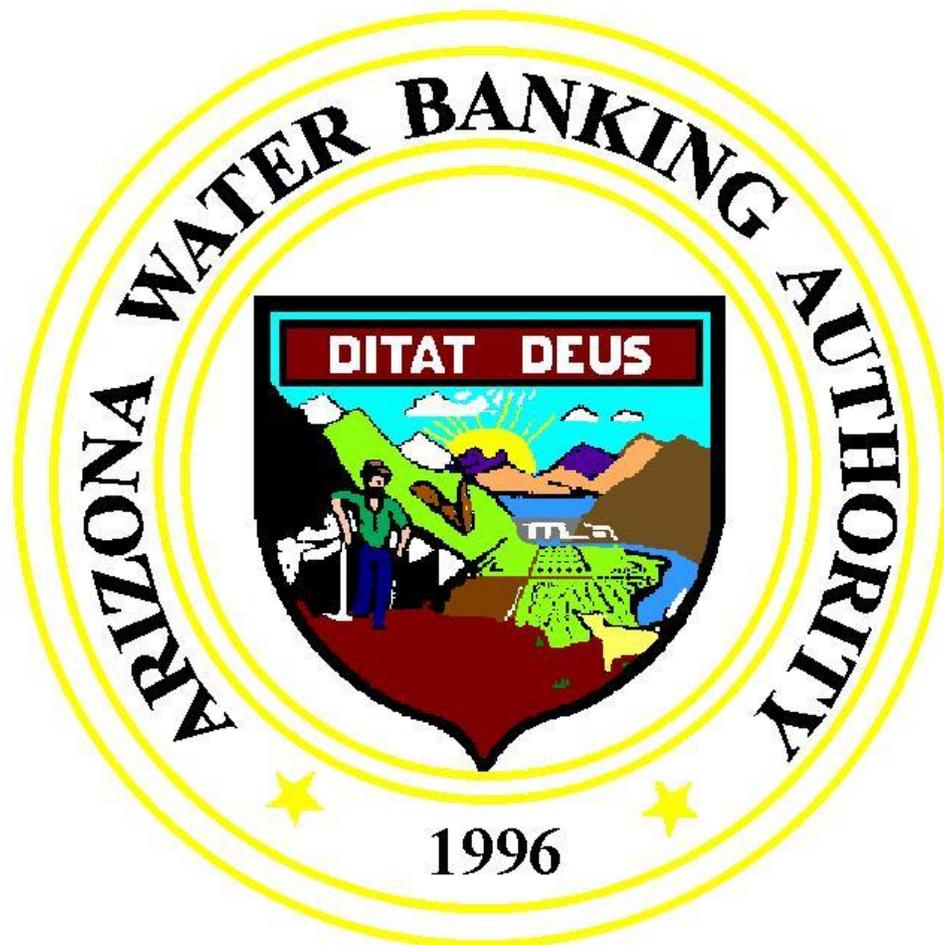


ARIZONA WATER BANKING AUTHORITY

ANNUAL REPORT
2013



Submitted

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Arizona Water Banking Authority

Annual Report 2013

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Acronyms and Abbreviations

ADWR	Arizona Department of Water Resources
Agreement to Firm	Agreement to Firm Future Supplies executed February 4, 2005 between the Arizona Water Banking Authority and the Mohave County Water Authority
Amended Agreement to Firm	Amended Agreement to Firm Future Supplies executed March 17, 2010.
AMA	Active Management Area
AWBA	Arizona Water Banking Authority
AWB Fund	Arizona Water Banking Fund
AWSA	Arizona Water Settlements Act
CAGR D	Central Arizona Groundwater Replenishment District
CAP	Central Arizona Project
CAWCD	Central Arizona Water Conservation District
CRCN	Colorado River Commission of Nevada
Credits	Long-term storage credits
CRSS	Colorado River System Simulation Model
Decree	Consolidated Decree of the U.S. Supreme Court in <i>Arizona v. California</i>
GRIC	Gila River Indian Community
GRIIDD	Gila River Indian Irrigation and Drainage District
GSF	Groundwater Savings Facility
ICUA	Intentionally Created Unused Apportionment
Interagency Group	Interagency Recovery Planning Group
IGA	Intergovernmental Agreement
JLBC	Joint Legislative Budget Committee
M&I	Municipal and Industrial
MAF	Million Acre-feet
MCWA	Mohave County Water Authority
Metropolitan	Metropolitan Water District of Southern California
NIA	Non-Indian Agricultural
Plan	Annual Plan of Operation
Quantification Agreement	White Mountain Apache Tribe Water Rights Settlement Agreement
Reclamation	U.S. Bureau of Reclamation
SIRA	Storage and Interstate Release Agreement
SNWA	Southern Nevada Water Authority
SSRB	Southside Replenishment Bank
USF	Underground Storage Facility

Summary

The role of the AWBA has changed considerably since it was first established in 1996. The initial objective of the AWBA was to store Excess CAP water to mitigate the effects of future Colorado River shortages on municipal and industrial water users, provide groundwater management benefits, assist the State in the settlement of Indian water rights claims, and assist both California and Nevada through interstate banking arrangements. In time, what began as opportunities to beneficially utilize the state's full entitlement of Colorado River water ultimately grew in certain cases into obligations the AWBA must fulfill.

Through 2013, the AWBA has accrued approximately 3.9 million acre-feet (MAF) of long-term storage credits (credits) toward achieving its various goals. Of this amount, nearly 3.3 MAF of credits are for Arizona uses and 600,651 are for interstate purposes accrued on behalf of Nevada. While this has been a major accomplishment, the AWBA has not yet met all of its goals, and will be challenged to do so in the future with diminishing water supplies and financial resources.

In May of 2013, the AWBA executed the Third Amended and Restated Interstate Water Banking Agreement with the Southern Nevada Water Authority (SNWA) and the Colorado River Commission of Nevada (CRCN). Discussions were initiated by the parties in 2011 to evaluate alternative ways to structure the existing agreement so that all parties could benefit. The new agreement releases the AWBA from its obligation to accrue a specified amount of credits for SNWA, yet keeps in place a framework for future storage and more importantly, maintains the relationship that has been forged between the states.

In 2013, the volume of water that was available to the AWBA was the lowest since its operations began, starting the year with just over 52,500 acre-feet of water. In addition, the ten-year planning projections showed that future water availability was nearly half (690 KAF) of what had been projected in 2012 (1.2 MAF). Even these projections may be optimistic given the current status of Colorado River conditions. Last year, was the first year that the Secretary declared that releases from Lake Powell would be limited to 7.48 MAF for the following water year rather than the normal 8.23 MAF. Projections had also indicated that if drought conditions linger, Arizona could experience its first shortage by 2016.

These revelations prompted the AWBA to initiate a special action planning process to prioritize its competing responsibilities and identify actions to be implemented to address the pressing issues facing the AWBA. Two items emerged for immediate attention: 1) pursuing legislation to allow the AWBA to purchase long-term storage credits using funds in the Arizona Water Banking Fund and, 2) requesting a general fund appropriation to assist in meeting the State's Indian settlement obligations. The AWBA Commission participated in a facilitated process to develop additional elements of the action plan.

During 2013, AWBA staff continued to work with staff from ADWR and CAWCD as part of the Interagency Recovery Planning Group to develop a plan for recovering AWBA credits in the future, an integral component for firming water supplies. The group, with the involvement of an ad hoc stakeholder group, achieved major strides toward completion of the plan. The recovery plan will be essential for providing the framework for how recovery will be accomplished in the future.

Annual Report Requirements

Arizona Revised Statutes § 45-2426 mandates that the AWBA file an annual report with the Governor, President of the Senate, and Speaker of the House of Representatives on or before July 1 of each year for the previous calendar year. The report is required to be a full and complete account of the AWBA's transactions and proceedings and must include the following:

1. An accounting of all monies expended from the banking fund.
2. An accounting of all monies in the banking fund remaining available to the AWBA.
3. The amount of water stored by the AWBA.
4. The number of long-term storage credits distributed or extinguished by the AWBA.
5. The purposes for which long-term storage credits were distributed or extinguished by the AWBA.
6. A description of the water banking services and interstate water banking to be undertaken by the AWBA during the following ten-year period and a projection of the capacity of the AWBA during that period to undertake those activities in addition to storing Colorado River water brought into the state through the CAP for all of the following purposes:
 - a. Protecting this state's municipal and industrial (M&I) water users against future water shortages on the Colorado River and disruptions of operation of the CAP.
 - b. Fulfilling the water management objectives of the state.
 - c. Making water available to implement the settlement of water rights claims by Indian communities within Arizona.
7. Any other matter determined by the authority to be relevant to the policy and purposes of the AWBA.

AWBA 2013 Organizational Chart



There were several membership changes to the AWBA Commission in 2013. On February 7th, Ms. Pamela Pickard, President of the CAWCD Board of Directors, designated Director Jim Hartdegen to represent CAWCD on the AWBA Commission replacing Director Lisa A. Atkins. On February 9th, the Legislature confirmed Clifford A. Neal's appointment to the Commission on September 28, 2012. In March, Senate President Andy Biggs designated Senator Gail Griffin to serve as the Senate *ex officio* member. In addition, Commission member Neal was elected Secretary replacing Commission member Atkins and Commission member Maureen R. George was re-elected as Vice-Chair. There was also one change to AWBA staff. In January, Ms. Ajita Athalye, Accountant, retired from her part-time position. Her responsibilities have been assumed by the Arizona Department of Water Resources (ADWR).

Update

In 2013, the AWBA continued to experience limitations in water availability. The amount of excess CAP water available to the AWBA and other lower priority users has steadily decreased due to an increase in demand by higher priority users. This trend is anticipated to continue and may in fact worsen if current hydrologic conditions in the Colorado River watershed persist. Based on the projections of the Bureau of Reclamation's 2013 August 24 Month Study, the Secretary of the Interior (Secretary) for the first time, declared that the release volume from Lake Powell for the following water year would be 7.48 million acre-feet (MAF) instead of the normal water release volume of 8.23 MAF. Projections also indicated that with the likelihood of two consecutive years of 7.48 MAF release volumes, there was a high probability that the water level elevation in Lake Mead could drop to or below 1075 feet, resulting in a first-level shortage declaration in 2016. While this level of shortage (320 KAF) would not prompt a firming obligation, it would mean excess CAP water would not be available to the AWBA and other CAP customers, and agricultural supplies would be reduced by nearly half (400 KAF to 155 KAF).

The AWBA Plan of Operation for 2013 (Plan) identified 52,546 acre-feet of water available for delivery under CAWCD's Access to Excess policy adopted in 2009. This was the lowest volume of water available to the AWBA since its inception in 1996. During the year however, an additional 25,870 acre-feet of water became available through CAWCD's process for remarketing previously allocated CAP supplies. At year's end, AWBA deliveries totaled 78,230 acre-feet, which included 1,000 acre-feet of direct deliveries to the Southside Replenishment Bank. The quantity of water that was delivered to each storage facility is described in Appendix A and totaled 31,027 acre-feet in the Phoenix AMA, 19,628 acre-feet in the Pinal AMA, and 26,575 acre-feet in the Tucson AMA. The Plan did not include an interstate water banking component.

Based on the Decree accounting data, total consumptive use of Colorado River water by Arizona for 2013 was 2.78 MAF. Distribution of the 2.78 MAF was approximately 1.13 MAF for direct uses along the Colorado River and CAP diversions of 1.65 MAF (U.S. Bureau of Reclamation, Lower Colorado River Operations, Colorado River Accounting and Water Use Report Arizona, California, Nevada – Calendar Year 2013, dated May 2014). Arizona did not use its full entitlement of 2.8 MAF in 2013, leaving just over 20,600 acre-feet in Lake Mead. CAWCD joined with the Southern Nevada Water Authority (SNWA) and the Metropolitan Water District of Southern California (MWD) to ask the Secretary to leave unused apportionment in Lake Mead as a benefit to the system. To date, the Secretary has granted this request.

The AWBA continued its quarterly meeting schedule in 2013 with meetings on March 20, June 19, September 4, and December 4. There were two special meetings held by the AWBA on April 24, 2013 and October 16, 2013. The first addressed CAWCD's proposal to use 4¢ ad valorem tax monies to replenish shortfalls to its strategic reserves and the second involved conducting an environmental scan for an action planning effort conducted by the AWBA during 2013.

AWBA staff attended various workgroup meetings that continued throughout the year. These workgroups included the CAWCD, ADWR, and AWBA Interagency Recovery Planning Group, ADWR's Ad Hoc Recovery Planning Group, and the ADWR, CAWCD, AWBA staff workgroup meetings on developing Arizona Colorado River baseline modeling assumptions and ADWR Fourth Management Plan Enhanced Aquifer Management concepts.

Activities and Projects - 2013

Interstate Banking

In December 2010, the AWBA and SNWA executed a letter agreement that temporarily amended certain provisions of the Second Amended Interstate Water Banking Agreement. After the execution of the letter agreement SNWA, CRCN, CAWCD, and AWBA staff continued to meet to discuss all aspects of the overall agreement and as a result of those discussions, a draft Third Amended and Restated Agreement for Interstate Water Banking (Third Amended Agreement) was presented to the AWBA Commission in December of 2012. The proposed changes included the removal of the AWBA's obligation to accrue 1.25 maf of long-term storage credits on behalf of SNWA and considered payments previously made by SNWA (\$123 million) to be payment in full for the 600,651 acre-feet of credits accrued to date. Any future storage, including the use of Nevada's unused apportionment, would be determined annually and associated costs would be billed directly to SNWA. In addition, SNWA's costs for administrative services would be reduced to \$20,000 per year in years when the AWBA does not store water for SNWA.

The AWBA Commission had elected to postpone action on the draft agreement until the next quarterly meeting scheduled for March 2013 to allow ample time to consider the proposed changes and to seek public comments. The Third Amended Agreement was subsequently executed May 20, 2013 with three additional changes. These changes provided additional clarification on the terms for recovery of the existing credits, clarification on CAWCD's rate setting provisions, and recognition that any opportunities for cost reductions associated with the recovery of the credits will not burden Arizona water users.

Interstate Water Banking Report

Since 2006, the AWBA has been required to submit a report to the Joint Legislative Budget Committee (JLBC) pursuant to A.R.S. § 45-2473. This report must be submitted by October 1 for the previous fiscal year if the AWBA was owed or received any monies pursuant to an interstate water banking agreement. The report must account for all monies received or disbursed pursuant to that agreement. Under the current Third Amended Agreement, SNWA is no longer required to make scheduled payments to the AWBA for interstate storage. Rather, storage costs are billed directly to SNWA on a *pay-as-you-go* basis. Because there was no interstate storage, the AWBA was not required to transmit an Interstate Water Banking Report to the JLBC for Fiscal Year 2012-2013. The AWBA will submit a report if water is stored for interstate purposes in future years.

Indian Firming Program

In 2013, AWBA staff initiated discussions with representatives for the Gila River Indian Community (GRIC) to evaluate opportunities for developing a firming plan. Staff also participated in discussions of the Hualapai Tribe Indian water settlements and kept apprised of the status of other ongoing settlements. The AWBA concerns were mainly related to the need to firm water supplies resulting from the settlements.

Gila River Indian Community

Under the Arizona Water Settlements Act (AWSA), the AWBA, as agent for the state, is required to firm up to 15,000 acre-feet per year of CAP NIA Priority water for the GRIC when supplies are insufficient to meet the demands of the Community. The Agreement between the Secretary and the State of Arizona for the Firming of CAP Indian Water, executed on November 15, 2007, defines the AWBA's firming responsibilities, but also includes a provision that allows the AWBA to enter into a separate agreement with the GRIC to carry out its firming obligation. In 2013, AWBA staff began discussions with the GRIC on the potential for developing such an agreement. The intent of the parties is to structure a firming plan that is flexible by offering alternative firming options.

White Mountain Apache Tribe

The Claims Resolution Act of 2010, which includes the White Mountain Apache Tribe Water Rights Quantification Agreement (Quantification Agreement), was signed by the President on December 8, 2010. Under this settlement, the AWBA is required to firm up to 3,750 acre-feet per year of non-Indian agricultural (NIA) CAP water until 2108. This obligation is part of the 8,724 acre-feet per year firming requirement identified for future settlements under the Arizona Water Settlements Act (AWSA). There are several activities that need to be completed to meet the enforceability date of April 30, 2021. These include: 1) revising the Quantification Agreement to conform to the federal legislation and execution of the revised agreement by the parties; 2) approval of the Quantification Agreement by the Gila River and Little Colorado River adjudication courts; and 3) a contribution of \$2 million from the State of Arizona toward the construction of the White Mountain Apache Tribe Rural Water System. In 2012, the Arizona Legislature appropriated \$2 million toward the settlement. In addition, the parties completed the revisions to the Quantification Agreement and by July 2013, all Arizona parties, including the governor, had signed the agreement. [An application to approve the amended and restated agreement was filed with the adjudication court on April 29, 2014]

Navajo Nation/Hopi Tribe

On February 14, 2012, Senator Jon Kyl introduced legislation in Congress authorizing a Little Colorado River Settlement. The parties finalized language for a proposed settlement in March and agreed to submit the settlement agreement to their principals for approval. The settlement included an allocation of NIA CAP water to the Navajo Nation for use at Window Rock that would have an AWBA firming obligation of up to 3,205.5 acre-feet per year. This obligation would have been part of the firming obligation for future settlements identified in the AWSA and would therefore not have resulted in an increase the AWBA's firming obligations. In June of 2012, the Hopi Tribal Council voted to reject the legislation and in July, the Navajo Nation Council voted to reject the settlement. Final efforts among the parties to continue negotiations to try to resolve the outstanding issues were unsuccessful.

The Navajo Nation decided it would not request another stay, opting instead to litigate the lawsuit it filed against the Secretary of Interior in 2003. On June 3, 2013, the Nation filed an amended complaint with the U.S. District Court for the District of Arizona that asserts the Department of the Interior breached its fiduciary duty to the Nation by failing to determine the Nation's rights to the waters of the Lower Colorado River. The Nation is requesting the court hold unlawful and set aside certain operations of the Lower Colorado River, including interstate banking regulations and the Storage and Interstate Release Agreement, because the Secretary failed to consider the needs of the Nation for Colorado River water. ADWR has intervened as a defendant in the lawsuit on behalf of the

State of Arizona. Other interveners include CAWCD and SRP, the Arizona Power Authority, Nevada, Metropolitan Water District of Southern California, Imperial Irrigation District and the Coachella Valley Water District. Motions to dismiss the lawsuit were filed and the parties are currently awaiting a decision by the judge on those motions.

Southside Replenishment Bank

In 2009, the AWBA executed an intergovernmental agreement (IGA) with the Gila River Indian Community for the purpose of establishing the Southside Replenishment Bank (SSRB) as mandated by the AWSA. The AWBA must schedule the delivery of at least 1,000 acre-feet per year to the SSRB until 15,000 acre-feet have been delivered. The first delivery was made in 2009. Since then, the AWBA has scheduled the delivery of 1,000 acre-feet of water each year bringing the total volume of the SSRB to 5,000 acre-feet in 2013.

By memorandum dated September 23, 2013, the AWBA was informed by ADWR that there were no irrigation replenishment obligations for the 2012 reporting year. It is not anticipated that there will be irrigation replenishment obligations for the 2013 reporting year, but that information will not be available until October of 2014 and will be reported in the 2014 Annual Report.

Action Planning

The amount of Excess CAP water available to the AWBA under the 2013 Ten-Year Plan (2014 through 2024) showed nearly half the amount of water available from the previous year's Ten-Year Plan with projected volumes decreasing from 1.2 MAF to approximately 690 KAF. Projected water delivery rates also increased, further limiting the amount of credits the AWBA can accrue using certain funding sources. The decrease in available supplies combined with increasing costs have put the AWBA further behind in achieving its firming goals, particularly in the Tucson AMA, where current funding sources are already determined insufficient for meeting the firming goal. Moreover, there are multiple AWBA objectives competing for the same limited resources.

To begin addressing these issues, the AWBA initiated two solutions. In September, the AWBA approved a proposal to amend AWBA statutes to expand the AWBA's authority to purchase long-term storage credits for water banking purposes using any funding source available to the AWBA. This authority would give the AWBA additional flexibility in achieving its goals and obligations, by allowing the accrual of credits when supplies are unavailable or limited, accrual of additional credits at or near current costs, and the replacement of general fund credits when they are used for firming.

At a special meeting in October, the AWBA also approved a request for a general fund appropriation for \$664,000 to pay for the delivery of 4,000 acre-feet of Excess CAP water to the Southside Replenishment Bank in 2014. Given the projections for a potential shortage in 2016, the AWBA planned to deliver the remaining balance of 10,000 acre-feet of water to the SSRB in 2014 and 2015 to ensure its obligation was met in the event water was not available to the AWBA. The AWBA also reserved the option to request an appropriation to pay for an additional 4,000 acre-feet of deliveries to the Replenishment Bank in 2015, subject to hydrologic conditions at that time.

Furthermore, staff was directed to begin developing an action plan that prioritizes the AWBA's responsibilities and identifies specific actions that can be taken to address the diminishing water supplies and financial resources available to the AWBA. In response, staff proposed a four-step facilitated process. These steps included an environmental scan, vision and commitments,

stakeholder feedback, and final decisions to be made by the AWBA. The process was facilitated by Terri Sue Rossi, AWBA Technical Administrator, trained in Technology of Participation methods.

The environmental scan was conducted at the October special meeting. Participants included AWBA Commission members and staff, staff from ADWR and CAWCD, and several stakeholders. The purpose of the environmental scan was to seek input from the participants on the following question, *“What are the actions, trends, paradigms and approaches emerging for the AWBA and others relative to protecting against the impact of shortages?”* The question was evaluated from the perspective of emerging, established, and dying concepts. Some of the resulting implications included:

- Increasing competition for diminishing resources, including water and money
- Possibility of near term shortage and falling below the 1025 ft. elevation in Lake Mead
- Potential for major changes in Colorado River operations
- Uncertainty
- Need to make tough decisions on priorities
- Recovery component of the program must still be accomplished
- Celebrate success of AWBA and others in accomplishing what has been achieved to date
- Need for public outreach, education and political support
- Energy water nexus

The second step of the process was conducted at the December quarterly meeting. Participation was limited to AWBA Commission members and staff. The focus was the following question, *“What potential roles, responsibilities and functions should the AWBA pursue in the future to assist the water community in managing water resources in Arizona?”* The objective was to determine what accomplishments the AWBA would like to see in place in the next 3-5 years. These included:

- Acquired new water supplies
- Access to and flexibility of funding streams
- Indian firming agreements finalized
- Adopted, implementable recovery plan
- Improved storage plan
- Alternative shortage management strategies
- Decision on AWBA statewide role
- Outreach efforts incorporated into annual reports

The third step of the action planning process, public review and development of implementation plans for projected accomplishments, was scheduled for the following year with results to be discussed at the first AWBA quarterly meeting in 2014.

Modeling

AWBA staff continued meeting with staff from ADWR’s Colorado River Management section and CAWCD to develop consistent baseline assumptions for the Arizona CRSS model for all the agencies to use. The model is one of the planning tools available to the AWBA to determine when shortages might occur, how deep they might be, and the volume of water the AWBA may need to firm in the future. A draft table of assumptions was presented to the AWBA in September. The modeling process is dynamic and will continue evolving as new information becomes available.

Re-evaluation of AWBA firming goals

As part of the AWBA's action planning initiative, staff was also directed to re-evaluate the firming goals originally developed in 1997. The goals were developed using the modeling tools and assumptions available at that time. Since then, there have been several changes both in how the Colorado River is operated and how it is modeled.

Beginning with the consensus Arizona baseline assumptions, staff proposed two modeling scenarios:

1. Interim Guidelines Extended – extending the operating rules beyond their expiration in 2026.
2. Interim Guidelines Preferred Alternative – utilizing the Interim Guidelines through 2026 followed by 80P 1050 operating criteria, which is a probabilistic protection of Lake Mead at an elevation of 1,050 feet.

Each scenario contained two additional modeling variables:

1. Utilization of the Director's Recommended Arizona Shortage Sharing Guidelines – prorating shortage amounts based on entitlements.
2. Utilizing Arizona shortage sharing based on a pro rata share of shortage amounts centered on annual uses.

AWBA staff planned to work in conjunction with ADWR's Colorado River Management section and present the modeling results to AWBA Commission members when completed. [The results were presented at the AWBA's April 16, 2014 meeting and are discussed in the Ten-Year Plan section.]

Joint Recovery Planning

During 2013, AWBA, ADWR, and CAWCD staff continued to work collaboratively on the development of a joint recovery plan as part of the Interagency Recovery Planning Group (Interagency Group). The objective of the recovery plan is to provide a framework for how recovery of AWBA credits may be accomplished in the future. Through this process, the Interagency Group solicited feedback from stakeholder representatives, known as the Ad Hoc Recovery Group. As various sections of the recovery plan were completed they were presented to the both the AWBA Commission and CAWCD Board of Directors for additional comment and public input.

The recovery plan touches on the roles and responsibilities of the entities involved in the recovery of AWBA credits. It also looks at the types of credits that have been accrued, where they are located, different methods for how they can be recovered, and the estimated costs associated with those recovery methods. To evaluate when recovery may be needed and to what extent, the Interagency Group used Reclamation's Colorado River System Simulation (CRSS), using Arizona baseline assumptions, to generate a range of future Colorado River supplies available to Arizona. The results were further analyzed using a recovery model to calculate the probability of specific recovery volumes under the various supply and demand conditions through the 2045 planning period.

The results of these efforts indicated that recovery in the near and mid-term timeframes would be primarily to firm Indian and on-River supplies. While there might be shortages to Excess CAP water supplies in the near-term, the probability of triggering a recovery requirement was relatively low, with a less than 35 percent chance that recovery would be needed before 2024. Recovery for firming CAP M&I priority supplies was not projected to occur before 2035. These results will need to be re-

evaluated periodically for reassessment due to continually changing hydrologic conditions and reservoir status. A key component, however, will be the timing of requests by SNWA for the development of intentionally created unused apportionment and the amounts that will be requested. The location of the AWBA's credits for meeting near and mid-term recovery needs, including recovery for interstate purposes, could also pose a challenge since a majority of the credits available for those purposes are in the Pinal AMA where recovery methods are limited.

The Interagency Group provided a draft recovery plan with its final sections regarding implementation and future activities and commitments, to the Ad Hoc Recovery Group for review and comment in mid-December. Release of the final draft was scheduled for mid-January 2014. [A Preface to the Joint Recovery Plan that acknowledges that the plan advances the objectives of the IGA among ADWR, AWBA, and CAWCD, was executed on May 6, 2014 and incorporated into the final plan. The agencies continue to work cooperatively on the future steps outlined in the plan.]

2014 Plan of Operation

The AWBA 2014 Plan of Operation (Plan) was adopted on December 4, 2013. Water availability was again the primary limiting factor in developing the Plan. The volume of water available to the excess CAP pool that is shared by the AWBA, CAGR, and the Federal government was limited to 84,400 acre-feet. The portion available for use by the AWBA was 64,753 acre-feet.

Under the Plan, 59,753 acre-feet will be delivered for recharge and includes 15,877 acre-feet of storage in the Phoenix AMA, 17,100 acre-feet in the Pinal AMA, and 26,776 acre-feet in the Tucson AMA. Additionally, 5,000 acre-feet will be delivered directly to the GRIC for the SSRB. There is no interstate storage planned for 2014.

ADWR Fourth Management Plan

During 2013, AWBA staff attended several ADWR stakeholder meetings on enhanced aquifer management (EAM), a goal for the Fourth Management Plan. ADWR is seeking feedback from stakeholders on its conceptual proposal that aims to reduce the disparity between storage and recovery locations by modifying the "cut to the aquifer", the volume of recharged water that is determined to be non-recoverable. The proposal aims to encourage recovery within areas of storage by increasing the cut to the aquifer, or decreasing the volume that can be recovered remotely from where it was originally stored. The objective is to improve aquifer health across the AMAs. The proposal would only apply to future long-term storage.

The proposal indicates there could be some allowances for entities recharging and recovering for drought purposes. The AWBA has requested that ADWR consider exempting the recovery of AWBA credits for this reason, particularly because the AWBA is not authorized to recover its credits and must rely on others for this activity. At a time when additional flexibility may be needed, the concept proposed could result in unintentional uncertainty with regard to the amount of credits that may be needed to firm future supplies. It could also further complicate accounting requirements for interstate storage.

ADWR scheduled additional meetings for 2014 and will evaluate comments received on its proposal.

Website

Staff continues to utilize the AWBA website in an effort to provide timely and accurate information to the water community regarding the AWBA's activities: www.azwaterbank.gov . The web page contains information about the AWBA, its Commission members and staff, announcements, meetings, storage facilities, water deliveries and long-term storage credits accrued. The webpage also contains documents that may be downloaded and provides links to other water-related websites.

For additional information regarding the AWBA, please contact Virginia O'Connell (voconnell@azwater.gov) or Terri Sue Rossi (tsrossi@azwater.gov) or by phone at 602-771-8487.

Monies Expended from the Banking Fund

Arizona Revised Statutes §45-2425 mandates the various sources of monies for the Arizona Water Banking (AWB) Fund. The AWB Fund is administered by the AWBA. In 2013, the AWBA obtained its funding from the following sources:

1. Fees for groundwater pumping are collected within the Phoenix, Pinal and Tucson AMAs. Fees for water banking purposes are charged at \$2.50 per acre-foot. Legislative changes allow for groundwater withdrawal fees to be collected and available to the AWBA beyond 2016 (A.R.S. §45-611(c)(3)). Long-term storage credits accrued with these monies must be used to benefit the AMA in which the monies were collected.
2. No *ad valorem* tax revenues were deposited into the AWB Fund in 2013. In June of 2013, the CAWCD Board again resolved that all taxes to be levied for the following tax year would be retained by CAWCD. All *ad valorem* monies previously held in the AWB Fund were expended by 2007. Money from this source must be used to benefit the county in which it was collected.
3. No general fund appropriation money was deposited in the AWB Fund in 2013.
4. Pursuant to the Agreement to Firm Future Supplies (Agreement to Firm), Mohave County Water Authority (MCWA) agreed to prepay the AWBA to set aside 230,280 acre-feet of credits that were transferred to the MCWA sub-account. Once the credits were identified for use by an entity outside of the three-county service area, CAWCD was required to charge the AWBA a fee in lieu of the 4¢ *ad valorem* tax. Monies collected from MCWA are used to offset the CAWCD fees which are charged at the same rate and on the same quarterly schedule as MCWA's prepayments to the AWBA. The final payment due under the Amended Agreement to Firm was made by MCWA in November of 2010 for the first quarter of 2011. The first prepayment under the Amended Agreement to Firm that sets aside an additional 25,894 acre-feet of credits was made in September of 2011 for the quarter beginning on October 1. To date, MCWA has made twelve out of the twenty payments required.

Table 1 shows the money the AWBA collected and the money that was expended for delivery and storage of water in 2013 by source of funds. Table 2 shows the total money received, expended and remaining through December 2013 by source of funds.

Table 1. Monies Collected and Expended in 2013 by Source of Funds

Source of Funds	Collected	Expended
General Funds	\$0	\$0
In-Lieu Fund – MCWA Prepayments ¹	\$124,590	\$124,590
State Indian Firming	\$0	\$0
Interstate Water Banking ²	\$6,130	\$0
Shortage Reparations - Nevada	\$1,500,000	\$1,500,000
4¢ Ad valorem Tax³		
Maricopa County	\$0	\$3,903,720
Pinal County	\$0	\$1,305,480
Pima County	\$0	\$2,299,540
Subtotal for Ad valorem	\$0	\$7,508,740
Groundwater Withdrawal Fees		
Phoenix AMA	\$2,106,520	\$728,000
Pinal AMA	\$1,619,020	\$997,600
Tucson AMA	\$404,110	\$373,550
Subtotal for Withdrawal Fees	\$4,129,650	\$2,099,150
TOTAL	\$5,760,370	\$11,232,480

¹ MCWA paid its remaining share of \$22,920 in full, reducing future quarterly payments to \$23,984.

² Amount collected is interest and \$1,218 in monies recovered from Lehman Brothers bankruptcy.

³ Money expended by CAWCD to offset AWBA delivery and storage costs.

Table 2. Monies Collected and Expended through December 2013 for Water Banking Activities and Monies Remaining Available

Source of Funds	Collected	Expended	Available ¹
General Funds	\$11,100,870	\$11,100,870	\$0
In-Lieu Fund - MCWA Pre-payments	\$4,859,660	\$4,859,660	\$0
State Indian Firming ²	\$2,338,170	\$2,338,170	\$0
Interstate Water Banking-NV ^{2,3}	\$109,317,260	\$109,087,820	\$229,440
Shortage Reparations - NV	\$4,499,750	\$4,499,750	\$0
4¢ Ad valorem Tax⁴			
Maricopa County ⁵	\$226,518,370	\$91,334,970	\$90,183,400
Pinal County	\$10,949,140	\$10,450,160	\$498,980
Pima County	\$45,849,150	\$42,451,870	\$3,397,280
Subtotal for Ad valorem	\$283,316,660	\$144,237,000	\$94,079,660
Groundwater Withdrawal Fees²			
Phoenix AMA	\$21,071,720	\$19,648,240	\$1,423,480
Pinal AMA	\$17,814,330	\$16,993,890	\$820,440
Tucson AMA	\$8,347,370	\$8,314,710	\$32,660
Subtotal for Withdrawal Fees	\$47,233,420	\$44,956,840	\$2,276,580
TOTAL	\$462,665,790	\$321,080,110	\$96,585,680

¹ Money remaining in AWB Fund or collected by CAWCD; includes monies committed for the 2014 Plan of Operation.

² Total money collected was decreased to reflect legislative transfers in CY 2004, CY 2005, CY 2009-2011.

³ Pursuant to the Third Amended and Restated Interstate Banking Agreement, monies remaining available are non-reconcilable for interstate purposes and subject to legislative authorization prior to use by the AWBA.

⁴ Includes money collected and money expended by CAWCD to offset AWBA delivery and storage costs.

⁵ Total monies available decreased to reflect the CAWCD Board of Directors resolution adopted May 2013 to transfer \$45 million to its Strategic Reserve Fund as part of the operation, maintenance and replacement costs of the project.

The AWBA has established long-term storage credit accounts with ADWR for each AMA. After receiving the AWBA's annual reports, ADWR calculates and issues credits to the appropriate accounts. The AWBA receives credit for 95 percent of the stored water. After credits are issued to the account, AWBA staff allocates the credits to the appropriate sub-accounts based on source of funding. The number and distribution of credits for 2013 are listed in Table 3. Cumulative credits accrued by the AWBA through December 2013 are listed in Table 4.

Table 3. Number and Location of Long-term Storage Credits Accrued in 2013 (AF)

Funding Source	Phoenix AMA	Pinal AMA	Tucson AMA	Total
4-Cent Ad Valorem Tax	24,560	10,881	13,987	49,381
Withdrawal Fees	4,798	7,258	2,199	14,178
General Fund	-	-	-	-
Shortage Reparation	-	-	8,846	8,846
Intrastate TOTAL	29,358	18,139	25,032	72,529
Interstate - Nevada	-	-	-	-
TOTAL	29,358	18,139	25,032	72,529

Table 4. Cumulative Long-term Storage Credits Accrued through December 2013 (AF)

Funding Source	Phoenix AMA	Pinal AMA	Tucson AMA	Total
4-Cent Ad Valorem Tax	1,354,486	198,347	404,315	1,957,148
Withdrawal Fees	298,429	402,155	100,995 ¹	801,578
General Fund	42,316	306,968 ²	54,546	403,830
Other Intrastate:				
Indian Firming Appropriation	-	-	28,481	28,481
Shortage Reparation	20,642	60,507	10,072	91,221
GSF Operator Full Cost Share	-	14,125	-	14,125
Intrastate TOTAL	1,715,872	982,101	598,409	3,296,382
Interstate - Nevada	51,009	439,851 ³	109,791	600,651
TOTAL	1,766,881	1,421,952	708,200	3,897,033

¹ Includes 234 acre-feet of credits purchased from the Tohono O'odham Nation pursuant to § 45-841.01.

² By resolution passed in 2002, the AWBA established on-River firming as the highest priority of use for credits accrued through expenditure of general fund appropriations. Pursuant to the AWBA Agreement to Firm with MCWA dated February 4, 2005, a total of 230,280 acre-feet of credits were transferred to the AWBA long-term storage subaccount for the MCWA in 2005. An additional 25,894 acre-feet of credits have been reserved under Exhibit C the Amended Agreement to Firm, dated December 8, 2010, for a total of 256,174 acre-feet. By resolution passed in 2008, the AWBA established a replacement account for 4th priority Colorado River M&I users.

³ Includes 50,000 acre-feet of credits transferred from CAWCD pursuant to Amended Agreement for Interstate Water Banking.

Since inception, the AWBA has focused its efforts on developing long-term storage credits for firming purposes. The AWBA has identified 2,700,000 acre-feet of credits as a reasonable amount of credits to firm the CAP M&I subcontracts over the next 100 years. This volume is divided based on a pro-rata distribution by county based on CAP M&I subcontracts as follows: 58 percent Maricopa County, 32 percent Pima County, and 9 percent Pinal County.

The AWBA has also identified 420,000 acre-feet of credits as a reasonable amount of credits to firm the on-River communities over the next 100 years. In 2002, the AWBA adopted a resolution that identified on-River firming as the highest priority of use for the general fund credits and established priorities for other uses (Indian settlements, etc.). Consequently, all or part of the general fund credits could be utilized to firm on-River M&I users. It should be noted that the AWBA will collect reimbursement for the replacement cost of credits used for on-River firming. In 2008, the AWBA executed Resolution 2008-1 that established a long-term storage credit replacement account for 4th priority Colorado River M&I users. As credits are used and replaced, these replacement credits will be placed in a separate replacement subaccount and earmarked for the entity that reimburses the AWBA for the replacement of those credits. Table 5 illustrates the progress made by the AWBA towards meeting its established goals.

Table 5 also identifies the estimated remaining costs for meeting the AWBA's goals and obligations. These estimates are based on the assumptions contained in the AWBA's Ten-Year Plan for 2015-2024 and are subject to potential shortages discussed under the recovery section. For obligations that are not met in the Ten-Year Plan, 2025 estimated costs were assumed when calculating the amount remaining to meet the goals.

As described in the Ten-Year Plan section of this report, most of the firming goals could be met during the next ten years. The M&I firming goal for the Phoenix AMA could be met completely with *ad valorem* tax credits. In the Pinal AMA, 90 percent of the M&I firming goal could be met with *ad valorem* tax credits. The remaining ten percent could be met using existing withdrawal fee credits and would not require additional costs. Those goals not met include the Tucson AMA and on-River M&I firming goals. Approximately 68 percent of the Tucson AMA firming goal will have been met by 2024. Since all of the *ad valorem* tax monies will have been expended by 2017, withdrawal fees will be needed to meet the remainder of this firming goal. Because revenue from withdrawal fees is limited in the Tucson AMA (about \$400,000 per year), the firming goal would not be met until well beyond 2024. The total estimated cost for meeting the Tucson AMA firming goal is nearly \$92.5 million. Estimated expenditures under the Ten-Year Plan total \$14.5 million: \$10.3 million in *ad valorem* tax monies and \$4.2 million in withdrawal fees. The cost to accrue the credits needed to meet the remaining firming goal (32%) is estimated at \$78 million.

Lastly, the remaining costs for meeting the Indian firming goals were estimated by assuming that all withdrawal fee credits accrued in the Phoenix and Pinal AMAs in the next ten years would be applied toward meeting these goals since the M&I firming goals could be met primarily with *ad valorem* taxes. Existing Pinal AMA withdrawal fee credits in addition to those accrued from storage at the Gila River Indian Irrigation and Drainage District (GRIDD) GSF, could be used to meet the remaining firming goal. Existing Phoenix AMA withdrawal fee credits could be used to meet the firming goal for future Indian settlements. Because funding has already been expended for these credits, they were not included in the calculation for remaining costs.

While not included in the assumptions, credits accrued from shortage reparation funds could also be used to assist the AWBA in firming supplies when necessary.

Table 5. Identified Uses of Long-term Storage Credits Accrued through December 2013 and Percentage of AWBA Goals Achieved

Location and Objective	Funding Source	Estimated Goal	Non-Credit Goal Achieved	Credits Accrued (AF)	Goal Achieved	Estimated ¹ Remaining Costs (\$ Million)
CAP M&I Firming	Water Storage Tax (4¢ <i>Ad valorem</i>) collected by County	1,566,000 AF		1,354,480	86%	\$39
Phoenix AMA		243,000 AF		198,350	82%	\$2.4
Pinal AMA		864,000 AF		404,320	47%	\$92.5
On-River M&I Firming²	General Fund	420,000 AF		403,830	96%	\$4.4
Indian Settlement Obligations:						
GRIC Firming - <i>up to 15 KAF/yr</i>	General Fund Withdrawal Fees	350,000 AF ³		105,390 0 105,390	30%	\$10.4
Future Settlements - <i>up to 8.7 KAF/yr</i>	General Fund Withdrawal Fees	200,000 AF ³		0 0 0	N/A	\$15.6
Federal Assistance (SAWRSA)- <i>\$3 million</i>	General Fund Tucson W/Fees		\$3,000,000 \$2,338,171 \$630,490	34,102 28,481 5,621	100%	\$0
	Cost of Services ⁵		\$31,339	<i>n/a</i>		
Southside Replenishment Bank <i>15 KAF direct delivery</i>	General Fund Pinal W/Fees			5,000 0 5,000	33%	\$1.7
Groundwater Management⁶						
Phoenix AMA	Withdrawal Fees collected by AMA			121,800		
Pinal AMA				368,000		
Tucson AMA				95,370		
Other:						
Shortage Reparations	Agreement with Nevada	\$8,000,000	\$4,500,000	91,220	56%	\$3.5
Pinal Redirect Credits ⁷	N/A			14,125	N/A	N/A

¹ Based on the Ten-Year Plan and an assumed rate escalation of 3% for water storage costs after 2020.

² By resolution passed in 2002, the AWBA established on-River firming as the highest priority of use for credits accrued through expenditure of general fund appropriations. Pursuant to the Agreement to Firm dated February 4, 2005, a total of 230,280 acre-feet of credits were transferred to the AWBA long-term storage subaccount for MCWA in 2005. An additional 25,894 acre-feet of credits have been reserved under Exhibit C the Amended Agreement to Firm, dated December 8, 2010, for a total of 256,174 acre-feet.

³ Based on estimates from the Indian Firming Study Commission Report dated January 6, 2006.

⁴ Credits accrued and reserved for firming pursuant to the Agreement between the AWBA and the Gila River Indian Irrigation and Drainage District of the Gila River Indian Community for storage of Central Arizona Project Water at a GSF, executed June 16, 2006. Credits include 88,313 AF accrued in the Phoenix AMA and 17,077 AF accrued in the Pinal AMA. Credits available for water management have been adjusted accordingly.

⁵ Expenditures include \$14,883 and \$16,456 deducted for payment of cost of services for FY 08 and FY 09, respectively.

⁶ Withdrawal fees could be utilized in addition to 4¢ *ad valorem* tax revenues for M&I firming if needed to reach firming goals and for Indian settlement obligations in the absence of general fund appropriations.

⁷ Credits accrued from AWBA water provided to Pinal AMA GSFs at full cost to the GSF operators. These credits are currently identified for use in the Tucson AMA.

The average annual cost for the AWBA to obtain one acre-foot of long-term storage credit for intrastate and interstate storage is presented in Tables 6a and 6b, respectively. Table 6a illustrates that the unit cost per credit for intrastate storage fluctuates yearly primarily based on water delivery and storage facility costs. For example, the significant increase beginning 2010 is due to CAWCD eliminating the incentive recharge cost structure.

Table 6a. Average Annual Cost for the AWBA to Obtain a Long-term Storage Credit for Intrastate Storage

Year	Credits ¹	Funds Expended	Average Cost (per acre-foot)	Ratio of GSF to USF
1997	296,987	\$6,387,000	\$21.51	85:15
1998	202,542	\$7,143,000	\$35.27	68:32
1999	232,142	\$8,733,000	\$37.61	68:32
2000	272,123	\$11,163,000	\$41.02	60:40
2001	275,406	\$10,893,590	\$39.55	62:38
2002	262,317	\$13,700,300	\$52.23	64:36
2003	200,168	\$11,077,666	\$55.34	47:53
2004	251,456	\$17,855,997	\$71.01	41:59
2005	85,782	\$5,615,201	\$65.46	58:42
2006	162,342	\$14,720,277	\$90.67	17:83
2007	245,221	\$14,589,390	\$59.49	37:63
2008	203,373	\$8,168,100	\$40.16	65:35
2009 ²	99,453	\$6,977,590	\$70.16	76:24
2010	181,214	\$26,027,947	\$143.63	21:79
2011	127,605	\$16,543,540	\$129.65	33:67
2012	125,503	\$17,314,052	\$137.96	42:58
2013	72,404	\$10,963,900	\$151.43	31:69

¹ Information in this table is reconciled on an annual basis.

² Does not include credits purchased pursuant to § 45-841.01.

Table 6b illustrates the unit cost per long-term storage credit for interstate also fluctuates yearly. Pursuant to the Letter Agreement, no interstate storage occurred in 2011 or 2012.

Table 6b. Average Annual Cost for the AWBA to Obtain a Long-term Storage Credit for Storage on Behalf of Nevada

Year	Credits	Funds Expended	Average Cost (per acre-foot)	Ratio of GSF to USF
2002	61,098	\$8,617,393	\$141.04	100:0
2003	50,000 ¹			
2004	14,162	\$2,899,647	\$204.75	66:34
2005	111,805	\$25,723,366	\$230.07	65:35
2006	175,569	\$35,386,306	\$201.55	68:32
2007	114,886	\$21,853,906	\$190.22	91:09
2008	None	None	\$0	0:0
2009	55,252	\$10,781,853	\$195.14	45: 55
2010	17,879	\$3,825,350	\$213.96	0:100

¹ Long-term Storage Credits transferred from CAWCD.

Long-term Storage Credits Distributed or Extinguished by the Authority

The long-term storage credits developed by the AWBA to date have been identified for five purposes:

- Firming CAP M&I entitlements;
- Firming the post-1968 M&I entitlements for entities outside the CAP service area;
- Firming for the States obligation under the AWSA, including the State's Federal obligation;
- Assisting in fulfilling the water management objectives set forth in Chapter 2 of Title 45 (Arizona Revised Statutes); and
- Interstate water banking purposes pursuant to agreements with Nevada.

Credits created by the AWBA for firming purposes may be distributed or extinguished when the Colorado River system is deemed to be in a shortage, if there is a water shortage as defined under the AWSA, or if there is an operational disruption of the CAP. There were no shortages or unplanned CAP outages, therefore, no credits were distributed or extinguished for these purposes in 2013. No credits were distributed or extinguished in 2013 for water management purposes.

Under the 1999 amendments to the AWBA legislation, the AWBA is authorized to develop credits with monies collected pursuant to water banking services agreements. In 2013, no credits were developed or distributed under such agreements. Additionally, there was no recovery of credits for interstate purposes.

Ten-Year Plan

Introduction

Pursuant to A.R.S. §45-2426, the AWBA is required to prepare a Ten-Year Plan. The Ten-Year Plan must include a description of any water banking activities the AWBA intends to undertake in addition to the three primary AWBA functions of firming for M&I supplies, assisting in Indian water rights settlements, and fulfilling state water management objectives. The Ten-Year Plan is presented in Table 7. The Ten-Year Plan must also provide an analysis of the AWBA's ability to complete those activities. This analysis is provided in Table 8. The Ten-Year Plan is not a guarantee of future storage activities and is completed for planning purposes only. In any given year, the AWBA's activities are governed by the annual Plan of Operation. This Ten-Year Plan projects nearly 480,000 acre-feet of long-term storage credits will be developed.

The Ten-Year Plan (Table 7) analyzes activity for the period 2015-2024 and was derived using the information found in Appendices A through I. AWBA accounting for previous years can be found in the 2012 Annual Report and 2014 Plan of Operation. The plan is an important tool to be utilized in development of 1) the next year's annual Plan of Operation and 2) policy guidelines for future AWBA activities. AWBA staff developed the Ten-Year Plan based on the following guiding principles:

1. The Ten-Year Plan covers a ten-year time period beginning with the next calendar year. For example, this Ten-Year Plan covers the time period 2015-2024.
2. The Ten-Year Plan incorporates:
 - a. CAWCD's adopted 2014-2015 rate schedule and assumes a 3% increase in such rates from 2021 through 2024.
 - b. Current priorities and limitations of AWBA. Specifically, Plan continues to maximize amount of water stored in Tucson AMA, while strategically storing water for future recovery, in order to move closer to firming goals in Tucson.
3. The Ten-Year Plan assumes the following:
 - a. No legislative transfers from Arizona Water Banking Fund.
 - b. 4¢ water storage tax only used for water storage purposes.
 - c. CAWCD's CAP Recharge Facility Priority Policy adopted May 2, 2013 and CAWCD's Procedure for Distributing Excess CAP Water for the Period of 2015 through 2019 adopted March 6, 2014 continue through 2024.
 - d. No hydrologic conditions eliminating availability of Excess CAP Water for AWBA and/or requiring recovery.
 - e. Withdrawal fees accrued in Tucson AMA applied to M&I firming in Tucson AMA; withdrawal fees accrued in Phoenix and Pinal AMAs since 2008 applied to Indian firming.

Table 7. Ten-Year Plan

ARIZONA WATER BANKING AUTHORITY – Ten-Year Plan 2015 – 2024 (Acre-feet)																
YEAR	(a)	(b)		(c)		(d)		(e)		(f)		(g)				
	CAP Water Available for AWBA	CAP M&I Firming tax (4¢)		Water Management (Withdrawal Fees)		Appropriation from General Fund		Shortage Repairs (\$8 Million)		Indian Settlement		Interstate Banking				
		Delivery	Credits	Delivery	Credits	Delivery	Credits	Delivery	Credits	Delivery	Credits	Water Available	Delivery	Credits	ICUA	Remaining Credits
Pre-Plan ^(h)	n/a	1,989,462		610,244		403,830		98,981		206,232				600,651		600,651
2015	54,100	36,960	34,372	5,000	0	0	0	5,113	4,755	7,028	6,536	0	0	0	0	600,651
2016	38,600	27,793	25,847	0	0	0	0	4,973	4,625	5,834	5,426	0	0	0	0	600,651
2017	87,900	56,716	52,746	6,818	6,341	0	0	0	0	24,366	22,660	0	0	0	0	600,651
2018	77,800	53,338	49,604	1,868	1,737	0	0	0	0	22,594	21,012	0	0	0	0	600,651
2019	64,700	43,017	40,006	1,838	1,709	0	0	0	0	19,845	18,456	0	0	0	0	600,651
2020	51,800	33,691	31,332	1,665	1,549	0	0	0	0	16,444	15,293	0	0	0	0	600,651
2021	39,100	23,821	22,154	1,611	1,498	0	0	0	0	13,668	12,711	0	0	0	0	600,651
2022	29,700	16,571	15,411	1,560	1,451	0	0	0	0	11,569	10,759	0	0	0	0	600,651
2023	14,200	4,422	4,112	1,512	1,406	0	0	0	0	8,266	7,687	0	0	0	0	600,651
2024	64,300	44,736	41,605	1,467	1,365	0	0	0	0	18,097	16,830	0	0	0	0	600,651
TOTAL	522,200	2,306,652		627,299		403,830		108,361		343,602				600,651	0	

(a) See Appendix B.

(b) See Appendix D.

(c) See Appendix E. Includes direct delivery of 5,000 acre-feet of water for 2015 to Southside Replenishment Bank; does not result in credits being accrued. Only includes credits accrued in Tucson AMA going forward. Pre-plan amount includes all withdrawal fee credits accrued in Tucson and only those accrued in Pinal and Phoenix AMAs through 2007.

(d) See Appendix F.

(e) See Appendix G.

(f) See Appendix H. A.R.S. §45-2491(B)(2) allows for the use of withdrawal fees after legislative appropriations for Indian firming have been expended. Withdrawal fee credits accrued in the Phoenix and Pinal AMAs could be utilized to meet this obligation. The pre-plan amount includes credits accrued from storage at the GRIIDD GSF and withdrawal fee credits accrued in the Phoenix and Pinal AMAs since 2008. The State’s Indian firming obligation is estimated at 550,000 acre-feet. In addition, 34,102 acre-feet of credits have been accrued to meet the State’s obligation under Section 306 of the AWSA (\$3 million for Federal assistance).

(g) See Appendix I.

(h) Cumulative credit totals for 1997-2013 are actual; 2014 credits are estimated based on projected deliveries.

Table 8. AWBA Percentage of Goals Achieved through 2024

Location and Objective	Funding Source	Estimated Goal	Obligation	Non-Credit Goal/Oblig. Achieved	Credits ¹ Accrued (AF)	Percent Goal/Oblig. Achieved	
CAP M&I FIRMING	Water Storage Tax (4¢ <i>Ad valorem</i>) and withdrawal fees	1,566,000	AF		1,619,862	103%	
Phoenix AMA ²							
Pinal AMA ³		243,000	AF		243,047	100%	
Tucson AMA ⁴		864,000	AF		586,850	68%	
On-River M&I FIRMING⁵	General Fund	420,000	AF		403,830	96%	
Indian Settlement Obligations:⁶							
GRIC FIRMING	Withdrawal Fees	350,000	AF	up to 15,000 AF/YR	350,000	100%	
Phoenix AMA					88,313		
Pinal AMA					261,687		
Future Settlements	Withdrawal Fees	200,000	AF	up to 8,724 AF/YR	200,000	100%	
Federal Assistance				\$3,000,000	\$3,000,000	34,102	100%
Tucson AMA	Appropriation				\$2,338,171	28,481	
	Withdrawal Fees				\$630,490	5,621	
	Cost of Services				\$31,339	n/a	
Southside Replenishment Bank	Pinal AMA Withdrawal Fees			15,000 AF Direct Delivery	15,000	100%	
Groundwater Management							
Phoenix AMA	Withdrawal Fees collected by AMA				77,655		
Pinal AMA ³					200,187		
Tucson AMA ⁴					0		
Other:							
Shortage Reparations-Nevada	Agreement with Nevada				\$8,000,000	108,361	100%
Pinal Redirect Credits ⁷	n/a				14,125		

¹ 1997-2014; actual credits through 2013 and estimated credits for 2014 based on projected deliveries.

² 100% of the numeric M&I firming goal for the Phoenix AMA is met in 2021.

³ M&I firming has been statutorily identified as a water management objective. This Plan assumes 24,192 acre-feet of Pinal AMA withdrawal fee credits are applied to M&I firming. Without these additional credits, the Pinal AMA M&I firming goal will only reach 90% of the numeric goal during the planning period.

⁴ M&I firming has been statutorily identified as a water management objective. This Plan assumes all of the 118,914 acre-feet of Tucson AMA withdrawal fee credits are applied to M&I firming. Without applying these additional credits, the Tucson AMA M&I firming goal will only reach 54% of the numeric goal during the planning period.

⁵ By resolution passed in 2002, AWBA established on-river firming as the highest priority of use for credits accrued through expenditure of general fund appropriations. A total of 256,174 acre-feet of credits have been reserved pursuant to AWBA's contract with MCWA.

⁶ A.R.S. §45-2491(B)(2) allows for use of withdrawal fees after legislative appropriations for Indian firming have been expended. 105,390 acre-feet of credits stored at GRIIDD are already dedicated through agreement to Indian firming. Additionally, the Ten-Year Plan assumes credits accrued from withdrawal fees in the Pinal and Phoenix AMAs in this Ten-Year Plan are applied to Indian firming. Given this assumption, 51% of the GRIC and 32% of the future settlement firming goals are estimated to be met in 2024. Existing withdrawal fee credits from Pinal and Phoenix AMAs are used to meet remainder of firming goals for GRIC and future settlements, respectively.

⁷ Credits currently identified for use in Tucson AMA would meet 1.6% of the Tucson AMA M&I firming goal.

Ten-Year Plan Components

The following components are recognized to be important in developing the Ten-Year Plan. Inclusion or exclusion of a specific component was based on whether the component's effect could be predicted over the planning period, the magnitude of the effect and whether the component was anticipated to be an issue. Three components are always considered: water availability, funding and storage capacity. Other components specific to this plan include: re-evaluation of firming targets, participation in Indian settlements, shortage and surplus, intrastate recovery and requests for Intentionally Created Unused Apportionment (ICUA), water management objectives and interstate banking.

1. Water Available to the AWBA

The volume of water available to the AWBA has been decreasing since 2010 when over 200,000 acre-feet were available to the AWBA. In 2013, the AWBA stored just over 75,000 acre-feet. In its 2014 Plan of Operation, the AWBA expects to store around 60,000 acre-feet and deliver another 5,000 acre-feet to the Southside Replenishment Bank. In 2014, its lowest storage year since inception, the AWBA will store approximately 30% of the volume stored in 2010 and about 15% of the volume stored in the AWBA's highest storage year in 2007.

Based on the water availability estimates in Appendix B provided by CAWCD, the volume of excess CAP water projected to be available to the AWBA during this Ten-Year Plan is roughly 525,000 acre-feet approximately 165,000 acre-feet less than what was projected in last year's Plan. Last year's Ten-Year Plan showed 38,100 acre-feet in the lowest year (i.e. 2023) and over 110,000 acre-feet in the highest year (i.e. 2017) when the Excess Agricultural Pool decreases to 300,000 acre-feet. This Ten-Year Plan projects an even lower volume in 2023 (i.e. around 14,000 acre-feet) and a substantially decreased high volume in 2017 (i.e. just over 52,000 acre-feet).

CAWCD staff recently presented an analysis¹ showing a high likelihood of a shortage declaration in 2017 due to drought conditions that have been experienced in the Colorado River Basin and what CAWCD staff described as a structural deficit (annual uses exceeding available supplies in the Lower Basin by 1.2 MAF). CAWCD staff further explained that Arizona could enter a period of sustained shortage, and within 5-8 years, Lake Mead could drop to the critical 1,000 foot elevation level. To recover from this condition in the Lower Basin, 19 to 24 MAF of inflow would need to enter Lake Powell to trigger equalization releases into Lake Mead. Indications are that once Lake Mead is at the critical 1,000 foot elevation, the system would need up to 15 years for Lake Mead to recover to the 1,075 foot elevation level, the point at which normal operating conditions could once again be declared. Under these scenarios, there would be no excess CAP water available to the AWBA. Additionally, the AWBA would need to accelerate implementation of its joint recovery plan with CAWCD and ADWR as significant demand for recovery could be anticipated.

CAWCD 2014-2015 rate schedule continues to reflect a significant increase over rate schedules prior to 2013 due to a weak energy market and rising costs at the Navajo Generating Station. Between 2013 and 2020, CAWCD projects an increase of \$77 per acre-foot, a 53% in water rates. While some speculate that additional water could become available to the AWBA as users storing in the past are affected by price elasticity, orders for CAP have not reflected this in 2013 or 2014.

¹ Presentation by T. McCann and C Cullom dated June 5, 2014 to CAP Board called "Colorado River Drought Response and System Sustainability"

If this occurs later on in the Plan, because storage in the Tucson AMA is already maximized, the Ten-Year Plan would assume excess volumes will be shared between Pinal and Maricopa County until funds in Pinal are exhausted. After which, any remaining water will be stored in Maricopa.

2. Funding

Funding for water storage that benefits Arizona (intrastate storage) comes from three sources: water storage taxes (i.e. 4¢ *ad valorem tax*), groundwater withdrawal fees and general fund appropriations. There are restrictions on how each funding source can be used. In the past, the AWBA has also received funding from the Southern Nevada Water Authority for interstate water banking and shortage reparation.

Water Storage Tax (4¢ ad valorem tax)

Pursuant to A.R.S. §48-3715.03(B), 4¢ *ad valorem* taxes levied and collected by CAWCD not deposited in the CAWCD fund, shall be deposited into subaccounts held by the AWBA: one for each of the three counties in which the taxes were collected. CAWCD has not deposited monies collected into these AWBA subaccounts since 2003. The AWBA expended all of the funds that remained in the subaccounts for Pinal and Pima Counties in 2004 and Maricopa County in 2007. CAWCD has however offset AWBA water delivery and storage costs using the 4¢ *ad valorem* tax held in CAWCD accounts. This Ten-Year Plan relies on the continuation of CAWCD offsetting a portion of the AWBA's costs. The Plan assumes the 4¢ *ad valorem* tax will generate approximately \$17.5 million annually with approximately \$13.5 million in the Phoenix AMA, \$850,000 in the Pinal AMA and around \$3 million in the Tucson AMA. It is important to note, however, that A.R.S. §48-3715.02, which provides CAWCD the authority to levy the *ad valorem* tax for water storage, will be repealed effective January 2, 2017. Therefore, this Ten-Year Plan does not include collection of the *ad valorem* tax beyond 2016.

This plan assumes interest from *ad valorem* tax monies held by CAWCD (i.e. funds historically set aside for AWBA Administration purposes) for Pima and Pinal Counties are used to store water for these counties once the principal amount is exhausted. Based on the Plan, there will only be *ad valorem* tax monies remaining at the end of the Ten-Year Plan for Maricopa County. The *ad valorem* tax monies including interest are expected to be exhausted in both Pinal and Pima Counties by 2017.

Groundwater Withdrawal Fees

Pursuant to A.R.S. §45-611(3), the Director of Water Resources levies and collects a groundwater withdrawal fee for water banking purposes in the three AMAs equal to \$2.50 per acre-foot per year. This Plan assumes \$3.6 million in withdrawal fees is collected annually with \$1.7 million collected in the Phoenix AMA, 1.5 million collected in the Pinal AMA and \$400,000 collected in the Tucson AMA². The AWBA can utilize withdrawal fees to firm M&I CAP subcontract supplies, to implement the settlement of water rights claims by Indian communities in Arizona and to meet the water management objectives of the AMAs in which the fees were collected. In addition, withdrawal fees collected in the Pinal AMA can be used to meet the AWBA Southside

² Withdrawal fees collected varies from year to year. The assumed collections for the Ten-Year Plan are based on an average of collections between 2009 and 2013.

Replenishment Bank (SSRB) obligation. When distributed or extinguished, these credits can only be used for the benefit of the AMA in which the monies were collected.

To this end, credits accrued using withdrawal fees in the Tucson AMA are assumed to be applied to M&I firming in that AMA. The Ten-Year Plan further assumes withdrawal fees credits accrued in the Phoenix and Pinal AMAs, including those accrued at the GRIID GSF, could be applied to Indian firming obligations if the AWBA does not receive a general fund appropriation for this purpose. Finally, this Plan assumes withdrawal fees are used to purchase CAP water for delivery to the SSRB.

AWBA General Fund Appropriation

Pursuant to A.R.S. §45-2423.B.10, the AWBA can submit a request for a general fund appropriation each year. While the AWBA may request general fund appropriations during this planning period, receipt of an appropriation cannot be expected. In 2013, the AWBA made a request for a general fund appropriation to pay for the accelerated deliveries to the Southside Replenishment Bank in 2014. The request did not result in an appropriation. Consequently, the Ten-Year Plan reflects a reduction in water storage expenditures in the Pinal AMA for 2015. Absent future general fund appropriations, any storage needed to meet the AWBA's Indian firming obligation may require the use withdrawal fees.

Funding for Interstate Banking

Pursuant to earlier interstate water banking agreements, 600,651 acre-feet of credits are already held in the Southern Nevada Water Authority (SNWA) account. SNWA paid nearly \$123 million for these credits. Under the Third Amended and Restated Agreement for Interstate Water Banking, the AWBA no longer has an obligation to accrue future long-term storage credits to be held in the SNWA account. As in the original agreement, all future delivery and storage costs are born by SNWA and are on a "pay-as-you-go" basis.

Shortage Reparation Funds

Pursuant to the Arizona-Nevada Shortage-Sharing Agreement, Nevada will provide to the AWBA \$8 million in order to assist Arizona in offsetting impacts that may occur during the "Interim Period"³. By the end of 2014, the AWBA will have expended approximately \$6 million of these funds for the purchase and storage of CAP water. While a final plan for the use of the credits accrued using these funds has not yet been adopted by the Authority, expenditure of the remaining \$2 million has been included in this Ten-Year Plan. In the Ten-Year Plan, expenditure of these funds has been focused in the Tucson AMA in order to distribute use of the funds among the three AMAs since funds have already been expended in the Phoenix and Pinal AMAs.

³ The Interim Period is the period beginning on the date the Secretary issued the Colorado River Interim Guidelines for the Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead, December 13, 2007, and ending on December 31, 2025 (through preparation of the 2026 Annual Operating Plan).

3. Storage Partners and Storage Capacity

Groundwater Savings Facilities

The AWBA currently has nine water storage permits for GSFs with a total permitted storage capacity of 412,547 acre-feet per year. Storage at these facilities under this Ten-Year Plan is restricted due to a limited volume of capacity made available to the AWBA because of local priorities on where to store water and storage by other GSF partners. Tucson AMA interests requested that any water available for the Tucson AMA be stored at certain USFs before considering local GSFs.

One facility permit⁴ associated with water storage permits held by the AWBA has expired, but this facility has a renewal pending. This plan assumes this facility will be successful in the renewal process. The remaining facility permits associated with the GSFs will expire during this Ten-Year Plan. Any difficulty in obtaining new permits could impact the capacity available to the AWBA. However, because impacts of this nature cannot be predicted, this Ten-Year Plan assumes the permits will also be renewed. The AWBA has renewed water storage agreements with its GSF partners. The new agreements will expire December 31, 2021. The Ten-Year Plan assumes the agreements will be renewed and that the AWBA will continue to participate with these GSF partners throughout this Ten-Year Plan.

Underground Storage Facilities

The AWBA currently has nine water storage permits for USFs with a total permitted storage capacity of 561,000 acre-feet per year. Storage capacity available to the AWBA, primarily at CAWCD operated facilities, has decreased over the last few years because of storage by other participants. Storage capacity could continue to decline as additional entities contract with CAWCD and are issued water storage permits by ADWR. However, the actual capacity used by these entities could be limited by the availability of water to those entities.

Four of the USF permits will expire within this Ten-Year Plan. Like the GSF permits, any difficulty in obtaining new permits could impact the capacity available to the AWBA. However, because impacts of this nature cannot be predicted, this Ten-Year Plan assumes the permits will be renewed.

The AWBA's water storage agreement with the Metropolitan Domestic Water Improvement District for storage at the Avra Valley Recharge Project will expire on December 31, 2015. Likewise, the AWBA's Master Water Storage Agreement with CAWCD for storage at its six facilities will expire December 31, 2016. Renewal of these agreements is anticipated therefore storage at these facilities was included for the full ten-year planning period.

The AWBA updated its Storage Facility Inventory in March of 2011 and used it to develop this Ten-Year Plan. Since the inventory was updated, no additional permit capacity has been developed that would increase the capacity available to the AWBA.

Appendix C describes the storage partners, storage permits, and capacity available for use by the AWBA. This plan identifies 154,000 acre-feet of storage capacity available to the AWBA at GSFs and 186,000 acre-feet of capacity available to the AWBA at USFs. Therefore, the Ten-Year Plan

⁴ Cortaro Marana Irrigation District's GSF facility permit expired on November 9, 2013.

has sufficient storage capacity to store the amount of water assumed to be available to the AWBA under CAWCD's policy for distributing Excess CAP water. However, it is possible the location of AWBA storage could be affected in the future.

4. Re-evaluation of Firming Targets

In March of 2014, the AWBA, based on updated modeling conducted by ADWR⁵, re-evaluated its firming targets originally established based on data from 1997 for M&I firming and in 2006 for Indian firming. The AWBA conducted numerous scenarios that resulted in a range of volumes for each firming category. With the exception of the range of volumes for Indian firming, the other firming categories fell within their respective range of volumes. Specifically for Indian firming, the re-evaluation showed the amount of storage needed for Indian firming ranges from 778,000 acre-feet in the most likely scenario to nearly 1.3 million acre-feet in a severe scenario. The bottom of the range is nearly 230,000 acre-feet higher than the 550,000 acre-foot goal established for Indian firming in 2006. This difference is caused mainly by how a water shortage for Indian firming is defined pursuant to the AWSA. The AWBA will continue to re-evaluate its firming targets as new data becomes available.

5. Participation in Indian Settlements

One objective of the AWBA is assisting with the settlement of water rights claims by Indian communities within Arizona. The State of Arizona has a 100-year firming obligation under the Arizona Water Settlements Act. The AWBA also has statutorily mandated responsibilities for the Southside Replenishment Bank.

This Ten-Year Plan includes a component for meeting the State's Indian settlement firming obligation. As shown in Table 8, withdrawal fee credits, already accrued in the Phoenix and Pinal AMAs, could be used to meet this obligation while still maintaining credits for other water management purposes. This includes credits that were previously accrued from water stored at the GRIIDD GSF. The AWBA retains full rights to the credits developed at the GSF until such time the credits are utilized to meet the State's Indian firming obligation.

This Ten-Year Plan also includes a component for meeting the initial SSRB obligation of 15,000 acre-feet. The AWBA will have delivered 10,000 acre-feet for this purpose by the end of 2014. Because projections in 2013 indicated a high probability of shortage by 2016 and 2017, the AWBA made a decision to accelerate deliveries to the SSRB in 2014 and 2015. Consistent with that, this plan assumes 5,000 acre-feet will be delivered in 2015 completing the State's obligation.

6. Shortages and Surplus

In its August 2013 24-Month Study⁶, the USBOR projected, for the first time, elevations in Lake Mead dropping below 1,075 feet sparking concerns that a potential Tier 1 shortage⁷ could be declared in the next few years. In its April 2014 24-Month Study⁸, however, elevations showed

⁵ Arizona Department of Water Resources. March 2014. AWBA Results Scenario A2.

⁶ U.S. Bureau of Reclamation. Operation Plan for Colorado River System Reservoirs: August 2013 24-Month Study (August 12, 2013), page 12.

⁷ A Tier 1 shortage is a 320,000 acre-foot reduction to Arizona's apportionment of 2.8 MAF.

⁸ U.S. Bureau of Reclamation. Operation Plan for Colorado River System Reservoirs: February 2014 24-Month Study (April 8, 2014), page 11

improvement easing concerns that a Tier 1 shortage could possibly be declared as early as 2015. While the Ten-Year Plan assumes normal water supply conditions (Appendix B), in the most recent modeling run conducted by ADWR⁹ for the AWBA as part of an evaluation of the AWBA's firming goals, there is a range of 40% to 55% probability that a shortage could occur on the Colorado River during the planning period, with the average probability being 46%. Still more recently, CAWCD conducted an analysis that indicates there is a high likelihood a shortage could be declared in 2017.¹⁰

Should a shortage be declared, Excess CAP water would not be available for the AWBA. During such an event, the AWBA might want to consider finding other sources of water to develop credits. One such option, due to legislation passing in 2014, is to purchase long-term storage credits. The decision to acquire other sources of water would be made annually under the Plan of Operation. Additionally, the AWBA could also decide to supplement Excess CAP water supplies in years when available volumes are low.

Although the Ten-Year Plan assumes a modest amount of excess CAP water available to the AWBA (Appendix B), model runs for this period show a low probability, 4% to 30%¹¹, that a surplus condition could occur with average probability being 18%. If a surplus year is determined, then the AWBA would attempt to store any available water. Additional storage, over what is currently planned in the Ten-Year Plan for that year, could be limited based on funding, canal, and storage capacities available to the AWBA.

7. Intrastate Recovery and Requests for Intentionally Created Unused Apportionment (ICUA)

Intrastate Recovery

In the Joint Recovery Plan prepared by CAWCD, ADWR and the AWBA, the earliest intrastate recovery is expected to occur in 2017 and the probability is 1%. Such an event would only affect the AWBA's Indian and on-River obligations and responsibilities. According to this same plan, there is only a 36% probability or less of needing to recover in any given year during the Near-Term planning period (2013 to 2023) and a 55% probability or less in the Mid-Term planning period (2024 to 2034).

Based on the most recent modeling run conducted by ADWR using 2014 starting elevations¹², the earliest recovery event could be in 2018 when modeling predicts a 3% probability of shortage to the NIA priority pool resulting in an Indian firming obligation of a little over 100 acre-feet. This probability increases in 2020 to around 27% and then again in 2025 to around 50% with the volume ranging from between 1,000 to 3,500 acre-feet. For on-River impacts, the modeling shows a probability of a shortage of 11% in 2021 ramping up to 30-40% between 2030 and 2044. Starting in 2045, the probability increases again to nearly 47% with expected impacts between 1,300 and 3,000 acre-feet. For M&I Priority firming, the modeling shows a probability of shortage

⁹ Arizona Department of Water Resources. March 2014. Arizona Water Banking Authority: 2014 Firming Update. AWBA Results Scenario A2.

¹⁰ Presentation by T. McCann and C Cullom dated June 5, 2014 to CAP Board called "Colorado River Drought Response and System Sustainability"

¹¹ Arizona Department of Water Resources. March 2014. Arizona Water Banking Authority: 2014 Firming Update. AWBA Results Scenario A2.

¹² Arizona Department of Water Resources. March 2014. AWBA Results Scenario A2.

of 12%, but not until 2042. The probability increases by 2045 to around 29% with expected volumes from 250 acre-feet to nearly 8,000 acre-feet.

Development of ICUA

This Ten-Year Plan assumes that SNWA will not request ICUA during the planning period¹³. The Third Amended and Restated Agreement for Interstate Water Banking authorizes Nevada to request development of ICUA, as follows: in the initial year, an amount not exceeding 20,000 acre-feet; the second year, an amount not exceeding 30,000 acre-feet and in all subsequent years, an amount not exceeding 40,000 acre-feet. Existing credits must be recovered by December 31, 2063. Future credits must be recovered within 50 years of the date of storage with the oldest credits recovered first. The agreement terminates when all credits (i.e. existing and future) have been recovered.

8. Water Management Objectives

The early activities of the AWBA were focused on achieving the goal of full utilization of Arizona's Colorado River entitlement. With the exception of 2005, Arizona has been meeting this goal since 2002. As the probability of shortage has increased, the Lower Basin states have worked together to implement a strategy that would keep lake elevations in Mead high enough to avoid a shortage declaration¹⁴. As a result of this, Arizona left water on the River in 2012 and in 2013 to help mitigate further declines.

Another primary objective of the AWBA is meeting the numeric M&I firming goals. Even with considerably less water available from CAWCD, this Ten-Year Plan projects the AWBA will store enough water to meet 90% of the numeric goal in the Pinal AMA and 103% of the goal in the Phoenix AMA using 4¢ *ad valorem* tax monies alone. If credits accrued using withdrawals fees are included, the AWBA also expects to meet the goal for the Pinal AMA as well during the Ten-Year Plan. Except for the 5,621 acre-feet of withdrawal fee credits set aside for meeting the State's obligation to the Federal government under the AWSA and the 105,000 acre-feet accrued at the GRIIDD, the AWBA has not applied any withdrawal fee credits to any of its stated purposes to date.

For the Tucson AMA, including withdrawal fee credits, the AWBA expects to only reach 68% of the numeric goal for the Tucson AMA. Because the AWBA is further behind in achieving its goal for the Tucson AMA than the other AMAs, the AWBA directed staff to focus on storing as much water as possible in the Tucson area. Other water management objectives have also become more important in the Tucson AMA over time. The AWBA continues to implement the facility prioritization strategy requested by Tucson area interests to store water at Tucson Water's SAVSARP as a first priority, followed by the Pima Mine Road Recharge Project, followed by the Avra Valley Recharge Project before storing water at the Lower Santa Cruz Recharge Project or any of the GSFs located in the AMA.

It is important to note that while M&I and Indian firming are both identified as water management objectives, Indian firming is an obligation under the AWSA. In its recent re-evaluation of its firming goals, the AWBA determined that Indian firming would require 778,000 to 1.3 MAF of credits to

¹³ Communication with Southern Nevada Water Authority dated May 22, 2014.

¹⁴ Modeer, Kightlinger and Mulroy. Correspondence dated October 31, 2013. A similar letter was sent in 2012.

satisfy Indian firming requirements. By the end of this Ten-Year Plan, the AWBA expects to accrue 970,000 acre-feet of withdrawal fee credits. Absent general fund appropriations, the AWBA would need to rely on withdrawal fee credits to meet its Indian firming requirements. Should the Indian firming obligations exhaust all withdrawal fee credits, then no credits would be available for M&I firming or any other water management objective.

9. Interstate Banking

In May of 2013, the AWBA, SNWA and the CRCN signed the Third Amended and Restated Agreement for Interstate Water Banking. To date, 600,651 acre-feet of credits are already held in the SNWA account. Under the new agreement, the AWBA no longer has an obligation to accrue future long-term storage credits to be held in the SNWA account. The parties can mutually agree to future accrual of long-term storage credits including authorizing the use of Nevada's unused apportionment as the source water. Because water available to AWBA is low during this planning period, the Ten-Year Plan assumes no storage for Nevada. If additional water becomes available and Arizona's uses are met, then the AWBA and SNWA can agree to accrue long-term storage credits for Nevada. If unused apportionment from Nevada becomes available, then the AWBA would need to consider available capacity.

Conclusions and Recommendations

The Ten-Year Plan is intended to serve as a guide to assist the AWBA in the development of its Annual Plan of Operation in which the AWBA is required to plan its activities for the following calendar year. As part of the Annual Report, the Ten-Year Plan is reviewed and updated annually. Therefore, it is possible that the Ten-Year Plan may change significantly depending on the goals set by the AWBA and the funding and water supply available to the AWBA. Several conclusions can be reached given this Ten-Year Plan:

- 1) The region is moving close to hydrologic conditions where water availability will be a limiting factor in this planning period; approximately 480,000 acre-feet of credits could be created as a result of this Plan.
- 2) The region is moving closer to hydrologic conditions where recovery could be triggered. If a shortage is declared, the AWBA will be without water to store during that water year. If recovery is triggered, then Indian obligations will be impacted first followed closely by on-River responsibilities.
- 3) Funding becomes a limiting factor in both Pinal and Pima Counties as the water storage tax expires; withdrawal fees carried forward from previous years and the remaining water storage tax monies will be exhausted in the Pinal and Tucson AMAs by 2017; starting in 2018 withdrawal fees will be spent as quickly as they are collected.
- 4) Maricopa County is the only county projected to have revenues remaining in water storage tax fund at the end of the Ten-Year Plan.
- 5) Absent future appropriations, withdrawal fees credits will become the principle source for meeting the State's obligation for Indian firming thus limiting the AWBA's ability to assist in other water management objectives.
- 6) Status of numeric firming goals:
 - a. The Phoenix AMA goal is attained during this planning period.

- b. The Pinal AMA goal is attainable during the planning period if withdrawal fee credits are applied to this objective.
 - c. The Tucson AMA goal is not attainable during the planning period.
- 7) Updated modeling results shows Indian firming volumes range from 778,000 acre-feet in the most likely scenario to nearly 1.3 million acre-feet in a severe scenario, an increase of nearly 230,000 acre-feet over the existing goal.
 - 8) The initial Southside Replenishment Bank is fully subscribed by 2015 and will have been paid for using withdrawal fees unless an appropriation is secured in the 2015 legislative session.
 - 9) Interstate storage using Arizona's entitlement is unlikely during this planning period.
 - 10) Requests for ICUA are also unlikely during this planning period.

Based on these conclusions, staff recommends the following potential actions:

- 1) In response to recent modeling results, focus heavily on making progress on Indian firming specifically by:
 - a. Developing agreements for satisfying Indian firming obligations (e.g. finalize agreements with GRIC and initiate discussions with WMAT and its lessees).
 - b. Completing delivery requirements to Southside Replenishment Bank.
 - c. Assigning withdrawal fee credits stored at Phoenix AMA and Pinal AMA GRIIDD to firming GRIC NIA supply.
 - d. Seeking general fund appropriations to support Indian firming.
- 2) Decide if numeric Indian firming goal should be adjusted, based on new modeling results, and if so how.
- 3) Establish policy on how shortage reparation credits will be used.
- 4) Apply withdrawal fee credits stored in the Tucson AMA to M&I firming in Tucson.
- 5) Consider supplementing deliveries of Excess CAP water with purchase of long-term storage credits to take advantage of lower water delivery and storage costs through 2019.
- 6) Engage in discussion regarding the continuation of the water storage tax beyond 2016.
- 7) Develop a public outreach program to support AWBA future operations.

APPENDICES

APPENDIX A			
Colorado River Water Deliveries for Water Banking Purposes for Calendar Year 2013 by Partner and Active Management Area			
	Partner	Quantity of Water (Acre-feet)	
		Intrastate	Interstate
PHOENIX AMA	Agua Fria Recharge Project	10,210	0
	Hieroglyphics Mountain Recharge Project	1,054	0
	Superstition Mountains Recharge Project	4,857	
	Tonopah Desert Recharge Project	12,897	
	Queen Creek Irrigation District	2,009	0
	<i>Intrastate/Interstate AMA Subtotal</i>	31,027	0
	<i>Phoenix AMA Subtotal</i>	31,027	
PINAL AMA	Central Arizona Irrigation & Drainage District	6,695	0
	Hohokam Irrigation & Drainage District	6,333	0
	Maricopa-Stanfield Irrigation & Drainage District	6,600	0
	Southside Replenishment Bank	1,000	0
	<i>Intrastate/Interstate AMA Subtotal</i>	20,628	0
	<i>Pinal AMA Subtotal</i>	20,628	
TUCSON AMA	Ava Valley Recharge Project	0	0
	Lower Santa Cruz Recharge Project	9,300	0
	SAVSARP	13,255	0
	Cortaro-Marana Irrigation District	1,953	0
	Pima Mine Road	2067	0
	<i>Intrastate/Interstate AMA Subtotal</i>	26,575	0
	<i>Tucson AMA Subtotal</i>	26,575	
TOTAL INTRASTATE & INTERSTATE DELIVERIES		78,230	0
TOTAL DELIVERIES		78,230	

Appendix B					
CAP Delivery Schedule					
(Acre-Feet)					
Year	Total CAP Deliveries¹	Federal and M&I Deliveries	Ag Settlement Pool	Statutory Firming Pool²	
				Federal & CAGRD RR	AWBA
2015	1,565,000	1,092,300	400,000	18,600	54,100
2016	1,560,000	1,104,100	400,000	17,300	38,600
2017	1,555,000	1,146,800	300,000	20,300	87,900
2018	1,550,000	1,152,300	300,000	19,900	77,800
2019	1,550,000	1,166,000	300,000	19,300	64,700
2020	1,550,000	1,179,800	300,000	18,400	51,800
2021	1,550,000	1,193,600	300,000	17,300	39,100
2022	1,550,000	1,204,100	300,000	16,200	29,700
2023	1,550,000	1,222,800	300,000	13,000	14,200
2024	1,550,000	1,241,500	225,000	19,200	64,300

¹ Based on average deliveries and remaining use of SRP exchange water. Assumes non-shortage CAP supply.

² Based on current and extended (through 2019) CAWCD Access to Excess distribution procedure.

APPENDIX C

**STORAGE FACILITIES AVAILABLE TO THE AWBA
(as used in the Ten-Year Plan)**

Name of Facility¹	Facility Permit Expiration	Facility Permitted Capacity (AF)	Capacity Available to AWBA² (AF)	Year Water Last Stored	Volume of Water Last Stored (AF)
PHOENIX – GSF³					
Queen Creek Irrigation District	Dec-15	28,000	6,000	2013	2,009
New Magma Irrigation & Drainage District	Jul-17	54,000	0	2012	23,866
Subtotal for Phoenix AMA - GSF		82,000	6,000		
PHOENIX – USF					
Agua Fria Recharge Project	May-19	100,000	15,000	2013	10,210
Hieroglyphic Mountains Recharge Project	Dec-21	35,000	15,000	2013	1,054
Tonopah Desert Recharge Project	Sep-25	150,000	100,000	2013	12,897
Superstition Mountains Recharge Project	Jan-28	25,000	8,000	2013	4,857
Subtotal for Phoenix AMA - USF		310,000	138,000		
PINAL – GSF					
Central Arizona Irrigation & Drainage District	Dec-17	110,000	60,000	2013	6,695
Hohokam Irrigation & Drainage District ⁴	Oct-12	55,000	20,000	2013	6,333
Maricopa-Stanfield Irrigation & Drainage District	Dec-19	120,000	60,000	2013	6,600
Subtotal for Pinal AMA - GSF		285,000	140,000		
TUCSON – GSF					
BKW Farms	Sep-14	14,316	1,000	2012	200
Cortaro-Marana Irrigation District	Nov-13	20,000	5,000	2013	1,953
Kai-Farms – Red Rock	Nov-16	11,231	2,000	2012	1,851
Subtotal for Tucson AMA - GSF		45,547	8,000		
TUCSON – USF					
Avra Valley Recharge Project	Mar-18	11,000	1,000	2012	774
CAVSARP	Dec-28	100,000	0	2012	51
Lower Santa Cruz Recharge Project	Feb-19	50,000	25,000	2013	9,300
Pima Mine Road Recharge Project	Sep-20	30,000	7,000	2013	2067
SAVSARP	Jan-28	60,000	15,000	2013	13,255
Subtotal for Tucson AMA - USF		251,000	48,000		
ALL AMAs - GSF		412,547	154,000		
ALL AMAs - USF		561,000	186,000		

¹ As additional facilities are developed, they will be included in future plans.

² This does not reflect the actual “permitted” volume for these facilities; instead for the purposes of this plan, staff relied on average historical storage volumes and potential for future storage. Capacity available to the AWBA at the Avra Valley Recharge Project is based on the operator’s estimated annual averages for the Ten-Year Planning period.

³ The AWBA also holds a water storage permit at Tonopah Irrigation District GSF (15,000 AF), however use of the facility was not considered significant in this Ten-Year Plan.

⁴ Permit renewal application pending with ADWR.

APPENDIX D

Credits Developed for M&I Firming Utilizing the 4¢ Tax ¹

(Acre-feet)

	Groundwater Savings			Underground Storage			
	Year	Capacity Available ⁴	Capacity Used	Credits Earned	Capacity Available ⁴	Capacity Used	Credits Earned
PHOENIX AMA²	Pre-plan ³			551,200			814,015
	2015	6,000	6,000	5580	138,000	4,944	4,598
	2016	6,000	6,000	5580	138,000	1,720	1,600
	2017	5,000	5,000	4650	138,000	30,555	28,416
	2018	4,500	4,500	4185	138,000	48,838	45,419
	2019	4,500	4,500	4185	138,000	38,517	35,821
	2020	4,000	4,000	3720	138,000	29,691	27,612
	2021	4,000	4,000	3720	138,000	19,821	18,434
	2022	4,000	4,000	3720	138,000	12,571	11,691
	2023	4,000	4,000	3720	138,000	422	392
	2024	4,000	4,000	3720	138,000	40,736	37,885
	Total			593,980			1,025,883
PINAL AMA²	Pre-plan ³			203,923			0
	2015	138,000	6,579	6,118	-	-	0
	2016	138,000	5,746	5,344	-	-	0
	2017	138,000	3,732	3,471	-	-	0
	2018	138,000	-	-	-	-	0
	2019	138,000	-	-	-	-	0
	2020	138,000	-	-	-	-	0
	2021	138,000	-	-	-	-	0
	2022	138,000	-	-	-	-	0
	2023	138,000	-	-	-	-	0
	2024	138,000	-	-	-	-	0
	Total			218,856			-
TUCSON AMA²	Pre-plan ³			18,629			401,697
	2015	8,000	-	0	42,887	19,437	18,076
	2016	8,000	-	0	43,027	14,327	13,324
	2017	8,000	-	0	48,000	17,429	16,209
	2018	8,000	-	0	48,000	-	0
	2019	8,000	-	0	48,000	-	0
	2020	8,000	-	0	48,000	-	0
	2021	8,000	-	0	48,000	-	0
	2022	8,000	-	0	48,000	-	0
	2023	8,000	-	0	48,000	-	0
	2024	8,000	-	0	48,000	-	0
	Total			18,629			449,306

¹ Expenditure of 4¢ ad valorem tax revenues given highest priority in Tucson and Pinal AMAs. In Phoenix AMA, 80% of water available stored using 4¢ ad valorem tax revenues in each year of Ten-Year Plan except in 2023 when the volume available is so small that 100% of the volume is stored using 4¢ ad valorem tax revenues.

² M&I firming targets are Phoenix AMA - 1.566 MAF, Pinal AMA – 243,000 AF, and Tucson AMA – 864,000 AF.

³ Cumulative totals for 1997-2013; 2014 credits estimated based on projected deliveries.

⁴ Capacity available based on capacity remaining at facilities after all higher priority demands have been met.

APPENDIX E

Credits Developed for Meeting AMA Water Management Goals Utilizing Withdrawal Fees¹

(Acre-feet)

	Groundwater Savings			Underground Storage			
	Year	Capacity Available ⁴	Capacity Used	Credits Earned	Capacity Available ⁴	Capacity Used	Credits Earned
PHOENIX AMA²	Pre-plan ³			160,752			141,554
	2015	0	-	0	133,056	2,736	2,544
	2016	0	-	0	136,280	1,930	1,795
	2017	0	-	0	107,445	8,889	8,267
	2018	0	-	0	89,162	13,335	12,401
	2019	0	-	0	99,483	10,754	10,001
	2020	0	-	0	108,309	8,423	7,833
	2021	0	-	0	118,179	5,955	5,538
	2022	0	-	0	125,429	4,143	3,853
	2023	0	-	0	137,578	1,105	1,028
	2024	0	-	0	97,264	11,184	10,401
	Total			160,752			205,216
	PINAL AMA²	Pre-plan ³			412,311		
2015		132,421	9,292	3,991	-	-	0
2016		133,254	3,904	3,631	-	-	0
2017		135,268	15,477	14,394	-	-	0
2018		139,000	9,259	8,611	-	-	0
2019		139,000	9,091	8,455	-	-	0
2020		139,000	8,021	7,460	-	-	0
2021		139,000	7,712	7,173	-	-	0
2022		139,000	7,426	6,906	-	-	0
2023		139,000	7,160	6,659	-	-	0
2024		139,000	6,913	6,429	-	-	0
Total				486,019			-
TUCSON AMA²		Pre-plan ³			7,270		
	2015	8,000	-	0	23,450	-	-
	2016	8,000	-	0	28,700	-	-
	2017	8,000	-	0	30,571	6,818	6,341
	2018	8,000	-	0	48,000	1,868	1,737
	2019	8,000	-	0	48,000	1,838	1,709
	2020	8,000	-	0	48,000	1,665	1,549
	2021	8,000	-	0	48,000	1,611	1,498
	2022	8,000	-	0	48,000	1,560	1,451
	2023	8,000	-	0	48,000	1,512	1,406
	2024	8,000	-	0	48,000	1,467	1,365
	Total			7,270			111,644

¹ Expenditure of withdrawal fees given second highest priority in Tucson and Pinal AMAs. In Phoenix AMA, 20% of water available stored using withdrawal fees in each year of Ten-Year Plan.

² M&I firming targets are Phoenix AMA - 1.566 MAF, Pinal AMA – 243,000 AF, and Tucson AMA – 864,000 AF.

³ Cumulative totals for 1997-2013; 2014 credits estimated based on projected deliveries.

⁴ Capacity available based on capacity remaining at facilities after all higher priority demands have been met.

⁵ No credits are received for water stored at the SSRB. Remaining deliveries to SSRB are completed in 2015.

APPENDIX F

Credits Developed for Annual General Fund Appropriations^{1,2}

(Acre-feet)

	Groundwater Savings			Underground Storage			
	Year	Capacity Available ⁴	Capacity Used	Credits Earned	Capacity Available ⁴	Capacity Used	Credits Earned
PHOENIX AMA	Pre-plan ³			26,041			16,275
	2014	0	-	0	130,320	-	0
	2015	0	-	0	134,350	-	0
	2016	0	-	0	98,556	-	0
	2017	0	-	0	75,827	-	0
	2018	0	-	0	88,729	-	0
	2019	0	-	0	99,887	-	0
	2020	0	-	0	112,223	-	0
	2021	0	-	0	121,286	-	0
	2022	0	-	0	136,473	-	0
	2023	0	-	0	86,080	-	0
	Total			26,041			16,275
	PINAL AMA	Pre-plan ³			306,968		
2014		123,130	-	0	-	-	0
2015		129,350	-	0	-	-	0
2016		119,791	-	0	-	-	0
2017		129,741	-	0	-	-	0
2018		129,909	-	0	-	-	0
2019		130,979	-	0	-	-	0
2020		131,288	-	0	-	-	0
2021		131,574	-	0	-	-	0
2022		131,840	-	0	-	-	0
2023		132,087	-	0	-	-	0
Total			-	306,968			-
TUCSON AMA		Pre-plan ³			2,846		
	2014	8,000	-	0	23,450	-	0
	2015	8,000	-	0	28,700	-	0
	2016	8,000	-	0	23,753	-	0
	2017	8,000	-	0	46,132	-	0
	2018	8,000	-	0	46,162	-	0
	2019	8,000	-	0	46,335	-	0
	2020	8,000	-	0	46,389	-	0
	2021	8,000	-	0	46,440	-	0
	2022	8,000	-	0	46,488	-	0
	2023	8,000	-	0	46,533	-	0
	Total		-	2,846			51,700

¹ This Ten-Year Plan does not include a component for General Fund appropriations.

² The on-river M&I firming target is 420,000 acre-feet.

³ Cumulative totals for 1997 through 2013 are actuals. There are no deliveries scheduled for 2014.

⁴ Capacity available based on capacity remaining at facilities after all higher priority demands have been met.

APPENDIX G

Credits Developed for Utilizing Funds Dedicated for Shortage Reparations¹

(Acre-feet)

	Groundwater Savings			Underground Storage			
	Year	Capacity Available ³	Capacity Used	Credits Earned	Capacity Available ³	Capacity Used	Credits Earned
PHOENIX AMA	Pre-plan ²			4,590			16,051
	2015	0	-	0	133,056	-	0
	2016	0	-	0	136,280	-	0
	2017	0	-	0	107,445	-	0
	2018	0	-	0	89,162	-	0
	2019	0	-	0	99,483	-	0
	2020	0	-	0	108,309	-	0
	2021	0	-	0	118,179	-	0
	2022	0	-	0	125,429	-	0
	2023	0	-	0	137,578	-	0
	2024	0	-	0	97,264	-	0
	Total			4,590			16,051
	PINAL AMA	Pre-plan ²			60,507		
2015		131,421	-	0	-	-	0
2016		132,254	-	0	-	-	0
2017		134,268	-	0	-	-	0
2018		138,000	-	0	-	-	0
2019		138,000	-	0	-	-	0
2020		138,000	-	0	-	-	0
2021		138,000	-	0	-	-	0
2022		138,000	-	0	-	-	0
2023		138,000	-	0	-	-	0
2024		138,000	-	0	-	-	0
Total				60,507			-
TUCSON AMA		Pre-plan ²			937		
	2015	8,000	-	0	48,000	5,113	4,755
	2016	8,000	-	0	48,000	4,973	4,625
	2017	8,000	-	0	48,000	-	-
	2018	8,000	-	0	48,000	-	-
	2019	8,000	-	0	48,000	-	-
	2020	8,000	-	0	48,000	-	-
	2021	8,000	-	0	48,000	-	-
	2022	8,000	-	0	48,000	-	-
	2023	8,000	-	0	48,000	-	-
	2024	8,000	-	0	48,000	-	-
	Total			937			26,275

¹ \$8 million received from Nevada pursuant to the Arizona-Nevada Shortage-Sharing Agreement to assist Arizona in offsetting the impacts of shortage impacts during the Interim Period.

² Cumulative totals for 1997-2013; 2014 credits estimated based on projected deliveries.

³ Capacity available based on capacity remaining at facilities after all higher priority demands have been met.

APPENDIX H

Credits Developed for Utilizing Indian Settlement Appropriations¹

(Acre-feet)

	Groundwater Savings			Underground Storage			
	Year	Capacity Available ⁴	Capacity Used	Credits Earned	Capacity Available ⁴	Capacity Used	Credits Earned
PHOENIX AMA	Pre-plan ³			0			0
	2014	0	-	0	130,320	-	0
	2015	0	-	0	134,350	-	0
	2016	0	-	0	98,556	-	0
	2017	0	-	0	75,827	-	0
	2018	0	-	0	88,729	-	0
	2019	0	-	0	99,887	-	0
	2020	0	-	0	112,223	-	0
	2021	0	-	0	121,286	-	0
	2022	0	-	0	136,473	-	0
	2023	0	-	0	86,080	-	0
	Total			-			-
	PINAL AMA	Pre-plan ³			0		
2014		123,130	-	0	-	-	0
2015		129,350	-	0	-	-	0
2016		119,791	-	0	-	-	0
2017		129,741	-	0	-	-	0
2018		129,909	-	0	-	-	0
2019		130,979	-	0	-	-	0
2020		131,288	-	0	-	-	0
2021		131,574	-	0	-	-	0
2022		131,840	-	0	-	-	0
2023		132,087	-	0	-	-	0
Total				-			-
TUCSON AMA		Pre-plan ³			0		
	2014	8,000	-	0	23,450	-	0
	2015	8,000	-	0	28,700	-	0
	2016	8,000	-	0	23,753	-	0
	2017	8,000	-	0	46,132	-	0
	2018	8,000	-	0	46,162	-	0
	2019	8,000	-	0	46,335	-	0
	2020	8,000	-	0	46,389	-	0
	2021	8,000	-	0	46,440	-	0
	2022	8,000	-	0	46,488	-	0
	2023	8,000	-	0	46,533	-	0
	Total			-			28,481

¹ The State Indian firming target is estimated at 550,000 acre-feet.

² Credits accrued through the expenditure of \$3 million for assisting Federal government in meeting its firming obligation under Section 306 of the Arizona Water Settlements Act.

APPENDIX I

Potential Credits Developed for Interstate Water Banking

(Acre-feet)

Year	Available CAP Supplies ¹	Available AWBA Capacity ²	Interstate Deliveries ³	Interstate Credits ⁴	ICUA ⁵	Remaining Credits ⁶	Supply Available ⁷
Pre-plan ⁸						600,651	
2015	-	284,900	-	-	-	600,651	-
2016	-	300,400	-	-	-	600,651	-
2017	-	250,100	-	-	-	600,651	-
2018	-	259,700	-	-	-	600,651	-
2019	-	272,800	-	-	-	600,651	-
2020	-	285,200	-	-	-	600,651	-
2021	-	297,900	-	-	-	600,651	-
2022	-	307,300	-	-	-	600,651	-
2023	-	322,800	-	-	-	600,651	-
2024	-	272,700	-	-	-	600,651	-
Total			-	-	-		

¹ Water available for Interstate Banking is calculated by subtracting the water delivered and stored by the AWBA for intrastate water banking from the total water supply available for the AWBA (see Appendix B).

² Reflects unused capacity available to AWBA at USFs and GSFs in the Phoenix, Pinal, and Tucson AMAs. Additional capacity may be available at individual facilities based on utilization by individual water storage permit holders.

³ Projected deliveries are based on the Third Amended and Restate Agreement for Interstate Water Banking dated May 20, 2013 and an annual limitation of 200,000 AF/YR.

⁴ Calculation: Interstate deliveries multiplied by 93%.

⁵ Assumes SNWA will not request ICUA during this planning period; consistent with the Third Amended and Restate Agreement for Interstate Water Banking dated May 20, 2013, SNWA's requests for ICUA must ramp up from 20,000 acre-feet per acre-feet per year, then 30,000 acre-feet per year before requesting 40,000 acre-feet per year.

⁶ Calculation: credits available minus assumed ICUA during this Ten-Year Plan.

⁷ Calculation: Available CAP Supplies minus Interstate Deliveries.

⁸ Cumulative totals for 2002-2013 are actuals. There are no deliveries scheduled for 2014.