservancy in Arizona
Hamer, Glenn	Arizona Chamber of Commerce & Industry
Kamps, Spencer A.	Home Builders Association of Central Arizona
Keeling, Rod	Arizona Wine Growers Association
Kmiec, John	Southern Arizona Water Users Association
Lavis, Rick C.	Arizona Cotton Growers Association
Lombard, Cheryl	Valley Partnership
Lotts, Robert A.	Arizona Public Service Company
Moore, Hunter (Vice Chair)	Natural Resources Policy Advisor, Office of the Governor
Noble, Wade	Noble Law Office
O'Connell, Virginia	Arizona Water Banking Authority
Porter, Sarah	Kyl Center for Policy at Morrison Institute
Roberts, Dave	Salt River Project
Smith, Mark	Yuma Irrigation District
Sullivan, Craig	County Supervisors Association of Arizona
Tenney, Warren	Arizona Municipal Water Users Association
Townsend, Phillip Dale	Sunland Chemical Co.
Udall, Christopher L.	Agribusiness & Water Council

Arizona Department of Water Resource Staff

Gerry Walker	Deputy Assistant Director of Water Planning
Martin Stiles	Facilitator, Governor’s Water Augmentation Council
John Riggins	Coordinator, Governor’s Water Augmentation Council

Appendix III: Water Conservation in Arizona

Water conservation and the reuse of water supplies is the cornerstone of Arizona's water use history. Arizona leads the nation in water conservation and the reuse of reclaimed water. Water conservation continues to be the foundation of Arizona's water management strategy. The state and its citizens have achieved unparalleled water supply improvements through implementation of conservation measures and practices that serve as a model for water managers throughout the world. Table A1 and A2 summarize the water conservation activities that have been implemented statewide.⁸

	Public Awareness/ Public Relations	Conservation Education and Training	Outreach Services	Physical System Evaluation and Improvement	Ordinances/ Conditions of Service/ Tariffs	Rebates/ Incentives	Research/ Innovation Program
AMAs	X	X	X	X	X	X	X
Benson	X	X	X		X		X
Cottonwood	X	X	X	X	X	X	
Bullhead City	X	X	X	X	X	X	X
Flagstaff	X	X	X	X	X	X	X
Globe	X	X		X	X		X
Holbrook				X			
Kingman	X	X	X	X	X		
Lake Havasu	X	X	X	X	X	X	X
Payson	X	X	X	X	X	X	X
Safford	X	X	X	X	X		
Sierra Vista	X	X	X	X	X		
St. Johns			X		X		
Williams	X	X	X	X	X	X	
Winslow	X	X	X	X	X	X	
Yuma	X	X	X	X	X		

Table A1. Summary of Municipal Water Conservation Practices Implemented within Arizona

⁸ Data collected from ADWR Community Water Systems Annual Reports.

	Concrete lined	Laser Grade	Level Basin	Sprinkler irrigation	Drip/trickle irrigation	Tail water Re-use	Crop Rotation	Soil and Water Analys	Flow Rate Measurement	Furrow Shaping	Scheduled Irrigation
AMAs⁹	X	X	X	X	X	X	X	X	X	X	X
Cienega¹⁰ Creek Basin					X			X			
Mohave Valley Irrigation and Drainage district	X	X	X	X			X		X		X
San Simone Valley				X	X						
Willcox Basin					X			X			
Verde Valley Sub Basin					X			X			
Verde River Basin					X			X	X		
Yuma¹¹	X	X	X	X	X		X	X	X	X	X

Table A2. Summary of Agricultural Water Conservation Practices Implemented in Arizona

Note: Excluding the AMAs, Table A2 reflects Best Management Practices (BMPs) observed at specific agricultural locations across the state and does not necessarily reflect the total number of BMPs being utilized in given regions. The limited amount of BMP data outside of the AMAs limits the availability of statewide BMP data.

It should be noted that there are activities other than conservation that have resulted in water security for Arizona. Regional planning efforts both statewide and within each AMA have expanded. There has been an increase in the conversion from the use of groundwater (a non-renewable supply) to renewable water supplies, primarily Colorado River water through the Central Arizona Project. Monitoring of groundwater conditions and land subsidence is ongoing, and ADWR evaluates whether new subdivisions, both inside and outside of AMAs, can demonstrate 100 years of sustainable water supplies.

⁹ Arizona Department of Water Resources Agriculture Best Management Practices.

¹⁰ USDA National Agricultural Statistics Service CropScape Data Layer.

¹¹ Yuma County Agriculture Water Coalition, 2015, A Case Study in Efficiency-Agriculture and Water Use in Yuma, Arizona Area, Executive Summary-III.

Water Conservation within the Active Management Areas

Within AMAs, there are mandatory conservation requirements established within the management plans for the municipal, industrial, and agricultural water use sectors. Best management practices (BMPs) are, by definition, methods or techniques that have been found to be the most effective, efficient and practical manner to achieve an objective. BMPs are often developed and determined through industry standards. Certain regulatory programs within the AMAs are BMP-based and lists of BMPs exist for those programs (see [Municipal BMP Example List](#)).¹² It should be noted, however, that the ADWR lists only represent a subset of BMPs, and more options may exist within a specific use sector. Regulatory BMP programs exist for the three major use sectors within the AMAs. In the AMAs, the development and implementation of mandatory conservation requirements for all users of groundwater has resulted in increased water savings and efficiency.

Agricultural Water Use Sector

A cornerstone of the 1980 Groundwater Code water was a prohibition on new irrigated acreage within the AMAs, and the management plans have moved from that basis into other water conservation programs. The First Management Plan established a Base Program that assigned irrigation water allotments based on water consumption between 1975 and 1980. The Base Program established the baseline for groundwater consumption for all groundwater rights, and all subsequent conservation programs utilized that baseline. The Third Management Plan assigned a maximum annual groundwater allotment based on assumed irrigation efficiencies of 65 percent to 80 percent and capped irrigation district system losses at 10 percent.

The Third Management Plan also created an innovative BMP program as a voluntary alternative to the Base Program. The agricultural BMP program includes four categories of agricultural water conservation: water conveyance systems; farm irrigation systems; irrigation water management; and agronomic management. In this program, an agriculture operator can voluntarily choose BMPs from an approved list. A goal of the BMP program is to have water savings in the agriculture sector, at a minimum, be equivalent to those achieved by the Base Program.

Municipal Water Use Sector

Currently, conservation in the municipal water use sector occurs in accordance with the requirements of the Third Management Plan, as amended. Large municipal water providers (cities, towns, private water companies or irrigation districts that serve more than 250 AF of water per year) are regulated under one of six municipal regulatory programs, including the Modified Non-per Capita Conservation Program (MNPCCP) which is the program selected by the majority of large providers. The Gallons per Capita per Day Program, which strives to reduce water consumption on a per-person basis, is the second most commonly adopted regulatory program. The MNPCCP is mandatory for all large municipal water providers in AMAs that do not have a Designation of Assured Water Supply; it is optional for providers with a Designation of Assured Water Supply.

The MNPCCP requires participating providers to implement BMPs that result in water use efficiency in their service areas. A water provider regulated under the program must implement a required basic public education program and choose one or more additional BMPs based on its size as defined by its combined

¹² <http://www.azwater.gov/AzDWR/WaterManagement/AMAs/documents/ListofBMPs.pdf>

total of residential and non-residential water service connections. Providers may have to implement one, five or ten additional BMPs.

Small municipal water providers (city, town, private water company or irrigation district that serves 250 AF of water per year or less) are required to minimize water waste, maximize outdoor watering efficiency, encourage water reuse, and comply with any reasonable conservation requirements established for small providers by ADWR.

Industrial Water Use Sector

Within the AMAs, conservation within the industrial use sector is either allotment or BMP-based. Water allotment requirements are typically used for large turf facilities, dairies, and feedlots. BMP-based requirements are required for mines, cooling towers, sand and gravel operations, large scale power plants, and new large landscape users. A report titled “Best Management Practices in Arizona” stated that BMPs provide a science-based approach for collaboration among researchers, regulators and water users. This helps to assure stewardship of our most precious natural resource.¹³

The Palo Verde Nuclear Generating Station (Palo Verde) is an example of industrial water conservation and reuse, as Palo Verde reuses approximately 70,000 AF of reclaimed water annually. The Third Management Plan recognized that maximization of the cooling water cycles increased the water efficiency of a generation station and established a standard of 15 cycles to recycle cooling water for power plants operating after 1985.¹⁴ Palo Verde, which began commercial operation in 1986, averages 22 to 25 cooling cycles which exceeds the minimum standard and provides more opportunity for water savings.¹⁵ Palo Verde is unique in that it is the only nuclear generating stations that is not located on or near a significant body of water; therefore, management of water resources has been an operational priority from the beginning.

Water Conservation outside the Active Management Areas

Although water conservation measures are generally not required outside of the AMAs, the application of conservation measures is prevalent in Arizona. Water users throughout the state have long recognized the need to utilize water as efficiently as possible. In fact, many non-AMA water users opt to utilize many of the BMPs included within ADWR’s regulatory lists to conserve water. Additionally, as of 2010, some water providers in the state are required by the Arizona Corporation Commission to implement select BMPs from ADWR’s list when initiating service or undergoing rate cases.¹⁶

Municipal Water Use Sector

In 2005, legislation associated with drought planning in the state established the Community Water System (CWS) Planning and Reporting requirements. While there are CWSs located inside the AMAs, the majority are located outside. Many CWSs located within AMAs are exempted from the CWS requirements because they fall under other AMA regulatory requirements.

¹³ Wienecke, David, 2005, Irrigation Best Management Practices in Arizona. Michigan State Press.

¹⁴ As described in the Third Management Plan (2000-2010) under conservation requirements for the Industrial Sector.

¹⁵ Lotts, B., 2014, Arizona Public Service Company, http://www.azenergy.gov/doclib/6-20-14_AMC-PVNGS_B.Lotts.pdf.

¹⁶ AZ Corporation Commission Water Rules, 2010, <http://www.azcc.gov/divisions/utilities/water.asp>.

A CWS is a municipal water provider in Arizona that serves at least 15 connections used by year-round residents of the area served, or that regularly serves at least 25 year-round residents. A CWS must file annual reports and five-year System Water Plans that include a water supply plan, a drought preparedness plan, and a water conservation plan. The water conservation plan requires the CWS to list conservation measures currently being implemented or planned for the future. The conservation measures are derived from ADWR's municipal BMP list.

Agricultural Water Use Sector

The BMPs that are utilized by agriculture operators in the AMAs are also applied outside the boundaries of regulated areas. Federal programs like the Natural Resources Conservation Service fund similar programs that promote BMPs in regions beyond the managed areas. Irrigation users in the Yuma area have incorporated these BMPs to improve water use efficiency as well as sustain and increase crop yield. These management practices combined with infrastructure improvements assist farmers in achieving a high level of on-farm, seasonal irrigation efficiency. The correlation between water efficiency and increased crop yield illustrates the success of the BMP program.

Appendix IV: Timeline of Water Management in Arizona

1903 Yuma Project

The Yuma Project provides irrigation water for lands near the towns of Yuma, Somerton, Gadsden, and San Luis in Arizona, and Bard and Winterhaven in California. The project was divided into the Reservation Division, which consists of 14,676 acres in California, and the Valley Division, which consists of 53,415 acres in Arizona.

1903 Yuma County Water Users Association

The association was organized as a private non-profit corporation for the purpose of coordinating with the United States Bureau of Reclamation in the development and operation of the Valley Division of the Yuma Project, which was also founded in 1903 to facilitate irrigation. The landowners in the Association hold Priority 1 Colorado River entitlements which are irrevocably administered by the Association.

1917 Unit B Irrigation and Drainage District

The District provides irrigation water to a portion of the Yuma Mesa including 3,305 acres of crops. Unit B holds a Priority 1 Colorado River entitlement.

1918 North Gila Valley Irrigation and Drainage District

The North Gila Valley Irrigation and Drainage District provides irrigation water to no more than 6,587 acres in the North Gila Valley. The District holds a combination of Priority 1 and Priority 3 Colorado River entitlements. The Priority 3 Colorado River entitlement is shared with Yuma Irrigation District and Yuma Mesa Irrigation and Drainage District of the Yuma Mesa Division of the Gila Project.

1919 Yuma Irrigation District

Yuma Irrigation District holds a Priority 3 Colorado River entitlement for the irrigation of 10,600 acres. The Priority 3 Colorado River entitlement is shared with North Gila Valley Irrigation and Drainage District and Yuma Mesa Irrigation and Drainage District of the Yuma Mesa Division of the Gila Project.

1920s Mohawk Municipal Water-Conservation District and Gila Valley Power District

The District consists of 62,975 acres irrigated using its Priority 3 Colorado River entitlement.

1923 Norviel Decree

The Norviel Decree determined the relative rights of landowners to the use of the waters of the Little Colorado River and its tributaries in Apache County.

1927 The Concho Decree

The Concho Decree determined the relative rights to use surface water from Concho Springs and Concho Creek in Apache County.

1928 The Gila Project

The project was built to control the diversions of the Colorado River in the Yuma area and allow entitlements of irrigation water to be delivered to on-river users in the Yuma Mesa Division and the Wellton-Mohawk Division. The Yuma Mesa Division consists of the Yuma Mesa Irrigation and Drainage District, the Yuma Irrigation District, and the North Gila Valley Irrigation and Drainage

District. The Wellton-Mohawk Division is the Wellton-Mohawk Irrigation and Drainage District. Proper water management and structural ingenuity have allowed the project to expand the economic success of the Yuma area's agricultural market. Reclamation reports that combined with the crops in the Yuma Valley, the Gila Project is responsible for more than half of Arizona's total agricultural production.

1935 The Globe Equity No. 59 Consent Decree

The court action that led to the decree was initiated by the United States in 1925 to protect the water supply of the Gila River Indian Community and the San Carlos Apache Tribe. The named defendants were the water users above and below the proposed San Carlos Dam and Reservoir. The lands described in the decree are approximately 40,000 acres in the Safford and Duncan-Virden Valleys; approximately 1,000 acres on the San Carlos Apache Reservation; approximately 2,000 acres near Winkelman; approximately 50,000 acres within the current San Carlos Irrigation and Drainage District and approximately 50,000 acres within the Gila River Indian Reservation.

1941 City of Flagstaff Constructs Upper Lake Mary Dam on Walnut Creek

Due to the intermittent nature of flows in Walnut Creek and the high infiltration rates in the bottom of Lower Lake Mary, a second dam was constructed up-gradient of Lower Lake Mary Dam in order to store water for use by the citizens of Flagstaff. The dam was raised 10 feet in 1951 to its current height to enable storage of 16,300 acre-feet of water.

1946 Formation of the Central Arizona Project

The Central Arizona Project Association was formed to educate Arizonans about the need for CAP and to lobby Congress to authorize its construction. It took the next 22 years to do so, and in 1968, President Lyndon B. Johnson signed a bill approving construction of CAP. The bill provided for the Bureau of Reclamation of the Department of the Interior to fund and construct CAP and for another entity to repay the federal government for certain costs of construction when the system was complete.

1954 Yuma Mesa Irrigation and Drainage District

The Yuma Mesa Irrigation and Drainage District provides irrigation water for 20,000 acres on the Yuma Mesa using a Priority 3 Colorado River entitlement. The Priority 3 Colorado River entitlement is shared with Yuma Irrigation District and North Gila Valley Irrigation and Drainage District of the Yuma Mesa Division of the Gila Project.

1970 Jarvis v. State Land Department II

Relying on a surface water statute that gives preference to domestic and municipal uses over agricultural uses, the Arizona Supreme Court stated that it would modify the injunction issued in *Jarvis v. State Land Department I* to allow the City of Tucson to acquire cultivated lands within the Critical Groundwater Area outside the City, retire the lands from irrigation and transport to the City for municipal use an amount of groundwater equal to the "annual historical maximum use" on the lands. The court later held that "annual historical maximum use" means the *average* of the annual maximum amount of groundwater *consumptively* used on the land for irrigation purposes.

1974 Salinity Control Act

Provided the means to comply with the obligations made by the U.S. to Mexico in Minute No. 242. The act authorized construction of the Yuma Desalinization Plant in Arizona and authorized construction of the Protective and Regulatory Pumping Unit – the 242 Well Field in Arizona.

Town of Chino Valley v. City of Prescott

The court stated that “there is no right of ownership of groundwater in Arizona prior to its capture and withdrawal from the common supply and ... the right of the owner of the overlying land is simply to the usufruct of the water.” The court further holds that the legislature may enact laws regulating groundwater use under its police powers.

1980 Groundwater Management Act

Passed by the Arizona legislature on June 11, 1980 and signed into law by Governor Babbitt the next day, this Act implements the final recommendations of the Groundwater Study Commission. The Act establishes the Arizona Department of Water Resources to administer the provisions of the Act.

1981 Harquahala Irrigation Non-Expansion Area Established

Designated by ADWR as the state’s third Irrigation Non-Expansion Area.

1984 Ak-Chin Indian Community Water Rights Settlement Act

Under the Act 50,000 acre feet of the Priority 3 Colorado River entitlement shared by the three districts of the Yuma Mesa Division was transferred to the Ak-Chin Indian Community. The Priority 3 entitlement is shared by Yuma Mesa Irrigation and Drainage District, Yuma Irrigation District and North Gila Valley Irrigation and Drainage District.

1986 Underground Storage and Recovery Program

The program allows persons with surplus supplies of water to store that water underground and recover it at a later time for the storer’s use.

Arizona’s first large-scale engineered aquifer recharge facility

For the storage of reclaimed water is constructed in Tucson, Arizona.

1988 Salt River Pima-Maricopa Indian Community Water Rights Settlement Act

Under the Act 22,000 acre feet of Priority 3 Colorado River entitlement was transferred from Wellton-Mohawk Irrigation and Drainage District to the Salt River Pima-Maricopa Indian Community.

1990’s Formation of Watershed Partnership Groups

A number of watershed partnership groups formed throughout the State to represent specific geographic areas. These groups are a collective effort between local governments and private citizens that meet regularly with stakeholders to address local water management challenges. See Appendix V for a list of currently active water partnership groups in Arizona.

1991 Groundwater Transportation Act

The legislature amended the groundwater transportation laws to prohibit the transportation of groundwater from areas outside of AMAs to AMAs, with several exceptions. The exceptions allow certain entities to transport groundwater from the McMullen Valley groundwater basin to the Phoenix AMA, from the Big Chino sub-basin of the Verde River groundwater basin to the Prescott AMA, and from the Butler Valley groundwater basin and the Harquahala INA to any initial AMA.

1994 Assured and Adequate Water Supply Rules

ADWR adopted rules establishing criteria for demonstrating an assured or adequate water supply become effective. The rules require that an applicant for a certificate or designation of assured

water supply in an AMA demonstrate that the use will be served primarily with renewable water supplies.

Yavapai-Prescott Indian Tribe Water Rights Settlement Agreement

Settled claims of the Yavapai-Prescott Indian Tribe to groundwater and surface water from Granite Creek and allowed for the transfer of the Tribe's and the City of Prescott's CAP water to the City of Scottsdale.

Santa Cruz Active Management Area is established

The Santa Cruz AMA was established from a portion of the Tucson Active Management Area to address unique water management goals.

1996 Arizona Water Banking Authority (AWBA)

The establishment of AWBA secured Arizona's unused Colorado River water for future use, while also providing water management benefits.

1999 San Carlos Apache Tribe Water Rights Settlement Agreement

Settled the claims of the San Carlos Apache Tribe to the Salt River side of their reservation and includes groundwater, water from the Salt, Black, Gila and Sand Pedro Rivers, CAP water (that can be leased) and reclaimed water. The water right claims of the Tribe to the Gila River side of the reservation will be the subject of separate negotiations or litigation.

2001 Stipulation Between the City of Flagstaff and the United States on Behalf of the National Park Service and the Forest Service in the General Adjudication of all Rights to Use Water in the Little Colorado River System and Source

Recognized surface water and groundwater claims between the City of Flagstaff, Coconino National Forest and National Park Service. Establishes operation parameters and permissible maintenance for Upper and Lower Lake Mary.

The City of Tucson begins delivering water from its Clearwater Project

The full build out of the project will allow the city to store and recovery all of its CAP allocation, thus bringing an end to groundwater mining within the Tucson Water service area.

2003 Zuni Indian Tribe Water Rights Settlement Agreement

Settled claims of the Zuni Tribe to surface water from the Little Colorado River and provided to the tribe additional groundwater and reclaimed water.

2004 Arizona Water Settlement Act

Through this Act, Congress approved an agreement between the United States and the State of Arizona for CAP repayment obligations. The Act also settled the water rights claims of the Gila River Indian Community and the claims of the Tohono O'odham Nation for its San Xavier reservation near Tucson, and reallocated 67,300 acre-feet (AF) of Non-Indian Agricultural priority CAP water to the Secretary of the Interior for use in future Indian water rights settlements in Arizona.

2005 Community Water System planning and reporting requirements

The Arizona legislature enacted legislation requiring community water systems to prepare a water supply plan, a drought preparedness plan and a water conservation plan every five years and to submit annual water use reports

2007 Mandatory Water Adequacy

The Arizona legislature enacted legislation authorizing counties and cities to adopt an ordinance requiring new subdivisions outside of AMAs to demonstrate a 100-year adequate water supply before obtaining plat approval or receiving a public report from the Arizona Department of Real Estate.

2010 White Mountain Apache Tribe Settlement

More than \$126 million was authorized for development of a rural water system, including a dam and reservoir, to deliver the water. The measure, which passed on a unanimous vote Friday, November 19, 2010, sets aside 52,000 acre-feet of water to settle claims with the tribe. The tribe agreed to lease Central Arizona Project water it had been allocated as a part of the settlement to cities in the metropolitan Phoenix area.

Appendix V: Water Partnership Groups from Around the State

This list is included for illustrative purposes and is not intended to be all-inclusive. There are several municipal water user groups that represent collective communities in various parts of the State. These groups include the *Arizona Municipal Water Users Association*, the *Northern Arizona Municipal Water Users Association*, and the *Southern Arizona Water Users Association*. There are also many Arizona water partnership groups that work cooperatively with multiple government and non-governmental entities to address local water issues. This list provides basic background information on currently active organizations.

Gila Watershed Partnership

The Gila Watershed Partnership (GWP) was established in 1992 to improve the health and quality of the Upper Gila River in Arizona. Participants in the GWP include the City of Safford, Gila Valley Irrigation District, Graham and Greenlee Counties, and the Towns of Clifton, Duncan, Pima and Thatcher. The objective of the GWP is to ensure the Upper Gila River's water sustainability for future generations.¹⁷ Goals of the group include conserving natural resources to improve the environment, preserving the local economy and mitigating against flood dangers as well as other natural disasters occurring along the river. The GWP has worked to improve water quality and quantity for those living in the Gila River watershed. The GWP works to engage and educate their community on various watershed issues such as invasive tree species. Beginning in 2015, the Gila River Restoration Project has worked to remove acres of invasive salt cedar from the Gila River watershed.¹⁸ The GWP has worked with state and federal agencies to remove the salt cedar and replace them with native plant and tree species.¹⁹

The Agribusiness & Water Council of Arizona

Formerly known as the "Agri-Business Council of Arizona, Inc.," the Agribusiness and Water Council of Arizona was established in 1978 to respond to proposed water legislation (groundwater management act legislation). The purpose and mission of this association since 1978 has been to focus on "water" as it relates to agricultural water use in Arizona and to shortly thereafter serve as the state affiliate association to the National Water Resources Association.

The Coconino Plateau Water Advisory Council and Watershed Partnership

The Coconino Plateau Water Advisory Council (CPWAC) was founded in 2000 under the State Rural Watershed Initiative. By 2011, the CPWAC included 33 stakeholder entities, including the City of Flagstaff and Coconino County. The goal of CPWAC was to provide sound water resource management and conservation strategies on the Coconino Plateau. It has worked to provide a better understanding of local water issues such as supply and demand in northern Arizona. In 2013, the Coconino Plateau Watershed

¹⁷Upper Gila River Watershed & Watershed Partnership, (n.d.), Retrieved from http://www.azwater.gov/AzDWR/StatewidePlanning/SWAG/documents/Upper_Gila_Safford_SWAG_060206.pdf

¹⁸Gila Watershed Partnership of Arizona, 2015, Gila River Restoration Project. Retrieved from Gila Watershed Partnership of Arizona: <http://www.gwpaz.org/projects/gila-river-restoratio>

¹⁹Gila Watershed Partnership of Arizona, (n.d.), Current Projects. Retrieved from Gila Watershed Partnership of Arizona: <http://www.gwpaz.org/projects/current-projects>

Partnership (CPWP) was established as an affiliate organization of the CPWAC which remains as a lobbying and funding organization.²⁰ The CPWP works to continue the goals of the original CPWAC.

Upper San Pedro Partnership

The Upper San Pedro Partnership (USPP) was established in 1998 as a collaborative effort to identify, prioritize and implement comprehensive policies and projects that assist in meeting the water needs of the Sierra Vista Sub watershed.²¹ The Defense Authorization Act of 2004 (2004 Act), Public Law 108-136, Section 321, stipulates the way in which Section 7 of the Endangered Species Act applies to the Fort Huachuca, Arizona, and military reservation. Following implementation of the 2004 Act and through 2011, the Upper San Pedro Partnership submitted an annual report or “Section 321 Report” to Congress in consultation with the Secretaries of Agriculture and Defense on steps to be taken to reduce the overdraft and restore the sustainable yield of groundwater in the Sierra Vista Sub watershed.

The most recent Section 321 Report submitted by the USPP outlines the groundwater depletion in the Sierra Vista Sub Watershed but notes that the annual overdraft of the aquifer is greatly reduced from the 2010 reported amount. Conservation yields for USPP members were outlined annually in the reports by planned yield and actual yield amounts. Fort Huachuca, Sierra Vista and Cochise County reported a 2010 conservation yield of 2,638 acre-ft. and 2,860 acre-ft. of effluent recharge.²²

The USPP reported that in 2011, 12,902 acres of land were conserved which translates to nearly 1,073 acre-ft. per year of water saved by retiring wells used for agriculture in the Sierra Vista Sub Watershed. Fort Huachuca has replaced some grass training areas with artificial turf and through Water Wise audits has reduced its water usage by 3.6 million gallons per year.²³

Mohave County Water Authority

The Mohave County Water Authority (Authority) was formed in 1995 pursuant to A.R.S. § 45-2202 and comprised of representatives from Lake Havasu City, Bullhead City, City of Kingman, Mohave Valley Irrigation & Drainage District, Golden Shores Water Conservation District, Mohave County and Mohave Water Conservation District. The Authority was created in response to the Department of Interior’s notice to the City of Kingman that their 4th priority main stream water contract was going to expire because of a lack of beneficial use.²⁴ The Authority became the one contracting entity for the Kingman contract which kept the Colorado River water in Mohave County and today has the entire 18,500 Acre-ft. of 4th priority water that was at one time the Kingman contract.²⁵ Since its formation, the Authority has explored ways to address permanent and shortage supply issues.

²⁰Coconino Plateau Water Advisory Council.

<http://www.azwater.gov/azdwr/statewideplanning/RuralPrograms/CoconinoPlateaubasin.htm>.

²¹Upper San Pedro Partnership, (n.d.), History. Retrieved from Upper San Pedro Partnership: http://www.uspppartnership.com/about_history.htm.

²²Upper San Pedro Partnership, 2011, Water Management of the Regional Aquifer in the Sierra Vista Sub watershed, Arizona 2011 Report to Congress. Washington D.C.: U.S. Department of Interior.

²³Upper San Pedro Partnership, 2011, USPP Brochure. Retrieved from Upper San Pedro Partnership: <http://www.uspppartnership.com/docs/2011USPPBrochureFinal.pdf>.

²⁴Mohave County Water Authority, (n.d.), Mohave County Water Authority. Retrieved from Mohave County Water Authority.com: <http://mohavecountywaterauthority.com/>.

²⁵Arizona Department of Water Resources, 2015, Mohave County Water Authority Demand and Supply Assessment.

Little Colorado River Watershed Coordinating Council

The Little Colorado River Watershed Coordinating Council was established in 2004 to properly manage water resources within the Little Colorado River watershed and work together to implement watershed management and conservation strategies. The LCRWCC works as a collective effort to educate the local citizens of watershed issues.²⁶

²⁶Little Colorado River Watershed Coordinating Council, (n.d.), Retrieved from usbr.gov: https://www.usbr.gov/uc/rm/amp/amwg/mtgs/05aug30/Attach_05b.pdf.