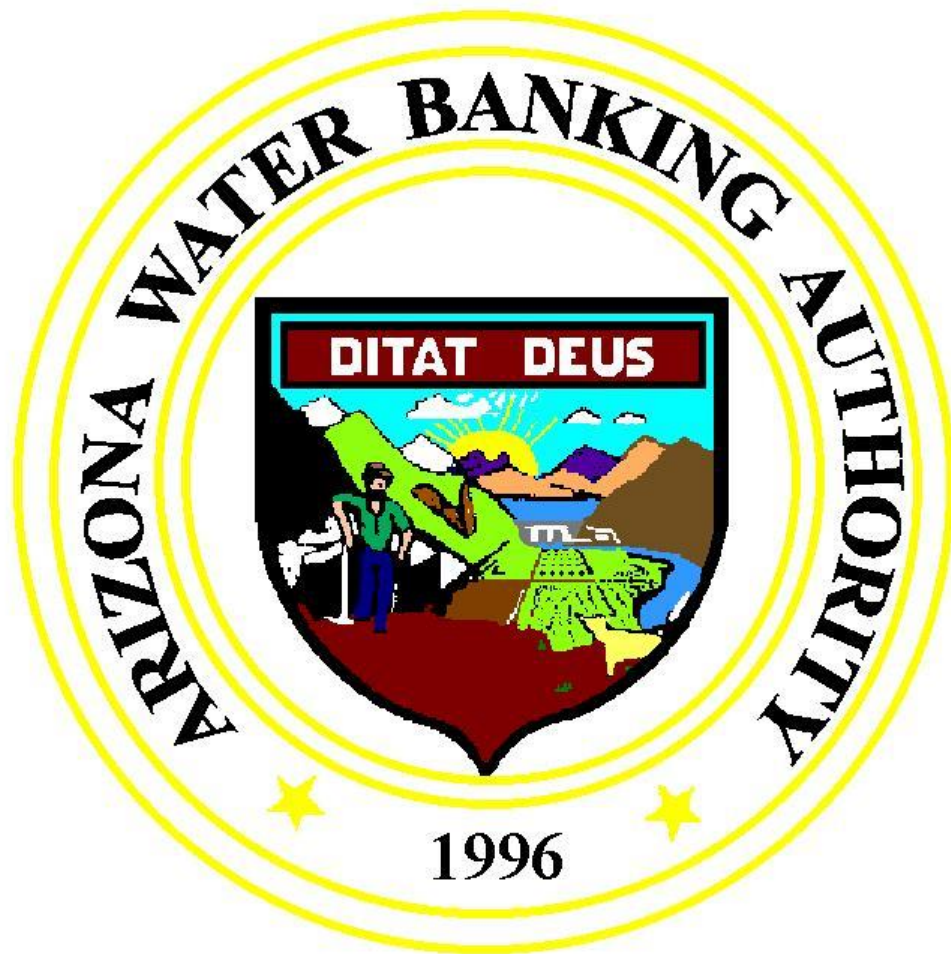


ARIZONA WATER BANKING AUTHORITY

ANNUAL REPORT
2015



Submitted

July 1, 2016

Arizona Water Banking Authority

Annual Report 2015

Honorable Douglas A. Ducey
Governor of Arizona

Members

Thomas Buschatzke
Chair

Ray L. Jones
Vice-chair

Kathryn A. Sorensen
Secretary

Jim Hartdegen
Member

Steven Moss
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Speaker David M. Gowan Sr.
Senator Gail Griffin

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July 1, 2016

The Honorable Douglas A. Ducey
Governor, State of Arizona
1700 West Washington Street
Phoenix, Arizona 85007

AUTHORITY MEMBERS

Thomas Buschatzke, Chair
Ray L. Jones, Vice-Chair
Kathryn A. Sorensen, Secretary
Jim Hartdegen
Steven Moss

EX OFFICIO MEMBERS

The Honorable David M. Gowen Sr.
The Honorable Gail Griffin

Dear Governor Ducey:

Enclosed is the Annual Report of the Arizona Water Banking Authority (AWBA). The Annual Report details the AWBA's activities for calendar year 2015, including the volume of water stored for future use and progress made on satisfying the state's Indian settlement responsibilities. The Annual Report also includes a Ten-Year Plan that examines the AWBA's ability to achieve its statutory purposes over the next decade. With persistent drought conditions and an increasing likelihood that Arizona could be facing its first Colorado River shortage, the AWBA continues to take the steps necessary to ensure it is fully prepared to assist Arizona water users should that time come.

One of the primary objectives of the AWBA is to provide supplemental water supplies for municipal and industrial users of Colorado River water and certain Arizona Indian Tribes during times of shortage. To this end, the AWBA has stored over 3.4 million acre-feet of water. The AWBA has now also completed its obligation to establish the Southside Replenishment Bank, a requirement under the Arizona Water Settlements Act (AWSA). In the last several years, the AWBA has seen a significant decrease in available excess CAP water supplies. As a result, it has looked toward other innovative and efficient ways to meet its goals and obligations including purchasing water credits and developing non-excess CAP water alternatives. Planning projections also indicate that during the next ten years, the AWBA will need to make supplemental water available to meet shortfalls in Colorado River supplies. While these shortfalls are not expected to impact municipalities, the AWBA does anticipate the need to provide nearly 30,000 acre-feet of water to Indian Tribes to meet the requirements of the AWSA.

I am pleased to submit this report detailing the accomplishments of the AWBA. I am confident the AWBA will navigate through these uncertain times and fully embrace its role in Arizona's water future.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tom Buschatzke", with a long horizontal line extending to the right.

Thomas Buschatzke
Chair

Enclosure: As stated

cc: The Honorable David M. Gowen, Speaker of the Arizona House of Representatives
The Honorable Gail Griffin, Senator of the Arizona Senate

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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
APO	Annual Plan of Operation
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
Credits	Long-term storage credits
CRSS	Colorado River Simulation System 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
M&I	Municipal and Industrial
MAF	Million Acre-feet
MCWA	Mohave County Water Authority
NIA	Non-Indian Agricultural
Plan	Ten-Year Plan
Quantification Agreement	White Mountain Apache Tribe Water Rights Settlement Agreement
Reclamation	U.S. Bureau of Reclamation
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 primary 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.

Since inception, the AWBA has accrued over 4 million acre-feet (MAF) of long-term storage credits (credits) toward achieving its various goals. Of this amount, over 3.4 MAF are for Arizona uses and 0.6 MAF are for interstate banking with the State 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 years ahead, given the future projections of little to no excess CAP water supplies available for AWBA storage.

The initial amount of water available to the AWBA in 2015 was just under 50,450 acre-feet, the lowest amount since inception, and included 45,450 acre-feet for storage and 5,000 acre-feet for direct deliveries. However, additional water became available during the year, enabling the AWBA to increase storage by 24,890 acre-feet for a total of 70,340 acre-feet. Additionally, the AWBA purchased 18,235 acre-feet of credits in the Tucson Active Management Area, allowing the AWBA to make even further progress on its firming goals for this region.

The AWBA also made considerable progress toward fulfilling its Indian settlement responsibilities. On June 16, 2015, the AWBA and the Gila River Indian Community entered into an intergovernmental agreement (IGA) for firming the Community's non-Indian Agricultural CAP water supplies. The IGA provides flexibility by including several methods that can be used to meet a firming obligation. To implement one of these methods, the AWBA and the Community concurrently executed a letter agreement to develop 16,000 acre-feet of firming credits on Community lands. This was accomplished through reimbursement of the Community's full-priced water costs. Lastly, the AWBA delivered the remaining 5,000 acre-feet to the Southside Replenishment Bank for a total volume of 15,000 acre-feet, thus fully satisfying this requirement while water was still available to the AWBA.

In May of 2014, CAWCD, AWBA, and ADWR staff completed the Joint Recovery Plan that provides the framework for how the recovery of AWBA credits will be accomplished in the future. The agencies continue to work cooperatively on the future steps outlined in the plan to ensure recovery can be implemented when the time comes. These activities include the development of a draft CAP system use agreement as well as agreements for recovery partnerships.

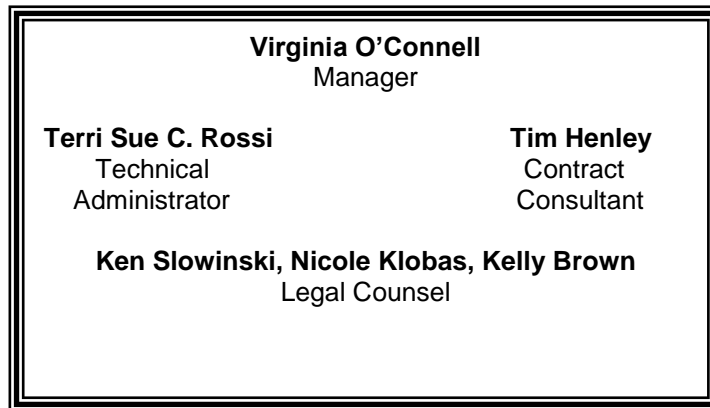
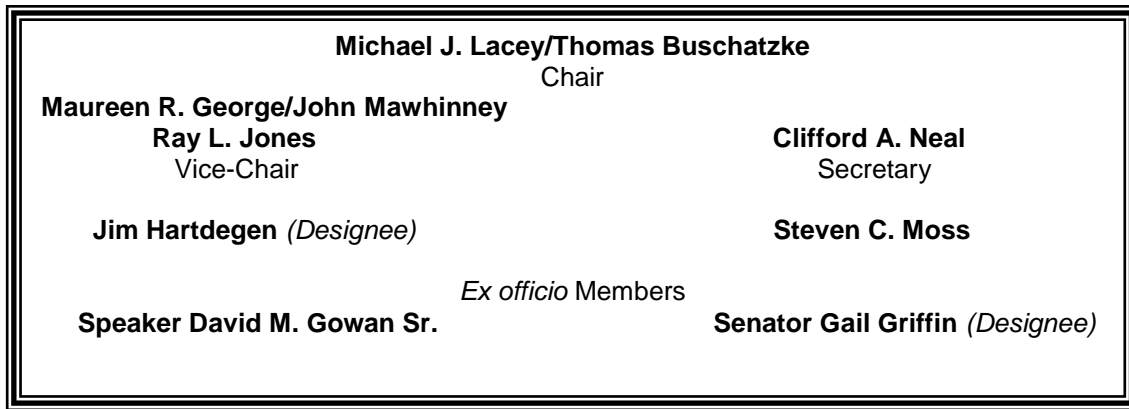
These accomplishments are significant, given the potential reduction of future water supplies available to the AWBA from drought conservation efforts or declared Colorado River shortages. Colorado River water supply projections indicate there is a high probability that a shortage could be declared in the Lower Basin within two years and could potentially continue for the duration of the AWBA's ten-year planning period. A shortage at any level would mean there would be no water available to the Excess CAP water pool (the supply available for AWBA use). Consequently, the AWBA's Ten-Year Plan (2017 thru 2026), relies on an approach other than traditional water storage to show how the AWBA could meet its objectives over the next ten years. The Ten-Year Plan also shows that there is a high probability that the AWBA will have its first firming requirement during the planning period. However, this firming requirement would only affect the AWBA's obligation to firm Indian supplies and the AWBA has credits in place for this purpose.

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 2015 Organizational Chart



There were several membership changes to the AWBA Commission in 2015. In January, Governor Doug Ducey appointed Thomas Buschatzke as Director of the Department of Water Resources (ADWR) and as such replaced Michael J. Lacey as Chair of the AWBA. The terms for three members serving as gubernatorial appointments also expired in January, but they continued to serve until new members were appointed. In March, Mohave County Supervisor Steven C. Moss was appointed as the member that represents Colorado River contract holders replacing Maureen R. George. In September, Ray L. Jones was appointed as a member that is knowledgeable in water management issues replacing John Mawhinney. Clifford A. Neal continued to serve through the end of the year resigning from his position effective January 2, 2016. CAWCD Board President Lisa Atkins retained Jim Hartdegen as her designee on the Commission. There were no changes to AWBA staff.

2015 Activities

The AWBA continued its quarterly meeting schedule in 2015 with meetings on March 18, June 17, September 16, and December 2. There were no special meetings or workshops scheduled for 2015.

AWBA 2015 Water Deliveries

The AWBA Plan of Operation for 2015 initially identified 50,448 acre-feet of water available for delivery under CAWCD's Access to Excess policy adopted in 2014. Additional water became available during the year both from unused Colorado River entitlements and water turned back by CAP customers, increasing total supplies to 75,340 acre-feet. Of this amount, 70,340 acre-feet was delivered for recharge and 5,000 acre-feet was delivered to the Southside Replenishment Bank. The quantity of water that was delivered to each storage facility is described in Appendix A and totaled 42,342 acre-feet for the Phoenix AMA, 7,900 acre-feet for the Pinal AMA, and 20,098 acre-feet for 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 in 2015 was 2.60 million acre-feet (MAF) and accounted for approximately 1.08 MAF of direct uses along the Colorado River and 1.52 MAF in CAP diversions (U.S. Bureau of Reclamation, Lower Colorado River Operations, Colorado River Accounting and Water Use Report Arizona, California, Nevada – Calendar Year 2015, dated May 2016). Efforts to mitigate declining water elevations in Lake Mead continued in 2015 with Arizona leaving over 195,000 acre-feet of water in Lake Mead. Of this amount, approximately 185,000 acre-feet will satisfy a portion of Arizona's 3-year 345,000 acre-foot contribution under the Memorandum of Understanding (MOU) among the Lower Basin States and Reclamation and includes roughly 96,000 acre-feet of Intentionally Created Surplus. The remaining 10,000 acre-feet was used for the Pilot System Conservation Program.

Long-term Storage Credit Purchases

Purchases Pursuant to A.R.S. § 45-841.01

The Tohono O'odham Nation (Nation) must offer the AWBA ten percent of any credits deemed accruable by ADWR from water stored at the Mission Mine Complex before a final volume of credits can be issued to the Nation by ADWR. The price for each credit is equal to the AWBA's per acre-foot cost to delivery and store water at a state demonstration project located within ten miles of the Nation's storage (i.e. Pima Mine Road Recharge Project) at the time of sale. In 2015, the AWBA purchased 3,665 acre-feet of credits that were accrued over several years of storage. The credits were purchased at a cost just under \$580,000 using shortage reparation funds (See Appendix B). They may be used for M&I firming or for water management purposes, however, there is a restriction that the credits cannot be recovered within five miles of the exterior boundary of the reservation.

Other Credit Purchases

In 2014, the AWBA's governing statutes were amended to allow the AWBA to purchase long-term storage credits in addition to credit purchases already allowed under 45-841.01. Credits may be purchased after all available excess CAP water supplies have been scheduled for storage for the year. Exercising this new authority, in 2015, the AWBA entered into a three-year purchase and sale agreement

with the City of Tucson. Under the agreement, the parties can sell/purchase up to 15,000 acre-feet of credits per year from water stored by Tucson at its Southern and/or Central Avra Valley Storage and Recovery Project underground storage facilities (USF). The credit purchase rate is equivalent to the AWBA's annual water delivery and storage costs at these facilities (including losses and the 5% cut to the aquifer). In 2015, the AWBA purchased 14,570 acre-feet of credits accrued at the Southern Avra Valley Recharge Project for a total cost just over \$3 million (see Appendix B). The credits were purchased with *ad valorem* tax monies collected in Pima County and may be used to firm CAP M&I subcontract supplies in the Tucson AMA.

Indian Firming Program

Colorado River modeling projections have shown that non-Indian agricultural (NIA) Priority CAP water will be the first supplies the AWBA may need to firm. To prepare, the AWBA has focused on accomplishing the steps necessary to ensure the state's Indian firming obligations will be met when the need arises. Significant progress was made on this front in 2015 in addition to other non-firming aspects of the Arizona Water Settlements Act (AWSA). Staff also kept apprised of the status of other ongoing settlement discussions, particularly the need to firm water supplies that may result from those settlements.

Gila River Indian Community

Under the AWSA, the AWBA, as agent for the State, has a 100-year requirement (until 2108) to firm up to 15,000 acre-feet per year of NIA Priority CAP water for the GRIC when supplies are insufficient to meet demand. 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 Community to carry out its firming obligation. Discussions on developing such an agreement were initiated in mid-2013 and an intergovernmental agreement (IGA) for firming was subsequently executed on June 16, 2015. The IGA uses the AWBA Ten-Year Plan as the basis for evaluating potential future shortages and outlines the steps that must be taken by each party as the potential for shortage draws nearer. By offering alternative firming options, the IGA provides flexibility in how a firming obligation can be satisfied during a shortage year.

Concurrent with the execution of the IGA, the AWBA and the GRIC entered into a separate letter agreement to implement one of the firming options identified under the IGA. Pursuant to the letter agreement, the AWBA agreed to reimburse the GRIC for payment of the delivery of 16,000 acre-feet of water to the Community in 2015 for which the Community paid full cost. These firming credits have been registered to a firming account held by the AWBA and may be debited in the future, in accordance with the provisions of IGA, to reduce the state's firming obligation on an acre-foot per acre-foot basis. The reimbursement cost was just over \$2.5 million (see Appendix B).

Southside Replenishment Bank

In addition to firming requirements, the AWSA required that the AWBA deliver 15,000 acre-feet of water to the GRIC, a minimum of 1,000 acre-feet per year, for the purpose of establishing the Southside Replenishment Bank. The Replenishment Bank can be used to satisfy a replenishment obligation that may be incurred from excess groundwater pumping in the Southside Protection Zones, an area adjacent to the southern portion of the GRIC reservation.

With the expectation that a Colorado River shortage could have been declared as early as 2016, the AWBA had increased its annual direct delivery volumes to accelerate completion of this requirement while water was still available to the AWBA. In 2015, the AWBA delivered the remaining 5,000 acre-feet to the Replenishment Bank at a cost of \$895,000, thereby fully satisfying this obligation. Cumulative expenditures for meeting this obligation total \$2,339,000.

Southside Replenishment Obligations

By memorandum dated September 28, 2015, the AWBA was informed by ADWR that there were no replenishment obligations for the 2014 reporting year. It is not anticipated that there will be replenishment obligations for the 2015 reporting year, but that information will not be available until October of 2016 and will be reported in the 2016 Annual Report.

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 President Barack Obama on December 8, 2010. Under this settlement, the AWBA is required to firm up to 3,750 acre-feet per year of NIA Priority CAP water until 2108. This obligation is part of the 8,724 acre-feet per year firming requirement identified for future settlements under the AWSA. In 2012, the Arizona Legislature appropriated \$2 million toward the construction of the White Mountain Apache Tribe Rural Water System, fulfilling one of the activities necessary to meet the enforceability date of April 30, 2021. Additionally, an application to approve the amended and restated Quantification Agreement was filed with the Gila River and Little Colorado River adjudication courts on April 29, 2014. A final Judgement and Decree approving the agreement was entered on December 18, 2014. Because there are also Federal requirements that must still be met, the settlement is not likely to become enforceable until 2017.

Navajo Nation/Hopi Tribe

There was no activity on these settlement discussions in 2015 as it relates to firming Navajo/Hopi Colorado River supplies. Staff continues to monitor any activities associated with this settlement.

In 2012, Councils for the Navajo Nation and Hopi Tribe voted to reject a settlement agreement for the Little Colorado River and its authorizing legislation, respectively. The settlement included an allocation of NIA Priority CAP water to the Navajo Nation for use at Window Rock that would have had an AWBA firming obligation of up to 3,205.5 acre-feet per year. 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 requested the court hold unlawful and set aside certain operations of the Lower Colorado River, including the guidelines for shortage and surplus conditions, interstate banking regulations and the Storage and Interstate Release Agreement (SIRA) because the Secretary failed to consider the needs of the Nation for Colorado River water. ADWR 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. In 2014, ruling in favor of the parties, the Federal District Court Judge dismissed the lawsuit. The Nation appealed to the 9th Circuit Court of Appeals, but did not include the dismissal of their claim challenging interstate banking regulations and the SIRA. Briefs have been submitted by all parties and the parties are currently awaiting the scheduling of an oral argument.

Recovery Planning

In preparation of needing to meet a firming requirement for the first time, AWBA, CAWCD and ADWR staff, in cooperation with stakeholders, released a recovery plan in 2014 that provides a framework for the recovery of AWBA credits and the delivery of that water during future shortages or for interstate purposes. The agencies continue to work cooperatively on the next steps of the plan to ensure implementation is achievable when the time comes. Essential to this, AWBA staff assisted CAWCD and Reclamation with the development of a draft CAP system use agreement that addresses among many things, how the system could be used to carry out delivery of AWBA firming supplies. Significant progress was made on the agreement in 2015, allowing for a public workshop to be held on the principles of the draft agreement in 2016. Additionally, as the AWBA's primary recovery agent, CAWCD has also been moving forward on evaluating the potential for recovery infrastructure at some of the key sites identified in the plan, such as the Tonopah Desert and Lower Santa Cruz Recharge Projects, and the development of recovery agreements with recovery partners. Updates are provided quarterly at both CAWCD Board and AWBA meetings.

Inter-AMA Firming

In February of 2014, the Arizona Municipal Water Users Association (AMWUA) and Southern Arizona Water Users Association (SAWUA) submitted a joint proposal for Inter-AMA water storage and firming between the Phoenix and Tucson AMAs to the AWBA, ADWR and CAWCD for consideration. The goals of the proposal are aimed at providing additional water management flexibility to both CAP M&I subcontractors and the AWBA. Under the proposal, a CAP M&I subcontractor in the Phoenix AMA could store a portion of their entitlement in the Tucson AMA at a Tucson CAP M&I subcontractor's underground storage facility (USF). In-turn, a Tucson M&I subcontractor would agree to accept the recovered credits in the future in lieu of a direct delivery to their USF. The water would be delivered instead to the Phoenix M&I subcontractor's treatment plant. Likewise, the AWBA could store water in the Tucson AMA for M&I firming purposes using monies collected in the Phoenix AMA to pay for the storage. The stored water would be applied toward the firming goal for the Phoenix AMA. During shortages, the water would be recovered and used in lieu of a direct delivery in the Tucson AMA. The water that would have been delivered to the Tucson AMA would instead be delivered to treatment plants in Phoenix, making the cost for recovery infrastructure more affordable for all M&I users.

In 2015, to evaluate the concepts of the proposal, the City of Phoenix, Tucson Water, and Metropolitan Domestic Water Improvement District (Metro Water) initiated a pilot phase of the program by storing a small amount of water. The recovery and exchange of the stored water will complete the pilot study. If successful, the interested parties may want to proceed with the second phase of the project that could include an expansion of the Clearwater and Avra Valley USFs to accommodate the additional storage. The potential expansion of these facilities would also involve the cooperation of CAWCD for operational and potential funding purposes and ADWR for regulatory purposes.

Discussions on the details of the proposal remain ongoing by all parties involved.

2016 Plan of Operation

The AWBA 2016 Annual Plan of Operation (APO) was adopted on December 2, 2015. As in 2015, water availability was the primary limiting factor in developing the APO. This was followed by the availability of funding in the Pinal and Tucson AMAs. The volume of water available to the excess CAP pool that is shared by the AWBA, CAGRD, and Federal government is 79,308 acre-feet. The portion available for use by the AWBA is 65,708 acre-feet. Of this amount, 33,988 acre-feet will be delivered for storage in the Phoenix AMA, 17,520 acre-feet in the Pinal AMA, and 14,200 acre-feet in the Tucson AMA. Water delivery and storage costs are estimated to be approximately \$11.3 million.

The 2016 APO also includes a component to develop credits in addition to those accrued through water storage. The AWBA anticipates purchasing up to 13,950 acre-feet of existing long-term storage credits to make further progress on the CAP M&I firming goals for the Phoenix AMA. The AWBA's request to reserve \$3 million in *ad valorem* tax funds for this purpose was approved by the CAWCD Board at its December meeting. The AWBA also anticipates developing 12,000 acre-feet of firming credits in accordance with the firming method described in Exhibit B of the 2015 IGA between the AWBA and the Gila River Indian Community at a cost of \$1.93 million.

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.

Monies Collected and 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 2015, 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. The CAWCD Board resolved to deposit approximately \$3.1 million in Pima County *ad valorem* tax funds into the AWB Fund for credit purchases in Pima County. All other taxes levied and collected for the 2014-2015 tax year were retained by CAWCD for meeting operating, maintenance and replacement or repayment costs of the Central Arizona Project. However, CAWCD continues to use the *ad valorem* tax funds to offset AWBA water delivery and storage costs as part of CAP O&M costs. Monies deposited in the AWB Fund from this source were fully expended. Credits developed must be used to benefit the county in which the funds were collected.
3. No general fund appropriation money was deposited in the AWB Fund in 2015. However, the Legislature reappropriated approximately \$238,000 in existing non-reconcilable funds remaining in the interstate subaccounts to pay for water deliveries to the Southside Replenishment Bank.
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. As of December 2015, there are three of the twenty payments remaining.

Table 1 shows the money the AWBA collected and the money that was expended for delivery and storage of water in 2015 by source of funds. Table 2 shows the total money received, expended and remaining through December 2015 by source of funds.

Table 1. Monies Collected, Made Available, and Expended in 2015 by Source of Funds

Source of Funds	Carryover ¹	Collected	Expended
General Funds	\$0	\$0	\$0
In-Lieu Fund – MCWA Prepayments	\$0	\$95,936	\$95,936
State Indian Firming	\$0	\$0	\$0
Interstate Water Banking²	\$236,962	\$3,548	\$240,218
Shortage Reparations - Nevada	\$7	\$2,002,200	\$2,002,207
4¢ Ad valorem Tax³			
Maricopa County ⁴	\$74,702,695	\$67,495	\$6,148,591
Pinal County	(\$14,413)	\$862,424	\$377,000
Pima County	\$1,508,266	\$3,026,596	\$5,137,740
Subtotal for Ad valorem	\$76,196,549	\$3,956,515	\$11,663,331
Groundwater Withdrawal Fees			
Phoenix AMA	\$3,132,828	\$1,068,436	\$4,189,073
Pinal AMA	\$497,673	\$934,800	\$1,423,282
Tucson AMA	\$50,098	\$309,280	\$353,653
Subtotal for Withdrawal Fees	\$3,680,599	\$2,312,516	\$5,966,008
TOTAL	\$80,114,116	\$8,370,715	\$19,967,700

¹ Monies made available or committed for the 2015 Plan of Operation.

² Amount collected is interest and \$2,495 in monies recovered from Lehman Brothers bankruptcy in 2015. Carryover balance includes an additional \$1,914 in recovered Lehman Brothers funds unaccounted for in the previous year's report.

³ Includes monies made available from the 2014-2015 tax year and monies expended by CAWCD to offset AWBA delivery and storage costs as part of CAP O&M costs. Includes recovered Lehman Brothers funds: Maricopa Count \$67,495, Pinal County \$1,118, Pima County \$6,036. Expenditures for Pima County includes \$602,878 in monies collected in 2015 for the 2015-2016 tax year.

⁴ Remaining funds dedicated for AWBA water storage for M&I subcontract firming pursuant to CAWCD Board of Directors Resolutions adopted through the 2009-2010 tax years.

Table 2. Cumulative Monies Collected, Made Available, and Expended through 2015 for Water Banking Activities and Monies Remaining Available

Source of Funds	Collected	Expended	Available ¹
General Funds	\$11,100,865	\$11,100,865	\$0
In-Lieu Fund - MCWA Pre-payments	\$5,051,528	\$5,051,528	\$0
State Indian Firming²	\$2,338,171	\$2,338,171	\$0
Interstate Water Banking-NV^{2,3}	\$109,328,332	\$109,328,040	\$292
Shortage Reparations – NV⁴	\$8,001,948	\$8,001,948	\$0
4¢ Ad valorem Tax⁵			
Maricopa County ⁶	\$170,419,625	\$101,798,026	\$68,621,599
Pinal County	\$12,235,372	\$11,764,361	\$471,011
Pima County	\$50,393,145	\$50,996,022	(\$602,878)
Subtotal for Ad valorem	\$233,048,141	\$164,558,409	\$68,489,733
Groundwater Withdrawal Fees²			
Phoenix AMA	\$24,384,090	\$24,371,899	\$12,191
Pinal AMA	\$20,180,368	\$20,171,177	\$9,191
Tucson AMA	\$9,105,922	\$9,100,197	\$5,725
Subtotal for Withdrawal Fees	\$53,670,379	\$53,643,272	\$27,107
TOTAL	\$422,779,583	\$354,262,451	\$68,517,132

¹ Money remaining in AWB Fund or made available by CAWCD; includes monies committed for the 2016 Plan of Operation.

² Total money collected was decreased to reflect \$1,769,000 in legislative transfers for Fiscal Year 2016.

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 \$1,948 in interest.

⁵ Includes monies made available from the 2014-2015 tax year and monies expended by CAWCD to offset AWBA delivery and storage costs.

⁶ Funds dedicated for AWBA water storage for M&I firming pursuant to CAWCD Board Resolutions adopted through the 2009-2010 tax years.

Long-term Storage Credits

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 losses are taken into account. 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 2015, including purchased credits, are listed in Table 3. Cumulative credits accrued by the AWBA through December 2015 are listed in Table 4.

Table 3. Number and Location of Long-term Storage Credits Accrued in 2015 (AF)¹

Funding Source	Phoenix AMA	Pinal AMA	Tucson AMA	Total
4-Cent Ad Valorem Tax	31,181	2,347	24,899	58,427
Withdrawal Fees	8,819	4,740	1,707	15,266
General Fund	-	-	-	-
Shortage Reparation	-	-	10,518	10,518
Intrastate TOTAL	40,000	7,088	37,124	84,212
Interstate - Nevada	-	-	-	-
TOTAL	40,000	7,088	37,124	84,212

¹ Additional credits may be issued upon resolution of annual reporting issues associated with GSF participants.

Table 4. Cumulative Long-term Storage Credits Accrued through December 2015 (AF)¹

Funding Source	Phoenix AMA	Pinal AMA	Tucson AMA	Total
4-Cent Ad Valorem Tax	1,390,006	207,612	447,190	2,044,809
Withdrawal Fees	329,540	413,329	105,014	847,882
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	28,340	109,489
GSF Operator Full Cost Share	-	14,125	-	14,125
Intrastate TOTAL	1,782,504	1,002,541	663,571	3,448,616
Interstate - Nevada	51,009	440,241 ³	109,791	601,041
TOTAL	1,833,513	1,442,782	773,362	4,049,657

¹ Includes purchased long-term storage credits.

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 for 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. If used for this purpose, the AWBA will collect reimbursement for the replacement cost of the credits used. 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.

Furthermore, with enforceability of the Arizona Water Settlements Act (AWSA) of 2004 in December of 2007, the AWBA, as agent for the State, assumed the obligation to firm up to 23,724 acre-feet per year of CAP NIA Priority water supplies. This water will be made available to Indian tribes as follows: 15,000 acre-feet for the Gila River Indian Community and 8,724 acre-feet for future settlements. The AWBA must firm these supplies for a 100-year period and ensure that the water is delivered in the same manner that water with an M&I priority is delivered during water shortages. In 2005, the Arizona State Legislature created an Indian Firming Study Commission (Study Commission) to develop a Firming Program for Arizona. The analysis performed by the Study Commission estimated a firming target of approximately 550,000 acre-feet: 350,000 acre-feet for the GRIC and 200,000 acre-feet for future settlements. The AWBA periodically re-evaluates these targets to ensure they are still applicable. While the AWBA has focused its efforts on the accrual of long-term storage credits, the AWBA may also use other methods to meet this obligation including, contracting for delivery of water supplies other than excess CAP water, engaging in water exchanges, and/or entering into lease agreements with Indian communities and others.

In addition to firming, the AWSA also required that the state contribute \$3 million in cash or in-kind services to assist the Secretary in meeting the Federal obligation to the Tohono O'odham Nation. Pursuant to the AWBA's firming agreement with the Secretary, the parties agreed to accomplish this requirement through the accrual of an equivalent amount of long-term storage credits that would be distributed to the Secretary during shortages. Lastly, as discussed earlier, the AWBA is required to directly deliver 15,000 acre-feet of water to the GRIC to establish the Southside Replenishment Bank. This obligation was fully satisfied in 2015.

Table 5 illustrates the progress made by the AWBA towards meeting its established goals and obligations. Progress on individual goals varies due to the availability of funds, limitations of how each funding source may be used, and storage capacity that has been available in each AMA historically. It also includes purchased credits and firming credits developed in accordance with the IGA between the AWBA and the Gila River Indian Community.

Table 5. Identified Uses of Long-term Storage Credits Accrued through December 2015 and Percentage of AWBA Goals Achieved

Location and Objective	Funding Source	Estimated Goal	Non-Credit Goal Achieved	Credits Accrued (AF)	Goal Achieved
CAP M&I Firming	Water Storage Tax (4¢ <i>Ad valorem</i>) collected by County	1,566,000 AF		1,390,006	89%
Phoenix AMA		243,000 AF		207,612	85%
Pinal AMA		864,000 AF		447,190	52%
Tucson AMA					
On-River M&I Firming¹	General Fund	420,000 AF		403,830	96%
Indian Settlement Obligations:					
GRIC Firming - <i>up to 15 KAF/year</i>	General Fund Withdrawal Fees	350,000 AF ²		121,390 ³ 0 121,390	35%
Future Settlements - <i>up to 8.7 KAF/year</i>	General Fund Withdrawal Fees	200,000 AF ²		0 0 0	N/A
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%
	Cost of Services ⁴		\$31,339	n/a	
Southside Replenishment Bank <i>15 KAF direct delivery</i>	General Fund Pinal W/Fees			15,000 1,342 13,658	100%
Groundwater Management⁵					
Phoenix AMA	Withdrawal Fees collected by AMA			241,227	
Pinal AMA				396,252	
Tucson AMA				99,393	
Other:					
Shortage Reparations	Agreement with Nevada	\$8,000,000	\$8,001,948	109,489	100%
Pinal Redirect Credits ⁶	N/A			14,125	N/A

¹ By resolution passed in 2002, the AWBA established on-river firming as the highest priority for use of credits accrued using 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.

² Based on estimates from the Indian Firming Study Commission Report dated January 6, 2006.

³ Credits accrued from storage at the Gila River Indian Irrigation and Drainage District GSF: Phoenix AMA 88,313 AF, Pinal AMA 17,077. Also includes 16,000 AF of firming credits developed on Community lands.

⁴ Expenditures include \$14,883 and \$16,456 deducted for payment of cost of services for FY 08 and FY 09, respectively.

⁵ 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.

⁶ 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 credit for intrastate storage is presented in Figure 1 and illustrates that the unit cost per credit is influenced by the type of storage facility used as well as the increase in water delivery costs over time. The significant increase beginning 2010 is due to CAWCD’s elimination of the incentive recharge rate.

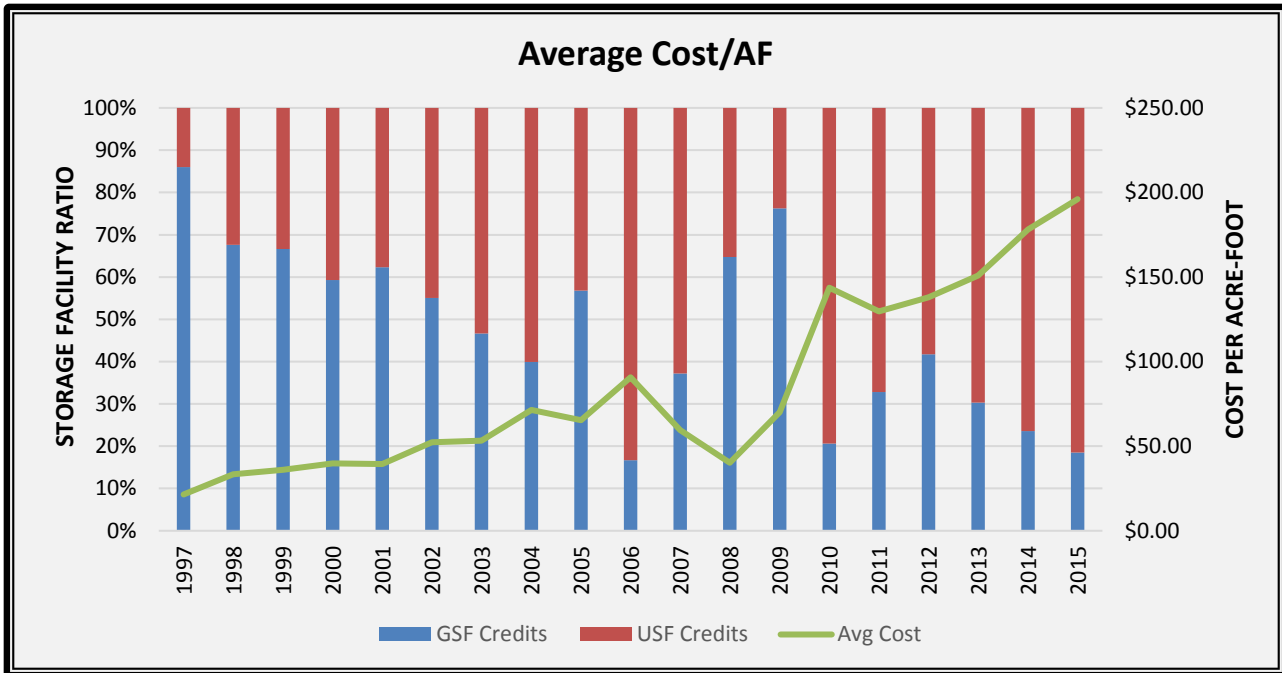


Figure 1. AWBA average cost per acre-foot for accruing one long-term storage credit.

Total annual cost storage costs since inception are identified in Figure 2.

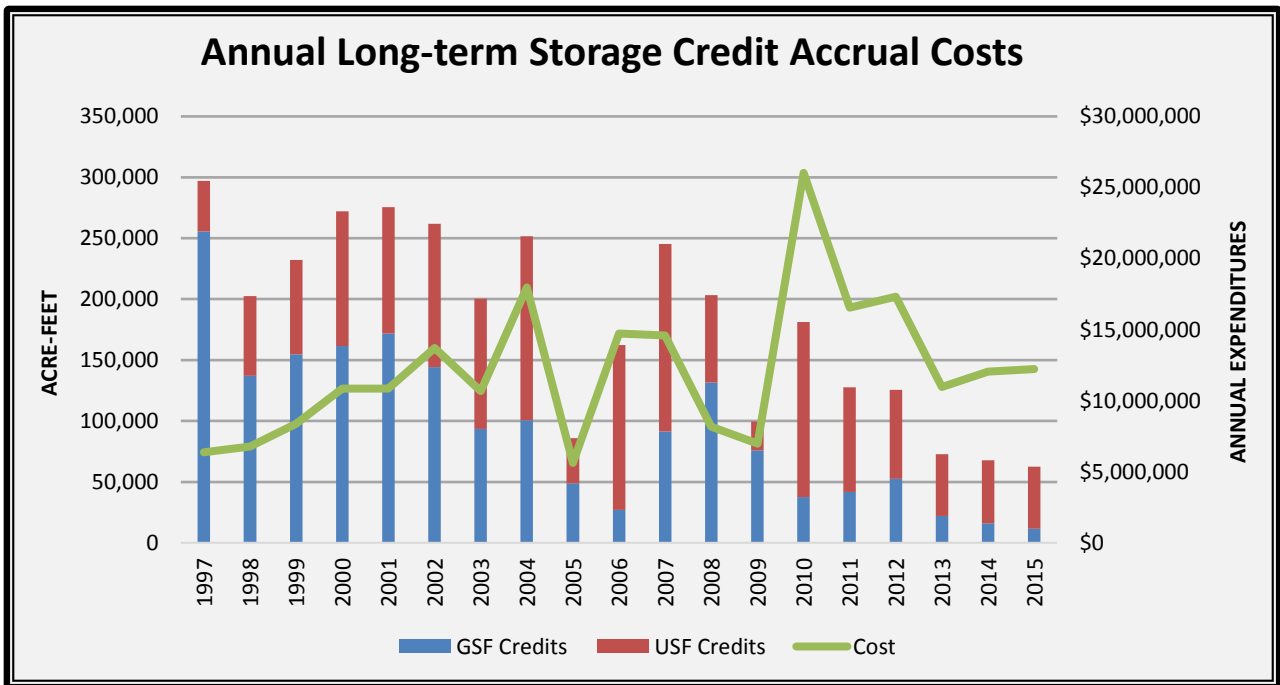


Figure 2. AWBA annual long-term storage credit accrual costs.

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 State's 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 accrued by the AWBA for firming purposes may be distributed or extinguished when the Colorado River system is declared to be in a shortage and demands exceed supply, 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 2015. No credits were distributed or extinguished in 2015 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 2015, no credits were developed or distributed under such agreements. Additionally, there were no credits recovered 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 must also provide an analysis of the AWBA's ability to complete those activities. The Ten-Year Plan is not a guarantee of future credit development or distribution activities and is prepared only for planning purposes. In any given year, the AWBA's specific activities are governed by the Annual Plan of Operation.

This Ten-Year Plan analyzes potential activity for the period 2017-2026 and projects the AWBA could develop approximately 470,000 acre-feet of credits during the planning period. AWBA accounting for previous years can be found in the 2014 Annual Report and 2016 Plan of Operation. The Ten-Year Plan is an important tool to be utilized in the development of the 2017 Annual Plan of Operation and future policies guiding AWBA activities. The Ten-Year Plan is updated annually based on current information and the priorities of the AWBA.

This Ten-Year Plan has been developed with the underlying assumption that, with the exception of 2017, there will be no Excess CAP water available for AWBA purposes during the planning period. Therefore, the Plan relies primarily on strategies other than traditional water storage to show how the AWBA could meet its objectives over the next ten years. Additionally, based on a water supply analysis conducted jointly by ADWR and CAP, there is a high probability that by 2022 the AWBA will have a firming requirement. The AWBA projects the firming requirement could be nearly 30,000 acre-feet during this planning period. This firming requirement would only affect the NIA Indian pool. At the foundation of the Ten-Year Plan, are numerous assumptions. The primary assumptions are presented in Appendix D.

Ten-Year Plan Components

A number of components are recognized to be important in developing the Ten-Year Plan. Three are mutually dependent and intrinsic to AWBA water storage activities and are therefore always considered: water availability, funding and storage capacity. The availability of one, or lack thereof, will ultimately affect the significance of the other two in developing the plan. For example, because of the high likelihood that there will be no Excess CAP water available to the AWBA during the next ten years, the availability of storage capacity will be less relevant. The availability of funding, however, will be of particular importance in showing how the AWBA's objectives can be accomplished using methods other than traditional water storage. The components, as they relate to this Ten-Year Plan, are discussed below:

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 2015, the AWBA stored just over 70,000 acre-feet. Under its 2016 Plan of Operation, the AWBA expects to store just under 66,000 acre-feet. This amount represents approximately 31% of the volume stored in 2010 and about 17% of the volume stored in the AWBA's highest storage year in 2007.

Shortage Conditions.

With the exception of 2017, there is a high probability of shortage during the planning period. Under a shortage declaration, there would be no water available to CAWCD’s Excess water pool, the supply that is available for AWBA purposes. Another condition where the volume of water available to the AWBA could be affected is from potential future drought conservation measures.

Table 6. Probabilities of Supply Conditions on Colorado River¹

Year	Probabilities %		
	Shortage Conditions	Surplus Conditions	Normal Conditions
2017	10%	0%	90%
2018	56%	0%	44%
2019	64%	4%	32%
2020	64%	8%	28%
2021	61%	12%	27%
2022	59%	15%	27%
2023	60%	19%	21%
2024	61%	23%	16%
2025	60%	25%	15%
2026	60%	26%	14%

Based on USBOR projections shown in Table 6, there is a 10% probability of any level of shortage in 2017. This probability escalates to 56% in 2018 and to 64% in 2019 and 2020 then gradually settles in at around 60% for the remainder of the planning period. Although there is currently a 90% chance for normal water supply conditions in 2017, there is still some uncertainty regarding end-of-year water level elevations in both Lake Powell and Lake Mead. Projections will be dependent on actual inflows into Lake Powell and side inflows into Lake Mead. Still, the final decision about whether a shortage will be declared in 2017 or in any year will not be known until each August when the USBOR releases its August 24-Month

Study where final determinations will be made for the upcoming year. Based on this uncertainty and because the probability of any shortage is high throughout the planning period, the driving assumption behind the strategy in this Plan is that no Excess CAP water will be available except in 2017.

Surplus Conditions.

While the probability of shortage is high and shortage is a fundamental assumption of this Ten-Year Plan, results from the USBOR projections do, however, show probabilities for both normal and surplus conditions. The USBOR projected a less than 10% probability of surplus conditions from 2017 through 2020. Interestingly enough, the probability of surplus begins to pick up in 2021 and exceeds the probability of normal conditions from 2024 through 2026.

Normal Conditions.

The probability of a normal water supply condition is high in 2017 at 90%. The probability of normal water supply conditions drops dramatically in 2018 to 44%. Through 2020, the probability of either a normal or surplus condition drops further to around 35%. Starting in 2021, the probability levels off at around 40% for the duration of this Ten-Year Plan. As such, there is still considerable uncertainty with regard to forecasted inflows and resulting water level elevations in Lakes Powell and Mead.

¹ United States Bureau of Reclamation: April 2016 CRSS/MTOM Model Projections - 2017 through 2026

While this Ten-Year Plan is based on an assumption that Excess CAP water will be available in 2017 but not available in 2018 and beyond, should normal water supply conditions prevail, the volume of Excess CAP water available to the AWBA during this Ten-Year Plan could be nearly 725,000 acre-feet (see Table 7). If such conditions materialize, there is sufficient *ad valorem* taxes available to store the water.

Table 7. CAP Delivery Schedule under Normal Supply Conditions²

Year	Total CAP Deliveries ¹	Federal and M&I Deliveries	Ag Settlement Pool ²	Statutory Firming Pool ³	
				Federal & CAGRDRR	AWBA
2017	1,436,300	1,103,900	255,000	11,100	66,300
2018	1,555,400	1,157,500	300,000	14,000	83,900
2019	1,554,500	1,170,100	300,000	12,100	72,300
2020	1,553,500	1,157,700	300,000	13,700	82,100
2021	1,552,300	1,170,200	300,000	11,700	70,400
2022	1,551,200	1,182,800	300,000	9,800	58,600
2023	1,550,100	1,194,300	300,000	8,000	47,800
2024	1,549,000	1,205,700	225,000	16,900	101,400
2025	1,547,900	1,227,100	225,000	13,700	82,100
2026	1,546,900	1,252,900	225,000	9,900	59,100
Total				120,900	724,000

¹ Based on average deliveries. Assumes non-shortage CAP supply. Assumes 2017 deliveries reduced by 120,000 AF due to forbearance activities. Future forbearance activities could similarly reduce volumes throughout the remainder of the planning period.

² 2017 Ag Pool volume reflects 45,000 AF reduction due to Ag Forbearance III program implementation. Future forbearance activities could similarly reduce volumes throughout the remainder of the planning period.

³ Based on extended CAWCD Access to Excess distribution procedure (through 2019).

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. The availability of revenues from each source varies annually. Additionally, there are restrictions on how each funding source can be used. Funding for interstate banking is received at the time of storage. However, interstate storage is not expected under this Ten-Year Plan.

Water Storage Tax (4¢ ad valorem tax)

Pursuant to A.R.S. § 48-3715.03(B), *ad valorem* taxes for water storage levied and collected by CAWCD, not deposited in the CAWCD fund, shall be deposited into three subaccounts held by the AWBA for each of the three counties in which the taxes are collected. Today, except for funds used to pay for credit purchases, *ad valorem* tax revenues have not been deposited into the AWBA subaccounts. CAWCD does, however, use a portion of the *ad valorem* tax funds collected to offset AWBA water delivery and storage costs as part of the O&M costs of the Project. This Ten-Year Plan relies on the continuation of this practice. Today, the *ad valorem* tax generates nearly \$19 million a

² Source: CAWCD Resource Planning & Analysis and ADWR Colorado River Management May 12, 2016.

year with approximately \$14.7 million in Maricopa County, around \$900,000 in Pinal County and \$3.1 million in Pima County. *Ad valorem* tax projections³ show that, during the planning period, the tax will generate on average \$23.6 million annually with approximately \$18.5 million in Maricopa County, \$1.2 in Pinal County and around \$3.8 million in Pima County. CAWCD has the authority to levy the *ad valorem* tax through 2030. Therefore, this Ten-Year Plan assumes the collection of the *ad valorem* tax throughout the planning period. CAWCD is authorized to levy the tax at a rate of up to 4¢ per \$100 of assessed property value through tax year 2024 and up to 3¢ for the remainder of the term. The reduction will affect revenues in the last two years of this Ten-Year Plan. Credits accrued with these funds are used to firm CAP M&I supplies during shortages.

Groundwater Withdrawal Fees

Pursuant to A.R.S. § 45-611(3), the Director of Water Resources collects a groundwater withdrawal fee for water banking purposes in the Phoenix and Tucson AMAs equal to \$2.50 per acre-foot per year. In the Pinal AMA, the Director also collects a groundwater withdrawal fee for water banking purposes, but starting in 2017, the Director can collect up to \$2.50 per acre-foot. This Plan assumes the Director will continue to collect the full \$2.50 per acre-foot in the Pinal AMA throughout the planning period. This Plan assumes \$4.0 million in withdrawal fees is collected annually with \$2.2 million collected in the Phoenix AMA, \$1.4 million collected in the Pinal AMA and \$400,000 collected in the Tucson AMA⁴. The AWBA can utilize withdrawal fees to further the water management objectives of the AMAs, including firming for CAP M&I subcontracts and implementing Indian water rights settlements when legislative appropriations are not available. When distributed or extinguished, these credits can only be used for the benefit of the AMA in which the monies were collected.

The Arizona State Budget for FY 2017 includes the transfer of approximately \$1.4 million in withdrawal fees from the Arizona Water Banking (AWB) Fund. This Ten-Year Plan assumes the transfer of these funds will occur in the second half of the fiscal year, reducing withdrawal fees available for use in the AWBA's Plan of Operation for 2017. Going forward, the Ten-Year Plan does not assume additional transfers from the AWB Fund. Any changes will be reflected in the Ten-Year Plan on an annual basis.

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. Absent future General Fund appropriations, any credit development for Indian firming would require the use of groundwater withdrawal fees.

3. Targeted Credit Development

Due to the underlying assumption that Excess CAP water supplies will not be available except in 2017, the AWBA proposes to develop credits to meet firming goals and requirements through credit purchase and direct delivery of other supplies. Pursuant to A.R.S. § 45-2423.B.2.a and 7.b, the AWBA

³ Central Arizona Water Conservation District projections dated March 7, 2016.

⁴ Withdrawal fee revenues vary from year to year. The assumptions used in this Ten-Year Plan are based on median collections between 2011 and 2015.

may purchase long-term storage credits or obtain effluent or surface water other than Colorado River water for storage after it has stored or scheduled all available Excess CAP water or when Excess CAP water is unavailable or undeliverable. Pursuant to A.R.S. § 45-2491, the AWBA may also deliver water directly to certain Indian communities for Indian firming purposes.

There is some probability that excess CAP water may be available to the AWBA in 2018. Should the Colorado River be operated under normal water supply conditions in 2018, or any year during the planning period, the AWBA will continue to operate as it always has storing all Excess CAP water made available consistent with established priorities. For this Ten-Year Plan, the AWBA established target volumes for credit development in each AMA based on principles described in more detail below:

- a. Projected Indian firming credit development targets in the Phoenix and Pinal AMAs would be based on maximizing withdrawal fee revenues.
- b. Projected M&I firming credit development targets would be based on meeting M&I firming goals in the Phoenix and Pinal AMAs by 2026.
- c. Projected M&I firming and water management credit development targets would be based on maximizing financial resources in the Tucson AMA for both *ad valorem* and withdrawal fee revenues.
- d. Credit development would be conducted through credit purchase, existing and future water services agreements for Indian firming, water supply acquisition and any other tools currently available or made available to the AWBA to develop credits.

If Excess CAP water becomes available during the planning period, the AWBA proposes to operate as it has in recent years accordingly:

- a. If the volume of excess CAP water made available to the AWBA is larger than the targeted development volumes, then the AWBA would store all excess CAP water made available until funds and/or storage capacity are exhausted in a manner consistent with water storage priorities.
- b. Up to 50% of the excess CAP water available would be delivered to storage facilities in the Tucson AMA limited only by funding and storage capacity.
- c. Anything unused in the Tucson AMA would be divided equally between the Pinal and Phoenix AMAs.
- d. Anything unused in the Pinal AMA would cascade to the Phoenix AMA until the remaining volume has been fully utilized.
- e. If the volume of excess CAP water made available to the AWBA is less than the targeted development volumes, then the AWBA proposes to concurrently pursue strategies other than traditional water storage until the targeted volumes are reached.

Through 2016, the AWBA will have accrued around 4.1 million acre-feet of credits. Table 8 identifies the number of credits by fund and location.

Table 8. Existing AWBA Credits through 2016 (acre-feet)

	Phoenix AMA	Pinal AMA	Tucson AMA	Total
M&I Firming¹	1,434,600	215,200	458,500	2,108,300
Indian Firming	116,300	17,100	34,100	167,500
Water Management¹	242,100	404,900	101,500	748,500
Shortage Reparation	20,600	60,500	28,300	109,400
General Fund	42,300	307,000	54,500	403,800
Other	-	14,100	-	14,100
Interstate	51,000	440,200	109,800	601,000
Total	1,906,900	1,459,000	786,700	4,152,600

¹ Credit accrual for 2016 is based on estimates of credits developed in the 2016 Annual Plan of Operation including credits developed through credit purchase.

Because the AWBA does not anticipate receiving a general fund appropriation, the Ten-Year Plan focuses specifically on the use of groundwater withdrawal fees and *ad valorem* tax funds. However, if an appropriation were received it would likely be for meeting a specific objective. The aim is to make progress on the AWBA goals for Indian and CAP M&I firming. This Plan envisions developing over 303,000 acre-feet of credits for CAP M&I firming, over 153,000 acre-feet for Indian firming and 14,000 acre-feet for meeting remaining water management objectives. If successful, this would result in the development of approximately 470,000 acre-feet of credits. As shown in Table 9, the AWBA is projected to accumulate over 4.6 million acre-feet of credits by the end of the planning period.

Table 9. Projected AWBA Credits in 2026 (acre-feet)

	Phoenix AMA	Pinal AMA	Tucson AMA	Total
M&I Firming	1,565,800	242,900	602,700	2,411,400
Indian Firming	205,300	81,200	34,100	320,600
Water Management	242,100	404,900	115,500	762,500
Shortage Reparation	20,600	60,500	28,300	109,400
General Fund	42,300	307,000	54,500	403,800
Other	-	14,100	-	14,100
Interstate	51,000	440,200	109,800	601,000
Total	2,127,100	1,550,800	944,900	4,622,800

The Ten-Year Plan's Credit Development Plan is shown in Table 10 on the following page. The AWBA percentage of goals achieved through 2026 is shown in Table 11 located on page 23.

Table 10. Credit Development Plan for 2017 through 2026 (acre-feet)

Year	Credit Development Target ¹	Projected Indian Firming Credits			Projected M&I Firming Credits ⁵			Projected Water Management Credits		
		Phoenix AMA ²	Pinal AMA ³	Tucson AMA ⁴	Phoenix AMA ⁶	Pinal AMA	Tucson AMA	Phoenix AMA	Pinal AMA	Tucson AMA ⁷
Pre-Plan		116,300	17,100	34,100	1,434,600	215,200	458,500	242,100	404,900	101,500
2017	70,700	8,800	5,500	-	30,400	7,000	17,900	-	-	1,100
2018	50,300	12,900	8,100	-	11,200	2,300	14,100	-	-	1,700
2019	47,100	10,000	7,700	-	11,200	2,300	14,300	-	-	1,600
2020	44,100	8,900	6,700	-	11,200	2,300	13,500	-	-	1,500
2021	42,500	8,200	6,100	-	11,200	2,300	13,300	-	-	1,400
2022	42,500	8,100	6,000	-	11,200	2,300	13,600	-	-	1,300
2023	44,500	8,400	6,300	-	11,200	2,300	14,900	-	-	1,400
2024	44,300	8,100	6,100	-	11,200	2,300	15,200	-	-	1,400
2025	44,100	7,900	5,900	-	11,200	2,300	15,500	-	-	1,300
2026	40,100	7,700	5,700	-	11,200	2,300	11,900	-	-	1,300
Total	470,200	205,300	81,200	34,100	1,565,800	242,900	602,700	242,100	404,900	115,500

1. Credit Development Target is the sum of all credits developed in a given year.
2. Pre-plan credits include 88,313 acre-feet stored in the Phoenix AMA GRIIDD and 28,000 acre-feet of Indian firming credits developed as described in Exhibit B of the IGA between the AWBA and the GRIC.
3. Pre-plan credits include 17,077 acre-feet stored in the Pinal AMA GRIIDD.
4. Pre-plan credits include 28,481 acre-feet of credits accrued with Indian firming appropriations and 5,621 acre-feet of credits accrued from the Tucson AMA withdrawal fees . These credits will be used to satisfy the AWBA's obligation to the Secretary under the AWSA.
5. Pre-plan credits include actual credits through 2015 and estimated credits in 2016 based on the AWBA's 2016 Plan of Operation.
6. Credits developed in the Phoenix and Pinals AMAs are limited by the remaining volume of credits needed to reach the M&I firming target after 2017 divided by the number of years.
7. Pre-plan credits include 234 acre-feet of credits purchased from the Tohono O'odham Nation pursuant to A.R.S. section 45-841.01.

Table 11. AWBA Percentage of Goals Achieved through 2026

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							
Phoenix AMA	Water Storage Tax (4¢ <i>Ad valorem</i>)	1,566,000	AF		1,566,000	100%	
Pinal AMA		243,000	AF		243,000	100%	
Tucson AMA		864,000	AF		602,600	70%	
On-River M&I Firming²	General Fund	420,000	AF		403,830	96%	
Indian Settlement Obligations:³							
GRIC Firming	Withdrawal Fees	350,000	AF	up to 15,000 AF/YR	286,300	82%	
Phoenix AMA					205,200		
Pinal AMA					81,100		
Future Settlements	Withdrawal Fees	200,000	AF	up to 8,724 AF/YR	0	0%	
Federal Assistance	Appropriation Withdrawal Fees Cost of Services			\$3,000,000	34,102	100%	
Tucson AMA					\$2,338,171		28,481
					\$630,490		5,621
				\$31,339	n/a		
Southside Replenishment Bank	Pinal AMA Withdrawal Fees			15,000 AF Direct Delivery	15,000	100%	
Groundwater Management							
Phoenix AMA ⁴	Withdrawal Fees collected by AMA				242,100		
Pinal AMA ⁴					404,900		
Tucson AMA ⁵					115,600		
Other:							
Shortage Reparations-Nevada ⁶	Agreement with Nevada			\$8,000,000	109,400	100%	
Pinal Redirect Credits ⁷	n/a				14,125		

¹ 1997-2016; actual credits through 2015 and estimated credits for 2016.

² 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.

³ 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 Indian firming agreements. In 2015, the AWBA developed 16,000 acre-feet of Indian firming credits pursuant to Exhibit B of the IGA between the AWBA and the GRIC. The AWBA's 2016 Plan of Operation indicates another 12,000 acre-feet of Indian firming credits will be developed pursuant to the same agreement. 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, 82% of the GRIC firming goals are estimated to be met by 2026.

⁴ Volumes reflected include reductions due to assigning credits developed in this planning period to Indian firming.

⁵ Credits currently identified for use in Tucson AMA are expected to be used for M&I firming bringing the percentage of M&I firming goal achieved in the Tucson AMA to 83%. This volume also deducts the 5,621 acre-feet of credits under Federal Assistance stored using Tucson AMA withdrawal fee revenues. Also includes 234 acre-feet of credits purchased in 2009 from the Tohono O'odham Nation pursuant to A.R.S. section 45-841.01.

⁶ Volume reflected includes 3,665 acre-feet of credits purchased in 2015 from the Tohono O'odham nation pursuant to A.R.S. section 45-841.01.

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

A primary objective of the AWBA is meeting its Indian firming obligations. In this Ten-Year Plan, like last year, the AWBA intends to maximize withdrawal fees in the Phoenix and Pinal AMAs to develop credits for this purpose. This Plan projects that 89,000 acre-feet of credits will be developed in the Phoenix AMA and 64,100 acre-feet in the Pinal AMA. Including 105,000 acre-feet already accrued at the GRIIDD and the 28,000 acre-feet developed in 2015 and 2016 pursuant to existing Indian firming agreements, the AWBA will have approximately 285,000 acre-feet of credits available for meeting Indian firming requirements by the end of this planning period. The AWBA also has 34,100 acre-feet of general fund appropriation and withdrawal fee credits set aside for meeting the State's obligation to the Federal government under the AWSA.

Another primary objective of the AWBA is meeting the numeric M&I firming goals. In the Phoenix and Pinal AMAs, the strategy for this Ten-Year Plan is to develop enough credits to meet 100% of the numeric goals in these AMAs using 4¢ *ad valorem* tax. In the Tucson AMA, the strategy is to maximize the use of the 4¢ *ad valorem* tax. If this strategy is achieved, the AWBA will develop enough credits to meet 70% of the numeric goal in the Tucson AMA. For the Tucson AMA, including water management credits, the AWBA expects to reach 83% of the numeric M&I firming goal. Achievement of the goal for the Tucson AMA continues to lag behind the other AMAs. Consequently, the AWBA continues to direct staff to focus on developing as many credits as possible in the Tucson area. Other water management objectives also continue to be important in the Tucson AMA. The AWBA continues to implement the facility location prioritization strategy requested by Tucson area interests in developing credits where Tucson Water's SAVSARP has the first priority, followed by the Pima Mine Road Recharge Project, then by the Avra Valley Recharge Project before developing any more credits 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. If this Plan is fully implemented, the AWBA expects to accrue roughly 285,000 acre-feet of withdrawal fee credits for Indian firming. Absent general fund appropriations, the AWBA would need to rely on withdrawal fee credits to meet its Indian firming requirements. This Plan projects that Indian firming requirements will be less than 30,000 acre-feet during the planning period. Therefore, meeting a firming requirement during the planning period should not cause concern. However, withdrawal fee credits used to satisfy Indian firming obligations would no longer be available for M&I firming or any other water management objective.

4. Storage Partners and Storage Capacity

Based on recharge permit volumes and discussions with AWBA storage partners, the AWBA is anticipated to have 169,000 acre-feet of storage capacity available at GSFs and nearly 100,000 acre-feet of capacity available at USFs. In the event there is Excess CAP water available to the AWBA, or if the AWBA acquires other renewable supplies, the AWBA should have sufficient capacity available for storage. Details on storage partners, storage permits, and capacity available for use by the AWBA are further described in Appendix D.

A number of facility permits 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 be renewed by facility owners. In addition to these facility permits, the AWBA will also need to renew several of its water storage agreements. The AWBA’s agreements for water storage at many of its GSFs will expire December 31, 2021 and its Master Water Storage Agreement with CAWCD 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.

5. Intrastate Recovery and Distribution of AWBA Credits

While a declared shortage on the Colorado River would result in the elimination of Excess CAP water, depending on the level of shortage, a firming requirement could also be triggered for the AWBA. A firming requirement, however, would not be triggered until the reduction in supply impacts the deliveries to CAP and on-River water users for which the AWBA has a firming requirement. Based on data jointly prepared by CAWCD and ADWR staff, modelers projected a 10-year combined total of between 1,100 and 71,100 acre-feet of firming requirement for the AWBA affecting only the NIA Indian customer class. In its analysis, the AWBA reviewed the probabilities, selected the tier representing the highest probability in a given year and selected the accompanying projected firming requirement in a given year. As illustrated in Table 12, the Tier 1 probability was the highest through 2022, Tier 2 was the highest from 2023 to 2024 and Tier 3 was the highest in 2025 and 2026. Selecting the accompanying values, the AWBA projects a firming requirement of just under 30,000 acre-feet for the NIA Indian water class over the planning period.

Table 12. Probability of Shortage by Tier and Projected Firming Requirements

Year	Probability of Shortage ¹				NIA Indian Firming ² (af)			Total AWBA Firming Volume (af)
	Any	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier3	
2017	10%	10%	0%	0%	-	-	-	-
2018	56%	56%	<1%	0%	-	-	3,880	-
2019	64%	46%	18%	<1%	-	-	4,920	-
2020	64%	40%	18%	6%	-	-	5,930	-
2021	61%	33%	18%	10%	-	620	6,930	-
2022	59%	25%	20%	13%	-	1,680	7,890	-
2023	60%	22%	23%	16%	-	2,630	8,780	2,630
2024	61%	20%	22%	18%	-	3,560	9,660	3,560
2025	60%	18%	21%	21%	-	5,020	10,830	10,830
2026	60%	16%	21%	23%	1,120	6,720	12,320	12,320
TOTALS					1,120	20,230	71,140	29,340

1. Derived from US Bureau of Reclamation Colorado River Simulation System April 2016 Model Run, Lake Mead probabilities of shortage for the period 2017 to 2026.

2. CAWCD Resource Planning & Analysis and ADWR Colorado River Management: May 12, 2016.

The AWBA has several options for firming these supplies including entering into an agreement with an entity such as CAWCD for the recovery and delivery of water or by making water available within

the area of the affected water users through the extinguishment of credits (e.g. GRIC). The AWBA has 105,390 acre-feet of water stored at the Gila River Indian Irrigation and Drainage District (GRIIDD) in the Phoenix and Pinal AMAs and, 16,000 acre-feet of firming credits developed with the GRIC in 2015, and by year end 2016, another 12,000 acre-feet of credits developed with the GRIC for a total of nearly 134,000 acre-feet that can be used for Indian firming.

According to its firming agreement with the GRIC, the AWBA and the GRIC are required to initiate discussions about preparing for an Indian firming requirement when the Ten-Year Plan projects a firming requirement in the third year of the Ten-Year Plan’s Projected Firming Plan. Since no firming requirement is projected until 2022, this provision of the IGA is not triggered. Irrespective of what the ultimate firming volume is, there are a sufficient number of existing, let alone projected credits, to cover the entire range of potential firming requirement (see Table 13).

It should also be noted that in addition to the uncertainties regarding hydrologic conditions on the Colorado River, there are also uncertainties within the CAP system that could affect the AWBA’s firming requirements. Increased water delivery costs during shortages, drought-related conservation, or changes in customer ordering patterns could all play a role in the amount of water that is available to the NIA Indian pool and ultimately the volume of water the AWBA will need to firm.

Table 13. Projected Firming Plan (in acre-feet) 2017 through 2026

Year	Projected Firming Requirement	Firming Requirement				Balance of Indian Firming Credits			
		NIA Indian	On-River	M&I	Total	Phoenix AMA	Pinal AMA	Tucson AMA	Total
Pre-Plan						116,300	17,100	-	133,400
2016	-	-	-	-	-	125,100	22,600	0	147,700
2017	-	-	-	-	-	138,000	30,700	0	168,700
2018	-	-	-	-	-	148,000	38,400	0	186,400
2019	-	-	-	-	-	156,900	45,100	0	202,000
2020	-	-	-	-	-	165,100	51,200	0	216,300
2021	-	-	-	-	-	173,200	57,200	0	230,400
2022	2,630	2,630	-	-	2,630	178,970	63,500	0	242,470
2023	3,560	3,560	-	-	3,560	183,510	69,600	0	253,110
2024	10,830	10,830	-	-	10,830	180,580	75,500	0	256,080
2025	12,320	12,320	-	-	12,320	175,960	81,200	0	257,160
Total	29,340	29,340	-	-	29,340	175,960	81,200	-	257,160

6. Interstate Water Storage and Requests for Intentionally Created Unused Apportionment (ICUA)

Pursuant to earlier interstate water banking agreements, 601,041 acre-feet of credits are already held in the Southern Nevada Water Authority (SNWA) subaccount. 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 subaccount. As in the original agreement, any future delivery and storage costs are born by SNWA and are now on a “pay-as-you-go” basis.

Additionally, this Ten-Year Plan assumes that SNWA will not request ICUA during the planning period⁵. 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.

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) Hydrologic conditions on the Colorado River continue to indicate that Excess CAP water can no longer be relied upon to support a traditional water storage approach to achieving AWBA objectives.
- 2) Firming requirements for this planning period are growing in volume but still are only expected to affect Indian firming. The AWBA has sufficient credits to meet even the most conservative volume of potential firming requirement of over 70,000 acre-feet.
- 3) With the extension of the 4¢ *ad valorem* tax past 2016, funding for M&I firming is no longer a limiting factor in the Pinal and Phoenix AMAs for water storage.
- 4) The Phoenix and Pinal AMA M&I firming goals are achieved in this planning period and without the use of water management credits.
- 5) *Ad valorem* taxes in Maricopa and Pinal Counties are not fully utilized.
- 6) While the M&I firming goal in Tucson is not met during this planning period, the extension of the 4¢ *ad valorem* tax significantly increases the percentage of the goal achieved in the Tucson AMA. Including the use of water management credits, 83% of the M&I firming goal could be met by the end of the planning period.
- 7) Withdrawal fee revenues are expected to be the only source of funding for meeting the State’s obligation for Indian firming thus limiting the AWBA’s ability to assist in other water management objectives.
- 8) Withdrawal fee revenues in the Phoenix and Pinal AMAs are a limiting factor allowing the AWBA to only develop an average of roughly 15,000 acre-feet of credits per year.
- 9) Interstate storage using Arizona’s entitlement is not projected during this planning period.

⁵ Communication with Southern Nevada Water Authority dated May 3, 2016.

10) Requests for ICUA are also not projected during this planning period.

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

- 1) Continue focusing on making progress on Indian firming:
 - a. Implement agreements with GRIC.
 - b. Develop and implement agreements for firming obligations to the White Mountain Apache Tribe.
 - c. Fully utilize withdrawal fees in the Pinal and Phoenix AMA to meet Indian firming obligations.
- 2) Continue focusing on developing credits using strategies that do not rely upon Excess CAP water.
- 3) Meet and confer with CAWCD and ADWR staff to evaluate conditions on the Colorado River relative to water available to the AWBA and potential firming requirements and adjust models and plans accordingly.
- 4) Meet and confer with CAWCD and ADWR staff to develop an annual credit purchase plan for incorporation into the AWBA Annual Plan of Operation and to secure a resolution from the CAWCD Board reserving funds to support that plan.
- 5) Meet and confer with CAWCD and ADWR staff to extend the existing IGA beyond December 31, 2018, incorporate recent amendments into the IGA, and make any other agreements necessary to ensure cooperative relationships moving forward.
- 6) Renew Master Water Storage Agreement and Excess CAP water contract with CAWCD before December 31, 2016.
- 7) Continue working with CAWCD and ADWR to implement the next steps in the Joint Recovery Plan.
- 8) Continue to evaluate the Inter-AMA storage proposal prepared by the Arizona Municipal Water Users Association and the Southern Arizona Water Users Association.

APPENDICES

**APPENDIX A. EXCESS CAP WATER WATER DELIVERIERS FOR WATER BANKING PURPOSES FOR
CALENDAR YEAR 2015 BY PARTNER AND ACTIVE MANAGEMENT AREA**

APPENDIX A - EXCESS CAP WATER DELIVERIES FOR WATER BANKING PURPOSES FOR CALENDAR YEAR 2015 BY PARTNER AND ACTIVE MANAGEMENT AREA			
	Partner	Quantity of Water	
		(Acre-feet)	
		Intrastate	Interstate
PHOENIX AMA	Agua Fria Recharge Project	13,628	0
	Granite Reef Underground Storage Project	3,347	
	Hieroglyphics Mountain Recharge Project	13,160	0
	Superstition Mountains Recharge Project	8,609	
	Tonopah Desert Recharge Project	0	
	Queen Creek Irrigation District	3,598	0
	<i>Intrastate/Interstate AMA Subtotal</i>	42,342	0
	<i>Phoenix AMA Subtotal</i>	42,342	
PINAL AMA	Central Arizona Irrigation & Drainage District	0	0
	Hohokam Irrigation & Drainage District	3,700	0
	Maricopa-Stanfield Irrigation & Drainage District	4,200	0
	Southside Replenishment Bank	0	0
	<i>Intrastate/Interstate AMA Subtotal</i>	7,900	0
	<i>Pinal AMA Subtotal</i>	7,900	
TUCSON AMA	Avra Valley Recharge Project	1,100	0
	Lower Santa Cruz Recharge Project	1,946	0
	SAVSARP	14,354	0
	BKW Farms	500	0
	Cortaro-Marana Irrigation District	898	0
	Pima Mine Road	1300	0
	<i>Intrastate/Interstate AMA Subtotal</i>	20,098	0
	<i>Tucson AMA Subtotal</i>	20,098	
TOTAL INTRASTATE & INTERSTATE DELIVERIES		70,340	0
TOTAL DELIVERIES		70,340	

APPENDIX B. AWBA CREDITS DEVELOPED IN CALENDAR YEAR 2015

Table 1A. AWBA Long-Term Storage Credits Purchased in 2015

Funding Source & Transaction	Phoenix AMA		Pinal AMA		Tucson AMA		Total	
	Funds Expended	Credits Accrued	Funds Expended	Credits Accrued	Funds Expended	Credits Accrued	Funds Expended	Credits Accrued
Ad valorem Tax								
City of Tucson	\$ -	0	\$ -	0	\$ 3,041,434	14,570	\$ 3,041,434	14,570
Shortage Reparations								
Tohono O'odham Nation	\$ -	0	\$ -	0	\$ 579,842	3,665	\$ 579,842	3,665
Total	\$ -	0	\$ -	0	\$ 3,621,275	18,235	\$ 3,621,276	18,235

Table 1B. AWBA Firming Credits Developed with the Gila River Indian Community in 2015¹

Firming Credits Developed	Annual	Cumulative
Delivery Reimbursement (AF)	16,000	16,000
Cost of Reimbursement	\$2,512,000	\$2,512,000

¹ Firming credits developed pursuant to Exhibit B of IGA between AWBA and GRIC

APPENDIX C. ASSUMPTIONS UNDERLYING THE TEN-YEAR PLAN

1. Water Resources

- a. Excess CAP water will not be available for AWBA purposes during the Ten-Year Plan except in 2017.
- b. 2016 credits are estimated by AWBA.
- c. The White Mountain Apache settlement is enforceable in 2017 and deliveries begin in 2018.
- d. Firming requirements are based on data jointly produced by CAP and ADWR modelers.
- e. 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 2026.
- f. Assumes US Bureau of Reclamation Colorado River Simulation System April 2016 Model Run, Lake Mead Probabilities of Shortage for the Period 2017 to 2026 for determining shortage, normal and surplus condition for supply and recovery purposes.

2. Financial

- a. CAWCD's adopted 2017 to 2022 rate schedule is utilized; post 2022, CAWCD's projected rates used consistent with CAWCD's current long-range financial plan (G. Given dated April 26, 2016)
- b. Cost to store at groundwater savings facilities is based on the rates shown in Table 4 of the 2016 Plan of Operation held constant.
- c. Cost to store at non-CAWCD facilities in Tucson is based on rates established in the water storage agreements with Tucson Water.
- d. *Ad valorem* revenues are based on projections prepared by CAWCD (G. Given dated March 7, 2016).
- e. Use of *ad valorem* revenues are consistent with the joint CAWCD, ADWR and AWBA intergovernmental agreement.
- f. Withdrawal fee revenues are based on the five-year median withdrawal fee collections held constant throughout the plan.
- g. Budget is based on the projected cost of developing credits as though the AWBA received Excess CAP water directly.
- h. No general fund appropriations.
- i. No legislative transfer of funds.

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

STORAGE FACILITIES AVAILABLE TO THE AWBA (as used in the Ten-Year Plan)					
Name of Facility ¹	Facility Permit Expiration	Facility Permitted Capacity (AF)	Capacity Available to AWBA ² (AF)	Year Water Last Stored	Volume of Water Last Stored (AF)
PHOENIX – GSF³					
Queen Creek Irrigation District ³	Dec-15	28,000	6,000	2015	3,598
Salt River Project GSF	Apr-19	89,000	10,000	2004	8,000
Subtotal for Phoenix AMA - GSF		117,000	16,000		
PHOENIX – USF					
Agua Fria Recharge Project	May-19	100,000	15,000	2015	13,628
Granite Reef Underground Storage Project	Mar-32	93,000	10,000	2015	3,347
Hieroglyphic Mountains Recharge Project	Dec-21	35,000	15,000	2015	13,160
Tonopah Desert Recharge Project	Sep-25	150,000	0	2014	13,548
Superstition Mountains Recharge Project	Jan-28	25,000	10,000	2015	8,609
Subtotal for Phoenix AMA - USF		403,000	50,000		
PINAL – GSF					
Central Arizona Irrigation & Drainage District	Dec-17	110,000	60,000	2015	1,700
Hohokam Irrigation & Drainage District	Jul-19	55,000	20,000	2015	3,700
Maricopa-Stanfield Irrigation & Drainage District	Dec-19	120,000	60,000	2015	4,200
Subtotal for Pinal AMA - GSF		285,000	140,000		
TUCSON – GSF					
BKW Farms	Mar-20	14,316	1,000	2015	500
Cortaro-Marana Irrigation District	Mar-19	20,000	5,000	2015	898
Kai-Farms – Red Rock ³	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	1,500	2015	1,100
CAVSARP	Dec-28	100,000	0	2012	51
Lower Santa Cruz Recharge Project	Feb-19	50,000	25,000	2015	1,946
Pima Mine Road Recharge Project	Sep-20	30,000	7,000	2015	1300
SAVSARP	Jan-28	60,000	15,000	2015	14,345
Subtotal for Tucson AMA - USF		251,000	48,500		
ALL AMAs - GSF		447,547	164,000		
ALL AMAs - USF		654,000	98,500		

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 and in some cases constraints provided by the facility operator.

³ Permit renewal application pending with ADWR.