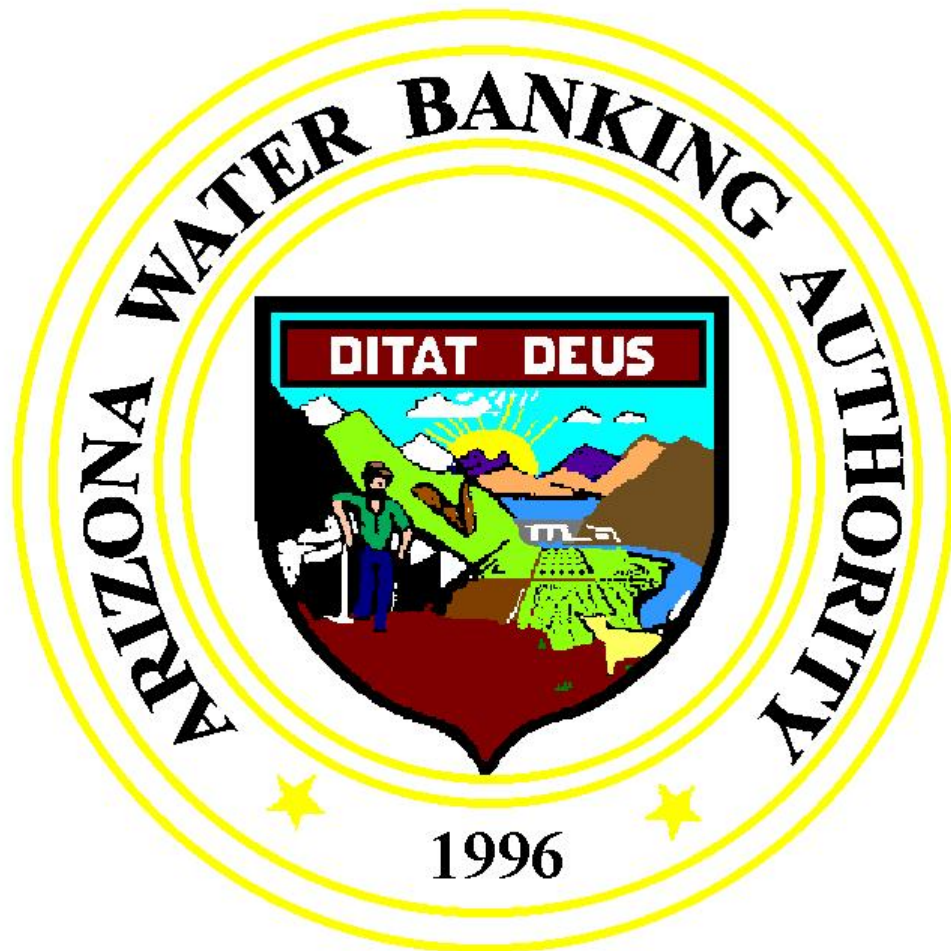


# ARIZONA WATER BANKING AUTHORITY

ANNUAL REPORT  
2001



Submitted

July 1, 2002

# **Arizona Water Banking Authority**

## **Annual Report 2001**

**Honorable Jane Dee Hull  
Governor of Arizona**

### **Members**

**Joseph C. Smith  
*Chairman***

**Thomas E. Griffin  
*Vice-chairman***

**William L. Chase  
*Secretary***

**George R. Renner  
*Member***

**Richard S. Walden  
*Member***

***Ex officio***

**Senator Ken Bennett  
Representative Mike Gleason**

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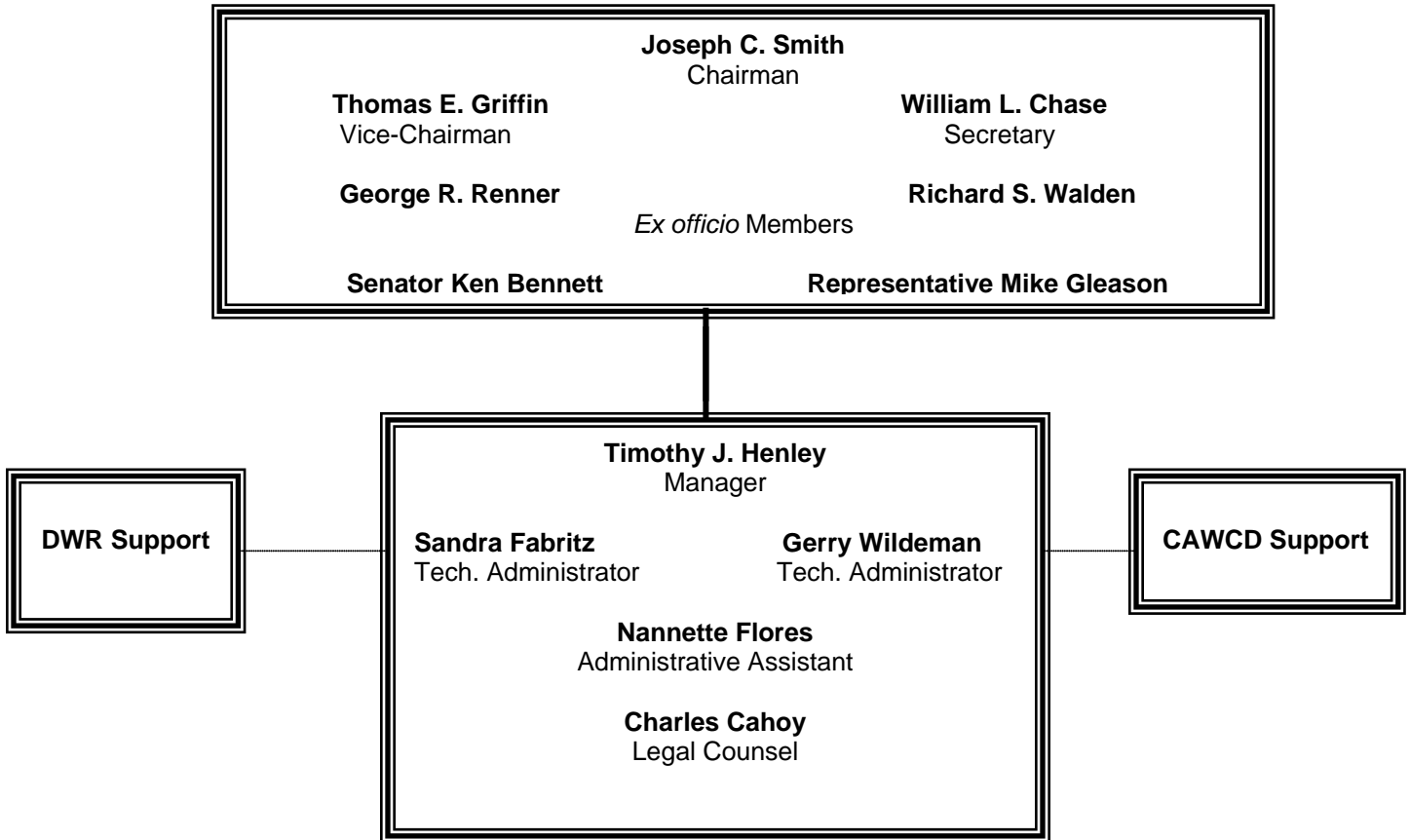
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## Arizona Water Banking Authority Annual Report Requirement

Arizona Revised Statutes § 45-2426 mandates that the Arizona Water Banking Authority (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 Central Arizona Project (CAP) for all of the following purposes:
  - a. Protecting this state's municipal and industrial 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.

# Organizational Chart



## Update

During the previous calendar year, the AWBA continued to work to accomplish its mission of utilizing the unused portion of Arizona's 2.8 million acre-foot Colorado River allotment for recharge and development of long-term storage credits for Arizona's future use. The recharge that is done by the AWBA utilizes Colorado River water that would otherwise not be used within Arizona.

The AWBA experienced a change in leadership in 2001 with the resignation of Rita Pearson Maguire in May. Joseph C. Smith became the new chairman of the AWBA with his appointment as Director of the Arizona Department of Water Resources (ADWR) by Governor Jane Dee Hull. Prior to this appointment, Mr. Smith served as Deputy Director of the ADWR for seven years and has served in State government for more than two decades.

In 2001, the AWBA continued its quarterly meeting schedule with special meetings or subcommittee meetings scheduled as needed. In addition to the regularly scheduled meetings, there was one special meeting called on April 9, 2001. This meeting was held to review and approve a water banking services agreement with the City of Goodyear and to gain approval of the water storage agreement for the Vidler Water Co. underground storage facility. Also, the final meeting of the Interstate Water Banking Subcommittee (IWBS) was held on January 24, 2001. At that meeting, it was determined that sufficient progress had been made and that further action on the interstate negotiations and agreements would be addressed at the regularly scheduled AWBA meetings. As a final action, the IWBS directed staff to begin discussion with the Bureau of Reclamation regarding development of the Storage and Interstate Release Agreement (SIRA). The SIRA is one of the three agreements needed to initiate interstate water banking.

The issue of firming the on-river municipal and industrial (M&I) uses continued to be discussed through 2000 and 2001, primarily in conjunction with discussions regarding interstate water banking. Specifically, the debate focused on the quantity of credits needed to firm the on-river uses and their location and disposition as related to water and capacity available for interstate water banking purposes<sup>1</sup>.

There were no meetings of the Recovery Subcommittee held in 2001.

The agreement for water banking services that was approved for the City of Goodyear on April 9, 2001 was the first agreement to be approved pursuant to the 1999 amendments to the AWBA's legislation. When approved by the AWBA, there was some concern whether the City of Goodyear would execute the agreement in a timely manner. Consequently, a June 20, 2001 deadline for execution was imposed. Ultimately, the City of Goodyear did not execute the agreement and its approval was rescinded on June 27, 2001. While the agreement was ultimately not executed, it will serve as a template for future water banking services agreements.

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<sup>1</sup> At the March 20, 2002 AWBA meeting, the AWBA adopted resolution 2002-1 that established the following: (1) the first priority of credits accrued with general fund appropriation shall be the development and reservation of a reasonable number of credits for the benefit of on-river M&I users; (2) the second priority shall be to aid in Indian water rights settlements; (3) the third priority shall be firming for CAP M&I users; (4) the fourth priority shall be to fulfill water management objectives; (5) the AWBA shall consider these priorities before distributing credits for any lower priority uses; and (6) staff shall conduct their planning to effectuate these priorities.

In late December, Governor Hull signed an adjusted fiscal year (FY) 2002 budget due to a budget shortfall; FY 2002 runs from July 1, 2001 through June 30, 2002. There was a \$2 million impact to the AWBA Fund with the 2001 adjustments to the state budget. First, the last two disbursements of the \$2 million annual general fund appropriation were withheld generating a \$1 million loss. There was also a \$1 million transfer from the administration account.

The 2001 Annual Plan of Operation (Plan) was the first Plan developed with an exchange component included. The exchange was intended to permit water deliveries to the Granite Reef Underground Storage Project (GRUSP) during the planned outage of the Salt River Siphon. Originally, it was proposed that 6,000 acre-feet would be delivered to GRUSP in November and December under the AWBA's general water use exchange permit. Ultimately, in the interest of efficiency, an exchange between CAP and the Salt River Project (SRP) was utilized with the AWBA being the recipient of the 'paid back' water. This exchange allowed the AWBA to store more than 9,700 acre-feet of water that would otherwise have been left unutilized.

The AWBA members and staff coordinate annually with current and potential recharge entities in the process of development of the Plan for the following year. Interested entities provide information regarding their desired level of participation with the AWBA. The recharge capacities of the facilities are then matched with the delivery capacities of the CAP aqueduct. Through coordination between AWBA and Central Arizona Water Conservation District (CAWCD) staff, adjustments are made between facility capacities and CAP availability and a final proposed delivery schedule is determined. For the 2002 Plan, the entities scheduled for delivery are SRP's GRUSP and groundwater savings facilities, CAWCD's Agua Fria, Avra Valley, Hieroglyphic Mountains, Pima Mine Road and Lower Santa Cruz facilities, New Magma Irrigation District, Queen Creek Irrigation District, Central Arizona Irrigation and Drainage District, Hohokam Irrigation District, Maricopa Stanfield Irrigation District, and the Herb Kai Red Rock Facility.

Ground was broken on the Agua Fria Recharge Project (AFRP) on May 24, 2001. The AFRP is the first recharge project in Arizona to incorporate both streambed recharge and infiltration basins in a single facility. The AWBA holds water storage permits for the combined facility in an amount not to exceed 100,000 acre-feet per annum. The facility first took water in September and the first AWBA storage occurred in November. The total water stored by the AWBA at the AFRP in 2001 was 3,621 acre-feet.

The AWBA recharged almost 295,000 acre-feet of CAP water in 2001 (see Appendix A). Of this, almost 137,000 acre-feet were stored in the Phoenix Active Management Area (AMA), 113,000 acre-feet were stored in the Pinal AMA and 44,300 acre-feet were stored in the Tucson AMA. Total consumptive use of Colorado River water by Arizona for 2001 was approximately 2.64 million acre-feet. Distribution of that quantity was: approximately 1.12 million acre-feet for direct uses along the Colorado River and CAP diversions of approximately 1.52 million acre-feet. Of the CAP diversions, AWBA use was approximately 295,000 acre-feet.

For more information about the Arizona Water Banking Authority, consult the AWBA web page at <http://www.awba.state.az.us> or contact Tim Henley ([tihenley@adwr.state.az.us](mailto:tihenley@adwr.state.az.us)), Gerry Wildeman ([glwildeman@adwr.state.az.us](mailto:glwildeman@adwr.state.az.us)) or Sandra Fabritz ([safabritz@adwr.state.az.us](mailto:safabritz@adwr.state.az.us)) at 602-417-2418.

## Activities and Projects - 2001

### Governor's Water Management Commission

The Governor's Water Management Commission (GWMC) was appointed by Governor Jane Dee Hull in June 2000 to review the 1980 Groundwater Management Act (1980 Act) and recommend changes necessary to insure that the AMA's within the state could maintain a reliable and sustainable water supply. The GWMC was comprised of 49 individuals appointed by the Governor including representatives from the legislature, industry, cities, agriculture and the general public. The AWBA was well represented in the GWMC process. The former chair of the AWBA, Rita Pearson Maguire was a GWMC co-chair until she resigned her position as Director of the ADWR in May. AWBA members George Renner and Richard Walden and *ex officio* member Ken Bennett were original GWMC members appointed by the Governor. Bill Chase was later appointed a GWMC member following the retirement of George Britton. Mr. Chase was also a voting member of the Technical Advisory Committee and a member of the Safe Yield Task Force for the Phoenix AMA.

The GWMC members were tasked with: (1) evaluating progress made towards meeting the management goals of the individual AMA's and the goals of the 1980 Act to ensure that the goals were appropriate and achievable; (2) evaluating mechanisms that would reduce the use of mined groundwater, increase the use of renewable water supplies and meet the AMA water needs most efficiently; and (3) evaluating whether statutory, rule or policy changes were necessary to increase the effectiveness of AMA water management at the state and local level. To achieve the goals set for the GWMC, a multi-level process was utilized. The process was initiated at the local level through creation of AMA Task Forces that identified issues and identified potential solutions. A Technical Advisory Committee (TAC) was later established with members representing all five AMA's appointed by the Director of ADWR. The TAC was charged with: (1) reviewing issues from the local task forces and synthesizing the issues and potential recommendations for GWMC consideration; (2) assisting in the preparation of reports and information on water management issues for GWMC consideration; and (3) articulating multi-faceted water issues.

Using the issue papers developed by the TAC, subcommittees were formed from the GWMC to develop alternatives to be presented for GWMC consideration. Subcommittee recommendations were presented to the GWMC in April 2001 and the GWMC prioritized the issues and recommendations that could reasonably be addressed through the remaining GWMC process. The issues and recommendations were then assigned to seven work groups that drafted language for GWMC consideration and approval. The work groups held public meetings as they developed and submitted recommendations to the GWMC. The GWMC also publicly debated the recommendations at meetings held between July and October 2001.

In the end, the GWMC reached consensus on approximately 50 recommendations after 18 meetings and two weekend retreats. In total, more than 300 public meetings associated with the GWMC were held over an 18-month period. The consensus-based recommendations were made available to the public for review and comment through a series of open houses held in each AMA. The GWMC reviewed the comments that were received and used them to finalize the recommendations that were



ultimately presented to the Governor for her consideration. The Governor's Water Commission Final Report and Recommendations was submitted to the Governor on December 3, 2001<sup>2</sup>.

There were three recommendations of particular interest to the AWBA. The first was a recommendation requiring the Central Arizona Groundwater Replenishment District (CAGR) to develop a replenishment reserve in addition to their annual replenishment obligation. This reserve would be developed using the same excess water pool utilized by the AWBA. Although the AWBA is a lower priority user than the CAGR for its annual replenishment obligation, the AWBA felt that it should not automatically be a lower priority user than the advance replenishment obligation. Consequently, the recommendation was amended to include the provision that clarifies equal priority for the use of excess water for the CAGR's replenishment reserve component and the AWBA's M&I firming.

The second recommendation concerned the determination of the amount of credits developed using the 4¢ *ad valorem* tax to be made available during a shortage declaration on the Colorado River and who would make that determination. The final recommendation was that the CAWCD would make the determination, after consultation with the Director of ADWR, and that the amount would not be greater than 20% of the total M&I subcontracts in any given year.

Finally, in response to the importance of future recovery of long-term storage credits, the GWMC recommended that CAWCD should, in cooperation with CAP subcontractors, the AWBA, ADWR, irrigation districts and others, conduct a planning process to prepare for the future use of water stored by the AWBA on behalf of the CAP subcontractors.

## Interstate Water Banking

### Agreement for Interstate Water Banking

On March 21, the AWBA approved the form of the Agreement for Interstate Water Banking (AIWB) which was the initial agreement of focus. The AIWB is the agreement between the AWBA, the Southern Nevada Water Authority (SNWA)<sup>3</sup>, and the Colorado River Commission of Nevada (CRCN)<sup>4</sup>. The AIWB contains the financial, operational and legal requirements of each of the parties for delivery, storage and recovery of Colorado River water in Arizona. On June 12, the SNWA and the CRCN at a joint meeting approved the AIWB. The AIWB was executed on July 3, 2001 at a formal signing ceremony held in Las Vegas, Nevada.

Prior to execution of the AIWB, California had refrained from actively pursuing discussions with the AWBA regarding interstate water banking. However, soon after the AIWB was executed, the AWBA received a request from the Metropolitan Water District (MWD) of Southern California to reinstate

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<sup>2</sup> The GWMC's legislative program was submitted to the 45<sup>th</sup> Legislature, Second Regular Session within House Bill 2582 and 2653 and Senate Bill 1344 and 1355. The legislation was withdrawn by its sponsors in March 2002 because they felt that there was insufficient time to review the recommendations in light of the time consuming effort of addressing the state budget shortfall. Sponsors have stated that they anticipate bringing back the recommendations in 2003.

<sup>3</sup> A political subdivision of the State of Nevada created to manage water resources for the Las Vegas Valley.

<sup>4</sup> An agency of the State of Nevada with a mission, in part, to acquire, manage and protect all of Nevada's water and hydropower resources from the Colorado River for southern Nevada.

interstate banking discussions. AWBA staff had an informal meeting with a representative of MWD in September, however no formal discussions have been held to date.

### Storage and Interstate Release Agreement

The Storage and Interstate Release Agreement (SIRA) was the second agreement of focus. The SIRA is an agreement between the AWBA, the United States Bureau of Reclamation (USBR) and the SNWA and CRCN and is required by federal rule (43 CFR 414.3(c)). The SIRA describes the manner in which the Secretary of the Interior will monitor and account for the storage and recovery of water pursuant to an interstate water banking agreement.

At the final meeting of the AWBA Interstate Water Banking Subcommittee in January, staff was given direction to initiate meetings with the USBR and SNWA and CRCN to discuss the SIRA. Between March and October, the AWBA, USBR, SNWA and CRCN met almost monthly to develop a draft of the SIRA to be used for the USBR's public notice process.<sup>5</sup> It is anticipated that the SIRA may be executed prior to the end of calendar year 2002.

### 2002 Plan of Operation

The AWBA plans to recharge approximately 350,000 acre-feet of water in calendar year 2002. Of this quantity, approximately 180,000 acre-feet will be recharged at underground storage facilities (USF) and approximately 170,000 acre-feet will be recharged at groundwater savings facilities (GSF). This is the first Plan to project approximately equal deliveries to USF and GSF. The 2002 Plan includes 6,000 acre-feet of storage at one new USF. The Hieroglyphic Mountains Recharge Project (HMRP) is being developed by CAWCD as a State Demonstration Project. The HMRP will include three infiltration basins covering 50 acres with a storage capacity of 35,000 acre-feet per annum. Water storage in the facility is anticipated to begin in November 2002.

### Media Coverage

The AWBA received limited press coverage during 2001 with the majority of articles being published following the approval of the Agreement for Interstate Water Banking.

"Saving up water for a rainy day", Mesa Tribune, May 14, 2001

"Arizona water czar quits as 'fight' over '80 Groundwater Act looms", Arizona Daily Star, May 17, 2001

"Nevada to store water in Arizona", Las Vegas Sun, June 11, 2001

"Nevada generates deal to store water in Arizona", Arizona Daily Sun, June 12, 2001

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<sup>5</sup> The SIRA must undergo a federal public review and comment process due to the inclusion of a federal party. Although the federal notice process did not begin within this reporting period, it should be noted that the documents were released for public review and comment on February 21, 2002. The deadline for comments was March 25, 2002.

“Arizona is ‘bank’ for Nevada in water deal”, Arizona Daily Star, June 12, 2001

“Nevada gets deal to store extra water in Arizona wells”, Tucson Citizen, June 13, 2001

“Nevada-Arizona water compact made official”, Las Vegas Review-Journal, July 4, 2001

#### Grant Application Submitted

In January, the AWBA submitted its second application to the Innovations in American Government Program administered by the John F. Kennedy School of Government at Harvard University. The AWBA previously submitted an application in 1997. The Program identifies and awards outstanding examples of creative problem-solving in the public sector. There are two levels of monetary award, \$100,000 for winners and \$20,000 for finalists. The 2001 Program received 1,263 applicants from which 100 semifinalists were selected. The AWBA was not selected as a semifinalist.

#### Agreement and Facility Permit Activity

Thirteen of the agreements to which the AWBA is a party expired on December 31, 2001. They were: (1) 10 of the agreements for water storage at a GSF; (2) the agreement for water storage at the GRUSP; (3) the agreement for water storage at the Avra Valley Recharge Project; and (4) the intergovernmental agreement between the AWBA, the ADWR and the CAWCD providing for services and delivery of excess water. The new agreement for storage of water at GRUSP was executed on December 31, 2001. The other agreements were not completed in 2001. To permit continued water delivery and storage until new agreements were executed, the AWBA agreed on December 19 to extend by letter all of the other agreements for a period not to exceed one year. The AWBA also executed the first agreement for water storage at a privately operated facility when the agreement to store water at the Vidler Water Co. was executed in April of 2001.

The AWBA continued discussions with Herb Kai regarding AWBA participation in development of the infrastructure necessary to utilize CAP water at his Avra Valley groundwater savings facility. In 2001, Mr. Kai presented AWBA with a conceptual design and cost estimates. This information was shared with the Tucson AMA Institutional and Policy Advisory Group (IPAG). The IPAG is evaluating support of Mr. Kai’s concept based on the Tucson AMA management goals.

The AWBA did not submit any new water storage permit applications in 2001, however, the AWBA did receive water storage permits for the full scale Clearwater, formerly Central Avra Valley Storage and Recovery, Project and the Vidler Water Co. facility in January 2001.

### AWBA Newsletter

The AWBA continued to distribute the quarterly newsletter to provide the public with periodic updates on water deliveries and other AWBA related water management issues. The 2001 issues were published in February, May and August and can be accessed on the AWBA web page. AWBA staff encourages individuals to submit items of interest for inclusion in the newsletter.

### Web Page

The AWBA has maintained a web page (<http://www.awba.state.az.us>) since 1997 as a means to provide timely and accurate information regarding the AWBA's activities to the water community. The web page contains information about the AWBA, AWBA members and staff, the AWBA's recharge partners, monthly water deliveries, the AWBA newsletter, AWBA announcements and scheduled meetings and meeting minutes. It also contains publications and documents that may be downloaded and provides links to other water related web sites.

The web page continued to undergo some minor design changes in 2001. Specifically an archival section was added and items with a publication date earlier than 2001 were archived. The AWBA staff continue to review and update the web page to insure that it contains accurate information that can be accessed in an efficient manner.

## Monies Expended from the Banking Fund

Arizona Revised Statutes § 45-2425 mandates the various sources of monies for the Water Banking Fund (Fund) that is administered by the AWBA per the statute. In 2001, the AWBA obtained its funding from the following sources:

1. Fees for groundwater pumping are collected within the Phoenix, Pinal and Tucson AMAs. Fees are calculated two different ways because there exists a gradual increase in fees for entities not associated with irrigation districts within the Pinal AMA. In the Phoenix AMA, Tucson AMA and most areas of the Pinal AMA, fees for water banking purposes are charged at \$2.50 per acre-foot. Fees for entities in Pinal County who are not associated with an irrigation district were charged at \$0.75 per acre-foot in 1997 with planned increases of \$0.25 per acre-foot annually until the \$2.50 per acre-foot amount is reached. Therefore, the fee charged for these entities was \$1.75 per acre-foot in 2001. The fees for groundwater pumping are statutorily available to the AWBA through 2016. Long-term storage credits accrued with these monies must be used to benefit the AMA in which they were collected.
2. The CAWCD is statutorily authorized through 2016 to levy an *ad valorem* property tax in the three-county CAP service area that cannot exceed four cents per \$100 of assessed valuation and is used either for repayment or OM&R costs of the CAP. If the taxes levied are not needed for those purposes, an annual resolution of the CAWCD board can direct them to the Fund. In 2001, the CAWCD board resolved that all taxes to be levied would be deposited in the Fund. The Fund receives this money in two payments that are roughly concurrent with the due dates for property taxes; funds are typically received in December and May. Money from this source must be used to benefit the county in which it was collected.
3. A general fund appropriation is made to the Fund each fiscal year in an amount determined to be appropriate by the Arizona Legislature and the Governor. General fund money is available to the Fund in equal payments on a quarterly basis. Due to the overlap of the calendar year (by which the AWBA operates) and the fiscal year (FY), calendar year 2001 received \$1 million of general fund money allocated in FY 2001 and \$1 million of general fund money allocated in FY 2002 for a total of \$2 million.<sup>6</sup> Water stored with these funds may be used to assist communities along the Colorado River, to assist in meeting state water management objectives or as a component of Indian water rights settlements.
4. In 2001, the AWBA received \$10,000 pursuant to the terms of a Stipulation and Consent Order between ADWR and alleged violators to mitigate harm related to safe-yield in the Tucson AMA. The alleged violators requested that the funds be utilized for water management purposes within the Tucson AMA.

Table 1 shows the money the AWBA received and expended in 2001 by source of funds. Table 2 shows the total money received, expended and remaining in the Fund through December 2001 by source of funds. The money listed as Available is money that is either remaining in the Fund or money that has been prepaid to CAWCD. Any money that remains in the Fund is available to be

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<sup>6</sup> The general fund money that was not distributed to the AWBA due to the state budget shortfall is not described in this annual report. The first general fund quarterly payment the AWBA did not receive was due in January 2002.

expended in subsequent years; any interest that accrues on this money is credited to the Fund and is available for use.

**Table 1. Monies Collected and Expended in 2001 by Source of Funds**

Source of Funds	Money Collected	Money Expended
<b>General Fund</b>	<b>\$2,000,000</b>	<b>\$1,995,203</b>
<b>4¢ Ad valorem Tax</b>		
Maricopa County	\$8,851,967	\$5,631,138
Pinal County	\$298,720	\$302,356 <sup>1</sup>
Pima County	\$1,540,692	\$990,273
Subtotal for Ad Valorem	<b>\$10,691,379</b>	<b>\$6,923,767</b>
<b>Groundwater Withdrawal Fee</b>		
Phoenix AMA	\$2,495,299	\$0
Pinal AMA	\$1,137,075	\$1,974,620 <sup>1</sup>
Tucson AMA	\$733,584	\$0
Subtotal for Withdrawal Fees	<b>\$4,365,958</b>	<b>\$1,974,620</b>
<b>TOTAL</b>	<b>\$17,057,337</b>	<b>\$10,893,590</b>

<sup>1</sup> Includes carryover from previous years

**Table 2. Monies Collected and Expended through December 2001 and Monies Remaining Available to the Authority**

Source of Funds	Money Collected	Money Expended	Money Available
<b>General Fund</b>	<b>\$10,695,000</b>	<b>\$10,690,203</b>	<b>\$4,797</b>
<b>4¢ Ad Valorem Tax</b>			
Maricopa County	\$39,161,983	\$24,096,166	\$15,065,817
Pinal County	\$1,410,991	\$1,410,991	\$0
Pima County	\$7,834,923	\$3,488,244	\$4,346,679
Subtotal for Ad Valorem	<b>\$48,407,897</b>	<b>\$28,995,401</b>	<b>\$19,412,496</b>
<b>Groundwater Withdrawal Fee</b>			
Phoenix AMA	\$9,840,496	\$0	\$9,840,496
Pinal AMA	\$4,216,346	\$3,602,560	\$613,786
Tucson AMA	\$2,755,596	\$0	\$2,755,596
Subtotal for Withdrawal Fees	<b>\$16,812,438</b>	<b>\$3,602,560</b>	<b>\$13,209,878</b>
<b>TOTAL</b>	<b>\$75,915,335</b>	<b>\$43,288,164</b>	<b>\$32,627,171</b>

## Long-term Storage Credits

The AWBA has established Long-term Storage Accounts with ADWR. The Phoenix AMA account number is 70-441150, the Tucson AMA account number is 70-411150 and the Pinal AMA account number is 70-431135. After receiving the AWBA's annual reports for its water storage and water transfer permits and the annual reports for the recharge facilities, ADWR calculates and issues long-term storage credits to the appropriate accounts. The AWBA receives credit for 95% of the recoverable quantity of stored water. The 5% that is not credited is termed the cut to the aquifer and provides additional groundwater replenishment benefits. This cut to the aquifer is mandated by statute and applies to almost all storage of water for long-term credit, with some exceptions. The recoverable amount of stored water is determined by subtracting facility losses from the quantity of water delivered to the facility. After credits are issued to the account, AWBA staff allocate the credits to the appropriate sub-accounts based on source of funding.

The number and distribution of long-term storage credits for 2001 are listed in Table 3. Cumulative totals of long-term storage credits through December 2001 are listed in Table 4. The average annual cost for the AWBA to obtain an acre-foot of long-term storage credit is presented in Table 5.

**Table 3. Number and Location of Long-term Storage Credits Accrued in 2001**

Location and Funding Source	Long-term Storage Credits Accrued (AF)
<b>Phoenix AMA</b>	
4¢ Ad valorem Tax	123,081
Groundwater Withdrawal Fee	0
General Fund	0
<b>AMA Total</b>	<b>123,081</b>
<b>Pinal AMA</b>	
4¢ Ad valorem Tax	11,597
Groundwater Withdrawal Fee	75,738
General Fund	17,329
<b>AMA Total</b>	<b>104,664</b>
<b>Tucson AMA</b>	
4¢ Ad valorem Tax	16,393
Groundwater Withdrawal Fee	0
General Fund	25,549
<b>AMA Total</b>	<b>41,942</b>
<b>Totals by Funding Source</b>	
4¢ Ad valorem Tax	151,071
Groundwater Withdrawal Fee	75,738
General Fund	42,878
<b>TOTAL</b>	<b>269,687</b>

**Table 4. Cumulative Total and Location of Long-term Storage Credits Accrued through December 2001**

Location and Funding Source		Long-term Storage Credits Accrued (AF)
<b>Phoenix AMA</b>		
	4¢ <i>Ad valorem</i> Tax	621,182
	Groundwater Withdrawal Fee	0
	General Fund	61,613
	<b>AMA Total</b>	<b>628,795</b>
<b>Pinal AMA</b>		
	4¢ <i>Ad valorem</i> Tax	64,884
	Groundwater Withdrawal Fee	140,969
	General Fund	271,318
	<b>AMA Total</b>	<b>477,171</b>
<b>Tucson AMA</b>		
	4¢ <i>Ad valorem</i> Tax	59,572
	Groundwater Withdrawal Fee	0
	General Fund	53,941
	<b>AMA Total</b>	<b>113,513</b>
<b>Totals by Funding Source</b>		
	4¢ <i>Ad valorem</i> Tax	745,639
	Groundwater Withdrawal Fee	140,969
	General Fund	386,872
	<b>TOTAL</b>	<b>1,273,480</b>

Table 5 illustrates that the unit cost per long-term storage credit has increased each year the AWBA has been in operation with the exception of 2001. The increase is the function of three primary factors: annual increases in the cost per acre-foot of water delivered, annual increases in the cost of storage facilities and increased percentage of total water stored in USFs. AWBA storage at USFs is increasing due to the agricultural economy and the increased availability of USFs. Groundwater savings facility opportunities are limited in some instances by the existing AWBA policy that requires GSF operators to pay \$21 per acre-foot of water delivered to their facility. However, in 2001, the increase in cost of water was only \$1 per acre-foot and there was a change in the trend of increasing percent of USF storage due to loss of storage at GRUSP and delayed storage at the Agua Fria Recharge Project. Therefore, the average cost to develop a credit showed a slight decrease from the 2000 amount. It is anticipated that the increasing trend in cost of developing credits will resume in 2002 as water delivery costs increased dramatically that year.



**Table 5. Average Annual Cost for the AWBA to Obtain a Long-term Storage Credit<sup>1</sup>**

<b>Year</b>	<b>Credits</b>	<b>Funds Expended</b>	<b>Average Cost</b>	<b>% Stored in GSF:% Stored in USF</b>
1996	None	None	\$0	0% : 0%
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	272,122	\$11,163,000	\$41.02	60% : 40%
2001	269,687	\$10,893,590	\$40.39	62% : 38%

<sup>1</sup> The information in this table was obtained from previous Annual Reports. Any differences between the number of credits displayed here and the total cumulative number in Table 4 are due to the on-going nature of the accounting process.

## **Long-term Storage Credits Distributed or Extinguished by the Authority**

The long-term storage credits developed by the AWBA to date have been identified as reserved for three purposes: firming the post-1968 Colorado River municipal and industrial (M&I) entitlements; firming the post-1968 M&I entitlements for entities outside the CAP service area; and fulfilling the water management objectives set forth in Chapter 2 of Title 45 (Arizona Revised Statutes). Credits for firming purposes may be distributed or extinguished when the Colorado River system is deemed to be in a shortage or if there is an operational disruption of the CAP. There were no shortages or unplanned CAP operational problems, therefore, no credits were distributed or extinguished for these purposes in 2001. Credits may be distributed or exchanged for water management purposes upon request of the director of ADWR. There were no requests made for distribution or extinguishment of credits for water management purposes in 2001. 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 2001, no credits were developed or distributed under such agreements.

# Ten Year Plan

## Introduction

The ten year plan is a statutorily mandated component of the Annual Report. 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 storage activities and is completed for planning purposes only. In any given year, the AWBA's activities are governed by the annual Plan.

The ten year plan in the 2001 Annual Report analyzes activity for the period 2003-2012 (Table 6) and was derived using the information found in Appendices B through G. AWBA accounting for previous years can be found earlier in this annual report (see Tables 2 and 4). AWBA staff developed the ten year plan based on the following guiding principles:

1. The intent of the plan is to evaluate if the AWBA can engage in water banking activities beyond the scope of the currently established AWBA role and to what extent.
2. The plan covers a ten year time period beginning with the next calendar year. For example, this ten year plan covers the time period 2003-2012.
3. The plan will be updated annually based on current priorities of the AWBA.
4. The plan is an important tool to be utilized in development of the next year's annual Plan.

## Ten Year Plan Components

The following factors are recognized to be important elements in developing the model used to generate the ten year plan. Inclusion or exclusion of a specific factor or component of a factor was based on whether the extent of the effect of the factor could be predicted over the planning period, and whether the factor was anticipated to be at issue over the planning period.

### 1. Storage Partners and Storage Capacity

The AWBA has 12 water storage permits for GSFs with a total storage capacity of 726,700 acre-feet per annum. The AWBA does not anticipate utilizing the Roosevelt Water Conservation District or the Maricopa Water District within this planning period.

All of the permits associated with GSFs expire within this ten year plan. The AWBA's storage permits expire simultaneously with the partners' facility permits. Consequently, any difficulty on the part of the partners or the AWBA to obtain new permits could affect the ability of the AWBA to maintain adequate storage capacity to fulfill water banking activities. Discussions with ADWR recharge staff have indicated that there is typically no difficulty in obtaining new permits for GSF facilities. Nonetheless, impacts of this nature cannot be predicted and are not included in this ten year plan.

The AWBA has eight water storage permits for USFs with a total storage capacity of 566,000 acre-feet per annum. The USF permit issued for the Pima Mine Road facility limits total storage under the permit to 500,000 acre-feet with the ability to request an amendment to 600,000 acre-feet. This storage quantity limitation will not be a factor within this ten year plan. Additionally, 40,000 acre-feet of capacity per annum was modeled for this planning period at the Clearwater facility (formerly Central Avra Valley Storage and Recovery Project). Although there has not been storage at the facility in recent years, planned expansion of the facility will likely make storage capacity available to the AWBA. The GRUSP permit is the only permit that expires within this planning period.

As previously described in the GSF discussion, any difficulty in obtaining new permits could effect the capacity available to the AWBA. As the process of obtaining a new USF permit can be more complex and extensive than obtaining a new GSF permit, the possibility of impact is greater. Again, impacts of this nature cannot be predicted and are not included in the analysis of this ten year plan.

## 2. Recovery

This ten year plan does not include a recovery component. Based on current analysis and discussion, recovery for shortage protection or interstate needs is not anticipated within the scope of this ten year plan. However, in recognition of the CAP subcontractors' need for long-range infrastructure planning, it is anticipated that the AWBA and CAWCD will initiate a planning process to develop a general recovery strategy and recovery principles early in this time period.

## 3. Water management objectives

The early activities of the AWBA were focused on achieving the goal of full utilization of Arizona's Colorado River allocation. However, 2002 marks the first year that Arizona is likely to fully utilize its 2.8 million acre-foot allocation. Consequently, the evaluation of water management activities will become more complex as the available excess CAP water and storage facility capacity becomes limited, new storage facilities are sited and developed and AWBA's funding sources are impacted by economic factors.

### *Central Arizona Groundwater Replenishment District (CAGRDR) Replenishment Reserve*

The Governor's Water Management Commission (GWMC) final report included a recommendation that the CAGRDR develop a 20% replenishment reserve. The recommendation included a provision that established equal priority for deliveries of excess water between the replenishment reserve and the AWBA's deliveries for M&I firming purposes. However, the reserve would have a higher priority for excess CAP water than the AWBA's deliveries for other non-firming purposes (i.e. water management). The GWMC's legislative package was withdrawn early in 2002; however, it is anticipated that the CAGRDR reserve proposal will be included in the 2003 legislative session. Additionally, current statute allows for a portion of the CAGRDR's obligation to be recharged in advance of incurring an obligation. Therefore, a component for the proposed replenishment reserve as well as the advance replenishment was included in the model beginning in 2003.

**Table 6. Ten Year Plan**

<p align="center"><b>ARIZONA WATER BANKING AUTHORITY – 10 YEAR PLAN</b>  <b>2003 – 2012</b>                      (Acre-feet)</p>															
YEAR	(a) CAP Water Avail for AWBA	(b) CAP M&I Firming (4¢ Tax)		(c) Water Management (Withdrawal Fees)		(d) General Fund		(e) Indian Settlement		(f) Loaned Credits		(g) Storage for Others	(h)-(j) Interstate Banking		
		Delivered	Credits	Delivered	Credits	Delivered	Credits	Delivered	Credits	Delivered	Credits		Water Available	AWBA Capacity Avail.	Credits Earned
Pre-Plan <sup>(k)</sup>	n/a	1,071,710	979,639	223,348	211,969	419,441	386,872						40,000	40,000	37,600
2003	647,320	275,924	259,369	34,611	32,534	0	0						336,785	116,451	109,464
2004	635,858	276,034	259,472	39,105	36,758	0	0						320,720	119,116	111,969
2005	620,882	258,788	243,261	51,446	48,359	0	0						310,648	134,349	126,288
2006	557,134	242,816	228,247	47,314	44,475	68,966	64,828						198,038	56,341	52,960
2007	520,163	229,268	215,512	46,243	43,469	68,966	64,828						175,687	55,545	52,212
2008	482,771	217,512	204,461	48,719	45,796	65,574	61,639						150,966	55,605	52,268
2009	447,283	206,120	193,753	45,286	42,568	62,412	58,667						133,465	61,339	57,659
2010	364,590	191,934	180,418	40,182	37,771	59,459	55,892						73,015	78,531	68,634
2011	319,777	180,265	169,449	38,046	35,763	56,697	53,295						44,769	92,563	42,083
2012	281,359	173,500	163,090	35,988	33,829	54,107	50,861						17,764	96,231	16,698
<b>TOTAL</b>			3,096,671		613,291		796,882								727,835

**FOOTNOTES:**  
 (a) See Appendix B  
 (b) See Appendix D  
 (c) See Appendix E  
 (d) See Appendix F  
 (e) Currently no Indian settlement requirements identified for the AWBA  
 (f) Currently no requests for loaned credits  
 (g) Currently the AWBA is not providing banking services for others  
 (h) Available CAP Supplies minus AWBA intrastate delivery requirements  
 (i) Additional capacity may be needed to fully accommodate the opportunity for interstate banking  
 (j) See Appendix G. The Agreement for Interstate Water Banking executed 2001, other agreements pending  
 (k) Cumulative totals for 1997-2002; 2002 credits estimated based on projected deliveries

### *The CAP Water Forecast Group*

The group is composed of CAP, CAGRD, ADWR and AWBA staff and was formed to facilitate consistency and understanding between the entities with regard to assumptions used for short- and long-term Colorado River water supply and demand forecasts. Portions of this ten year plan were developed using projections obtained from this group.

### *Allegheny Energy Supply Company (AESC), LLC*

As a condition of the Certificate of Environmental Compatibility approved by the Arizona Power Plant and Transmission Line Siting Committee, the AESC has acquired an obligation to mitigate the facility's legal groundwater pumping. The obligation is in the aggregate amount of 100,000 acre-feet and it must be met within 30 years through recharge or retirement of agricultural lands. The AESC must meet at least 50% of the obligation within the first ten years. The AWBA is a tool that the AESC could utilize to meet their obligation, specifically by contracting with the AWBA to recharge on their behalf in the Harquahala INA. However, this component is not included in the current ten year plan because it is anticipated that the AESC will work toward the obligation in the short term through permanent retirement of agricultural lands. Water banking services for the AESC could be a factor included in future ten year plans.

### *AWBA General Fund Appropriation*

Since inception, the AWBA has received an annual general fund appropriation of \$2 million. To date, the AWBA has primarily utilized the money to augment the revenues generated in Pinal County to develop credits to be used to firm on-river uses. However, the remaining \$1 million of general fund appropriation from the fiscal year 2002 budget due to be dispersed to the AWBA in January and April 2002 was withheld because of the state budget shortfall. It is recognized that the economic factors resulting in the loss of the AWBA's general fund appropriation will exist for some time. Therefore, the ten year plan was developed with no general fund appropriation through calendar year 2005. The model included a \$2 million general fund appropriation for the period 2006-2012.

#### 4. Modifications within CAP with regard to pricing and pool allocation

In May 2000, the CAWCD Board adopted a policy for marketing the non-Indian agriculture (NIA) pool of excess water. This policy established a NIA pool of 400,000 acre-feet from 2004-2016. The pool will decline to 300,000 acre-feet from 2017-2023 and to 225,000 acre-feet from 2024-2030. This use will be the highest priority use for excess water. It is recognized that this is a factor that could impact the AWBA's ability to participate in recharge at groundwater savings facilities, however, as the policy has not yet initiated it is difficult to predict an effect. Therefore, only the 400,000 acre-foot pool concept was utilized in this ten year plan.

The CAWCD Board has also discussed the marketing of excess water for other users including the CAGRD replenishment and replenishment reserve, incentive recharge programs, other M&I uses and the AWBA. Because policy addressing the other uses has not yet been adopted, the ten year plan was developed absent a prioritizing component with the exception of AWBA water deliveries being met last.

5. Participation in Indian settlements

One objective of the AWBA is assisting with the settlement of water rights claims by Indian communities within Arizona. Settlements dealing with the CAP repayment and reallocation would require the State to firm some NIA priority water for Indian settlements. In order to achieve this, it is anticipated that the state will rely on the AWBA at some time within this ten year planning horizon. However, this issue was not considered in this ten year plan pending finalization of the assumptions.

6. New recharge facilities and/or expanded capacities at existing facilities

The AWBA is currently in the process of completing a revised inventory of existing storage facilities in the state as required by A.R.S. § 45-2452. The revised inventory will be utilized in developing future ten year plans.

The CAP has been active in the evaluation of locations for additional storage facilities in the past year. In January 2002, the CAP initiated a regional siting feasibility study for the East Salt River Valley. It is anticipated that the first phase of the study will be completed by June 2002. The CAP is also currently conducting a Western Arizona Recharge Capacity Feasibility Study. It is anticipated that a potential recharge facility location will be identified in the summer of 2002 with initiation of water storage early in 2004. The AWBA recognizes that these two processes will likely result in additional storage facility capacity, however, uncertainty regarding the magnitude of projects precluded inclusion of this additional capacity in the current ten year plan.

The SRP has applied to ADWR for a recharge facility permit for a project located in the west valley near the confluence of the Agua Fria River and New River. The project has a planned initial capacity of 30,000 acre-feet increasing to a maximum of 100,000 acre-feet. Storage at this facility was not included in this ten year plan because of uncertainty regarding development of an agreement between AWBA and SRP, cost of storage and availability of capacity to the AWBA.

Storage at the Hieroglyphic Mountains Recharge Project (HMRP) was included in this ten year plan. The HMRP is a 35,000 acre-foot USF being developed by the CAP in the west Salt River Valley. First water storage is expected to occur late in 2002.

There has been discussion regarding expanded capacity at two existing storage facilities, the Lower Santa Cruz Recharge Project and Tucson's Clearwater project. The proposed additional capacity at these facilities was taken into consideration in this ten year plan even though the expansions have not yet been permitted by the ADWR. If the expansions are not completed, the potential storage capacity in the Tucson AMA will be limited in future plans.

7. Interstate banking

The AWBA continues to evaluate the opportunities for interstate water banking and to develop the last two agreements necessary to initiate the process. The ten year plan includes an

interstate water banking component for Nevada but does not include California. However, model runs have identified that within the plan period there is water available after the intrastate needs have been met and Nevada has received an annual amount.

### Conclusion

The ten year plan is intended to serve as a guide to assist the AWBA in the development of the Annual Plan of Operation (Plan). The AWBA is required to develop a Plan for activities to be undertaken 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.



# Appendices

**Appendix A.  
Colorado River Water Deliveries for Water Banking Purposes for Calendar Year 2001 by  
Partner and Active Management Area**

**Phoenix Active Management Area**

<b>Partner</b>	<b>Quantity of Water (Acre-feet)</b>
Granite Reef Underground Storage Project	63,576
New Magma Irrigation and Drainage District	44,835
Queen Creek Irrigation District	9,280
Agua Fria	3,621
Salt River Project	14,935
Chandler Heights Citrus Irrigation District	545

**Pinal Active Management Area**

<b>Partner</b>	<b>Quantity of Water (Acre-feet)</b>
Central Arizona Irrigation and Drainage District	11,016
Maricopa-Stanfield Irrigation and Drainage District	47,755
Hohokam Irrigation and Drainage District	54,928

**Tucson Active Management Area**

<b>Partner</b>	<b>Quantity of Water (Acre-feet)</b>
Avra Valley	6,311
Pima Mine Road	13,174
Kai – Red Rock	1,110
Lower Santa Cruz	23,727

**APPENDIX B**  
**CAP DELIVERY SCHEDULE**  
(Acre-feet)

Year	CAP Demands				Average Year Supply <sup>(4)</sup>	Available for AWBA <sup>(5)</sup>
	M&I <sup>(1)</sup>	Indian <sup>(2)</sup>	Ag <sup>(3)</sup>	Total		
2003	255,441	81,000	541,239	877,680	1,525,000	647,320
2004	276,008	82,000	531,134	889,142	1,525,000	635,858
2005	291,433	94,000	518,684	904,118	1,525,000	620,882
2006	349,573	104,000	514,293	967,866	1,525,000	557,134
2007	372,071	119,000	513,765	1,004,837	1,525,000	520,163
2008	391,481	137,000	513,748	1,042,229	1,525,000	482,771
2009	409,500	154,000	514,217	1,077,717	1,525,000	447,283
2010	471,632	173,000	515,779	1,160,410	1,525,000	364,590
2011	485,621	201,000	518,602	1,205,223	1,525,000	319,777
2012	498,523	226,000	519,119	1,243,641	1,525,000	281,359

- (1) Includes M&I, CAGR, Indian M&I lease and M&I incentive water  
(2) From settlement discussions  
(3) From agricultural pool discussions  
(4) Based on average year delivery of 1,600,000 AF per year minus losses  
(5) Average year supply minus CAP demands; AWBA last priority for intrastate use

**APPENDIX C**  
**STORAGE FACILITIES AVAILABLE TO THE AWBA**  
**(as used in the 10 year plan)**

AMA and Facility Type	Facility Permit Expiration	Facility Permitted Capacity (Acre-feet)	Capacity Available to AWBA <sup>(1)</sup> (Acre-feet)	Year Water Last Stored	Volume of Water Last Stored (Acre-feet)
<b>PHOENIX – GSF<sup>(2)</sup></b>					
New Magma IDD	12/2007	54,000	45,000	2001	44,835
Queen Creek ID	12/2004	28,000	15,000	2001	9,280
Salt River Project	12/2005	200,000	20,000	2001	14,935
<b>PHOENIX – USF</b>					
GRUSP	12/2010	200,000	50,000	2001	63,576
Agua Fria Recharge Project	05/2019	100,000	100,000	2001	3,621
Hieroglyphic Mtns.	12/2021	35,000	20,000	<sup>(3)</sup>	0
<b>PINAL – GSF</b>					
Central Arizona IDD	12/2007	110,000	15,000	2001	11,016
Hohokam IDD	12/2007	55,000	50,000	2001	54,928
Maricopa-Stanfield IDD	12/2004	120,000	50,000	2001	47,755
<b>TUCSON – GSF</b>					
Kai – Avra	04/2008	12,513	5,000	<sup>(3)</sup>	0
Kai – Red Rock	12/2006	11,231	3,000	2001	1,110
<b>TUCSON – USF</b>					
Avra Valley	03/2018	11,000	6,000	2001	6,311
Clearwater/CAVSARP	07/2021	60,000	40,000 <sup>(4)</sup>	2000	10,532
Lower Santa Cruz	09/2019	30,000	20,000	2001	23,727
Pima Mine Road	09/2020	30,000	7,000	2001	13,174
<b>Other Facilities Currently or Anticipated to be Available to the AWBA</b>					
Vidler – USF	09/2020	100,000	80,000	<sup>(3)</sup>	0
West Maricopa Combine - USF	05/31/2021	25,000		<sup>(3)</sup>	0
SRP New River – USF <sup>(5)</sup>					

Footnotes:

- (1) 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.
- (2) The AWBA holds water storage permits at Chandler Heights Citrus ID (3KAF), Maricopa Water District (18KAF), Roosevelt Water Conservation District, and the Tonopah (15KAF) GSFs. These were not considered significant uses in this 10 year outlook.
- (3) No deliveries to date.
- (4) 20,000 acre-feet of additional capacity anticipated being available beginning in 2003.
- (5) Not yet permitted.

**APPENDIX D**  
**Credits Developed for M&I Firming Utilizing the 4¢ Tax <sup>(1)</sup>**  
**(Acre-feet)**

PHOENIX AMA <sup>2</sup>	Year	Groundwater Savings			Underground Storage		
		Capacity Available <sup>4</sup>	Capacity Used	Credits Earned	Capacity Available <sup>4</sup>	Capacity Used	Credits Earned
	Pre-plan <sup>3</sup>			466,015			330,168
	2003	80,000	80,000	75,200	159,329	159,329	149,770
	2004	74,195	74,195	69,743	157,622	157,622	148,165
	2005	73,486	73,486	69,077	153,062	153,062	143,878
	2006	68,762	68,762	64,636	141,427	141,427	132,941
	2007	62,585	62,585	58,830	132,960	132,960	124,982
	2008	57,341	57,341	53,901	126,347	126,347	118,766
	2009	52,431	52,431	49,285	119,746	119,746	112,561
	2010	47,101	47,101	44,275	110,750	110,750	104,105
	2011	41,802	41,802	39,294	104,225	104,225	97,971
	2012	38,762	38,762	36,436	100,328	100,328	94,308
	Total			1,026,692			1,557,615
PINAL AMA <sup>2</sup>	Year	Groundwater Savings			Underground Storage		
		Capacity Available <sup>4</sup>	Capacity Used	Credits Earned	Capacity Available <sup>4</sup>	Capacity Used	Credits Earned
	Pre-plan <sup>3</sup>			71,884			
	2003	114,522	7,397	6,953	-	-	-
	2004	113,466	6,729	6,325	-	-	-
	2005	112,430	9,070	8,525	-	-	-
	2006	111,416	8,932	8,396	-	-	-
	2007	110,421	9,111	8,564	-	-	-
	2008	109,447	8,836	8,306	-	-	-
	2009	108,492	8,578	8,063	-	-	-
	2010	107,556	8,336	7,835	-	-	-
	2011	106,639	8,107	7,621	-	-	-
	2012	105,740	7,892	7,418	-	-	-
	Total			149,890			
TUCSON AMA <sup>2</sup>	Year	Groundwater Savings			Underground Storage		
		Capacity Available <sup>4</sup>	Capacity Used	Credits Earned	Capacity Available <sup>4</sup>	Capacity Used	Credits Earned
	Pre-plan <sup>3</sup>			3,610			107,962
	2003	3,936	0	0	29,198	29,198	27,446
	2004	4,078	0	0	44,894	37,488	35,239
	2005	4,216	0	0	61,388	23,170	21,780
	2006	4,352	0	0	49,480	23,695	22,273
	2007	4,485	0	0	49,571	24,612	23,136
	2008	4,615	0	0	49,659	24,988	23,488
	2009	4,743	0	0	49,746	25,366	23,844
	2010	4,868	0	0	59,831	25,747	24,202
	2011	4,990	0	0	69,915	26,131	24,563
	2012	5,000	0	0	69,996	26,518	24,927
	Total			3,610			358,860

Footnotes:

- (1) Developing M&I firming credits has the first priority for water and storage capacity.
- (2) M&I firming targets are Phoenix AMA-1.5 MAF, Tucson AMA-810 KAF, and Pinal AMA 230 KAF
- (3) Cumulative totals for 1997-2002; 2002 credits estimated based on projected deliveries.
- (4) The capacity available is based on the capacity remaining at the USFs and GSFs after all higher priority demands have been met.

**APPENDIX E**  
**Credits Developed for Meeting AMA Water Management Goals**  
**Utilizing Withdrawal Fees <sup>(1)</sup>**  
**(Acre-feet)**

	Year	Groundwater Savings			Underground Storage		
		Capacity Available <sup>3</sup>	Capacity Used	Credits Earned	Capacity Available <sup>3</sup>	Capacity Used	Credits Earned
<b>PHOENIX AMA</b>	Pre-plan <sup>2</sup>			0			0
	2003	0	0	0	0	0	0
	2004	0	0	0	0	0	0
	2005	0	0	0	0	0	0
	2006	0	0	0	0	0	0
	2007	0	0	0	0	0	0
	2008	0	0	0	0	0	0
	2009	0	0	0	0	0	0
	2010	0	0	0	0	0	0
	2011	0	0	0	0	0	0
	2012	0	0	0	0	0	0
	Total			0			0
	<b>PINAL AMA</b>	Pre-plan <sup>2</sup>			211,969		
2003		107,125	30,675	28,834	-	-	-
2004		106,737	27,621	25,964	-	-	-
2005		103,361	36,846	34,635	-	-	-
2006		102,484	33,518	31,507	-	-	-
2007		101,311	32,345	30,405	-	-	-
2008		100,611	35,037	32,935	-	-	-
2009		99,914	31,820	29,910	-	-	-
2010		99,221	28,560	26,847	-	-	-
2011		98,532	26,792	25,185	-	-	-
2012		97,849	25,147	23,638	-	-	-
Total				501,829			0
<b>TUCSON AMA</b>		Pre-plan <sup>2</sup>			0		
	2003	3,936	3,936	3,700	0	0	0
	2004	4,078	4,078	3,833	7,406	7,406	6,962
	2005	4,216	4,216	3,963	38,218	10,384	9,761
	2006	4,352	4,352	4,091	25,785	9,444	8,878
	2007	4,485	4,485	4,216	24,958	9,413	8,848
	2008	4,615	4,615	4,338	24,672	9,067	8,523
	2009	4,743	4,743	4,458	24,380	8,723	8,200
	2010	4,868	4,868	4,576	34,084	6,754	6,348
	2011	4,990	4,990	4,691	43,784	6,264	5,888
	2012	5,000	5,000	4,700	43,478	5,841	5,490
	Total			42,566			68,898

(1) Withdrawal fees are used to develop credits for AMA water management goals after the 4¢ tax is utilized.

(2) Cumulative totals for 1997-2002; 2002 credits estimated based on projected deliveries.

(3) The capacity available is based on the capacity remaining at the USFs and GSFs after all higher priority demands have been met and water is stored using the 4¢ tax as illustrated in Appendix D.

**APPENDIX F**  
**Credits Developed Utilizing Annual General Fund Appropriations<sup>(1,2)</sup>**  
**(Acre-feet)**

PHOENIX AMA	Year	Groundwater Savings			Underground Storage		
		Capacity Available	Capacity Used	Credits Earned	Capacity Available	Capacity Used	Credits Earned
	Pre-plan <sup>3</sup>			36,063			25,550
2003	0	0	0	0	0	0	
2004	0	0	0	0	0	0	
2005	0	0	0	0	0	0	
2006	0	0	0	0	0	0	
2007	0	0	0	0	0	0	
2008	0	0	0	0	0	0	
2009	0	0	0	0	0	0	
2010	0	0	0	0	0	0	
2011	0	0	0	0	0	0	
2012	0	0	0	0	0	0	
Total			36,063			25,550	

PINAL AMA	Year	Groundwater Savings			Underground Storage		
		Capacity Available	Capacity Used	Credits Earned	Capacity Available	Capacity Used	Credits Earned
	Pre-plan <sup>3</sup>			271,318			
2003	76,451	0	0	-	-	-	
2004	79,116	0	0	-	-	-	
2005	66,514	0	0	-	-	-	
2006	68,966	68,966	64,828	-	-	-	
2007	68,966	68,966	64,828	-	-	-	
2008	65,574	65,574	61,639	-	-	-	
2009	68,094	62,412	58,667	-	-	-	
2010	70,660	59,459	55,892	-	-	-	
2011	71,740	56,697	53,295	-	-	-	
2012	72,701	54,107	50,861	-	-	-	
Total			681,328				

TUCSON AMA	Year	Groundwater Savings			Underground Storage		
		Capacity Available	Capacity Used	Credits Earned	Capacity Available	Capacity Used	Credits Earned
	Pre-plan <sup>3</sup>			1,745			52,196
2003	0	0	0	0	0	0	
2004	0	0	0	0	0	0	
2005	0	0	0	27,834	0	0	
2006	0	0	0	16,341	0	0	
2007	0	0	0	15,545	0	0	
2008	0	0	0	15,605	0	0	
2009	0	0	0	15,657	0	0	
2010	0	0	0	27,330	0	0	
2011	0	0	0	37,520	0	0	
2012	0	0	0	37,637	0	0	
Total			1,745			52,196	

Footnotes:

- (1) General Fund appropriations are used to supplement the 4¢ tax and withdrawal fees in AMAs where funding is a constraint.
- (2) The on-river M&I firming target is 410 KAF.
- (3) Cumulative totals for 1997-2002; 2002 credits estimated based on projected deliveries.

**APPENDIX G**  
**Potential Credits Developed for Interstate Water Banking<sup>(1)</sup>**  
(Acre-feet)

<b>Year</b>	<b>Available CAP Supplies <sup>(2)</sup></b>	<b>Available AWBA Capacity<sup>(3)</sup></b>	<b>Remaining Supply <sup>(4)</sup></b>	<b>Interstate Credits <sup>(5)</sup></b>
Pre-plan				37,600
2003	336,785	116,451	220,334	109,464
2004	320,720	119,116	201,604	111,969
2005	310,648	134,349	176,299	126,288
2006	198,038	56,341	141,697	52,960
2007	175,687	55,545	120,142	52,212
2008	150,966	55,605	95,361	52,268
2009	133,465	61,339	72,126	57,659
2010	73,015	78,531	0	68,634
2011	44,769	92,563	0	42,083
2012	17,764	96,231	0	16,698
<b>Total</b>				<b>727,835</b>

(1) Interstate Banking is the last priority of the AWBA.

(2) Water available for Interstate Banking is calculated by subtracting the water delivered and stored by individual subcontractors, contractors, and the AWBA for intrastate water banking from the Total Available Supply (see Appendix B).

(3) Reflects the unused capacity available to the AWBA at USFs and GSFs in the Phoenix, Pinal, and Tucson AMAs as well as capacity available from other storage facilities permitted by the AWBA outside of the AMAs. Additional capacity may be available at individual facilities based on the utilization by individual water storage permit holders

(4) Remaining supplies after subtracting the water delivered and stored by individual subcontractors, contractors, and the AWBA for intrastate water banking and interstate water banking.

(5) Based on the Available Supplies or the Available AWBA Capacity, whichever is less, resulting stored water multiplied by an average 6% cut and loss factor.