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NOTICE AND FINAL AGENDA OF MEETING OF THE ARIZONA WATER BANKING AUTHORITY COMMISSION

Pursuant to A.R.S. § 38-431.02, notice is hereby given that there will be a meeting of the Arizona Water Banking Authority Commission on Wednesday, **April 16, 2014 at 10:00 a.m.** at the Arizona Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012, Upper Verde Conference Room. The meeting is open to the general public.

The agenda for the meeting is as follows:

I. Welcome/Opening Remarks

II. Approval of Minutes
- December 4, 2013 (Regular Quarterly Meeting)
- February 4, 2014 (Recovery Plan Workshop)
- February 14, 2014 (Special Meeting)
- March 7, 2014 (Special Meeting)

III. Water Banking Staff Activities
- Monthly Deliveries
- Meetings
  - Enhanced Aquifer Management
  - CAP Rate Workshop
- Colorado River status
- Action planning
  - Update on SB 1478
  - Update on general fund appropriation
  - Discussion of 1-Year accomplishments

IV. Joint Draft Recovery Plan
- Discussion of comments received
- Discussion and possible action on "preface" to the Joint Recovery Plan acknowledging the Plan advances the objectives of the intergovernmental agreement among the Arizona Department of Water Resources, AWBA, and Central Arizona Water conservation District

V. Updated AWBA Firming Goals
- Discussion of modeling
- Discussion of firming goals

VI. Call to the public

Future Meeting Dates:

Wednesday, June 18, 2014
Wednesday, September 17, 2014
Wednesday, December 3, 2014

Dated this 14th day of April, 2014

All visitors must use the south elevators; please stop at the 2nd floor to sign-in and receive a visitor's badge. Badges are to be displayed at all times. Visitors are also required to sign out and return their badges. Thank you for your assistance.

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Michelle Moreno at 602-771-8530 or 602-771-8501 (TDD). Requests should be made as early as possible to allow time to arrange the accommodation.

I. Welcome/Opening Remarks

NOTES:

II. Approval of Minutes of Meeting

NOTES: Approval of the minutes can be done under one motion

Move approval of AWBA meeting minutes for the following meetings:

- December 4, 2013
- February 4, 2014 (Recovery Plan Workshop)
- February 14, 2014 (Special Meeting)
- March 7, 2014 (Special Meeting)

ACTION:

Move to approve the minutes of December 4, 2013 quarterly meeting, the February 4, 2014 Joint Recovery Workshop, and the February 14, 2014 and March 7, 2014 Special Meetings, with any needed corrections.

ARIZONA WATER BANKING AUTHORITY
Draft Minutes

December 4, 2013
Arizona Department of Water Resources

Welcome/Opening Remarks

Chairman Sandra Fabritz-Whitney welcomed attendees. All Authority members were present except for Jim Hartdegen and *ex-officio* members, Senator Gail Griffin and Speaker of the House Andy Tobin.

Approval of Minutes

Chairman Fabritz-Whitney requested a motion to approve the minutes of the October 16, 2013 regular quarterly meeting of the AWBA. John Mawhinney moved to approve the minutes. Maureen George provided the second to the motion, and the motion passed.

Water Banking Staff Activities

Monthly Water Deliveries. Virginia O'Connell, AWBA Manager, provided an update on AWBA deliveries through October. She reported that the AWBA started the year planning to store just over 51,000 acre-feet for the year and to deliver 1,000 acre-feet to the Southside Replenishment Bank. She explained that the AWBA received an additional 8,000 acre-feet, the majority of which (6,500 acre-feet) was delivered to the Tucson AMA. The remainder was delivered to the Phoenix AMA. By year end, the AWBA expects to have stored nearly 60,000 acre-feet. There is a possibility some additional "turn back" water would be made available to the AWBA given the recent rains. The AWBA has 3,000 acre-feet of capacity available at the Lower Santa Cruz Recharge Project in the Tucson AMA. Any additional water could have to be stored in the Phoenix AMA at the Tonopah Desert Recharge Project. Mr. Mawhinney commented that each chart on the delivery data had a different scale and asked staff to develop a more effective way to present the data.

Recovery Planning Update. Ms. O'Connell updated the Commission members on the status of the joint recovery planning effort. There is an Ad Hoc Recovery Group meeting scheduled for December 19, 2013 where the second half of the recovery plan will be presented. Comments on the draft will be received through mid-January. Once comments are incorporated into the draft, a final draft report will be distributed to the AWBA and CAWCD Boards. CAP staff is planning to present the plan at its January CAGRD & Underground Storage Committee meeting on January 23, 2014. Public review of the draft plan will follow with a workshop scheduled in early February. The final recovery plan will then be made available at the AWBA meeting in March.

Mr. Neal asked if the CAWCD and AWBA Boards would take action on the plan. Ms. O'Connell responded that the intent was not to take action on the recovery plan itself, but that another vehicle, such as a resolution, could be used to recognize the plan. The Commission directed staff to seek recommendations from its legal staff.

Indian Firming. Ms. O'Connell indicated that at the last meeting, Commission members directed staff to continue working with the Gila River Indian Community (GRIC) to develop multiple alternatives for meeting Indian firming obligations with the GRIC. Staff is putting together a conceptual IGA and hopes to have a draft at the March meeting and perhaps a final draft at the June meeting.

2014 Plan of Operation

Ms. O'Connell presented the 2014 Plan of Operation. The PowerPoint is located on the AWBA website. She started by reviewing 2013 activities indicating that by year end, the AWBA expects to have delivered just over 60,000 acre-feet. Nearly 24,000 acre-feet was stored in the Tucson AMA, approximately 17,000 acre-feet was stored in the Phoenix AMA and nearly 20,000 acre-feet was stored in the Pinal AMA. In addition, 1,000 acre-feet of water was delivered to the Southside Replenishment Bank or SSRB. Estimated credits accrued through 2013 are 1.7 million acre-feet in the Phoenix AMA, 1.4 million acre-feet in the Pinal AMA and 705,000 acre-feet in the Tucson AMA. Through 2013, 5,000 acre-feet will have been delivered to the SSRB. Finally, Ms. O'Connell indicated that because of recent rain events, there is a possibility there will be more water available to the AWBA/CAGRD Pool in 2013. Ms. George asked when staff would know. Ms. O'Connell explained she would be speaking with Patrick Dent of CAP operations shortly and that the amount could be somewhere between 5,000 and 15,000 acre-feet. The CAGRD may want some of the turn back water as well.

For 2014, the AWBA expects normal operating conditions on the Colorado River. Approximately 65,000 acre-feet of water will be available for AWBA purposes in 2014. Of this amount, approximately 27,000 acre-feet is expected to be delivered to the Tucson AMA, 16,000 acre-feet to the Phoenix AMA and 17,000 acre-feet to the Pinal AMA. Storage locations focus on core areas in the Phoenix and Tucson AMAs. Additionally, 5,000 ace-feet will be delivered to the SSRB. These deliveries, which were 1,000 acre-feet per year in previous years, were increased to hedge against higher probabilities of projected shortage starting in 2016. The AWBA expects to deliver another 5,000 acre-feet in 2015, fulfilling its initial requirement to deliver 15,000 acre-feet for the SSRB.

In all, the 2014 Plan is expected to cost $10.4 million and produce nearly 55,000 acre-feet of credits. To this end, 86% of the Phoenix AMA M&I firming goal would be reached, 84% of the Pinal AMA M&I firming goal would be reached and 48% of the Tucson AMA firming goal would be reached. Including the use of withdrawal fee credits in the Tucson AMA, 59% of the M&I firming goal would be met. Progress on the On-River firming goal remains at 96%. No credits have been dedicated for Indian firming to date except for the 34,000 acre-feet of credits accrued as part of the AWBA's obligation to contribute $3 million to the federal government. This obligation is fully met. Two-thirds of the SSRB requirement is met and roughly 75% of the Shortage Reparation money has been used generating nearly 100,000 acre-feet of credits.

Mr. Neal asked if the additional amounts for the SSRB were set regardless of receiving a general fund appropriation. Ms. O'Connell responded affirmatively explaining that the amounts were needed if the AWBA was to meet its obligation before 2016, but indicated that the AWBA would re-examine hydrologic conditions when developing the 2015 Plan of Operation and adjust accordingly. If the AWBA must rely on withdrawal

fees to meet this obligation, it will mean that the funds could not be used to accrue long-term storage credits for water management purposes. Mr. Mawhinney asked for an update on hydrologic conditions. Tom McCann, CAP, indicated that conditions for the Colorado River have improved, but that it was still too early. Snowpack in the spring will be more telling.

Mr. Mawhinney moved to adopt the 2014 Plan of Operation. Ms. George seconded and the plan was adopted.

2014 Water Delivery Budget

Ms. O'Connell presented the 2014 Water Delivery Budget noting that it represents the water delivery and storage costs outlined in Table 5 of the approved 2014 Plan. She clarified that while the total cost of the 2014 Plan is $10.4 million, the AWBA would only be approving expenditures from the Arizona Water Banking Fund. These amounts included using $3.9 million in withdrawal fees and $1.5 million in shortage reparation funds. The remaining $5.8 million in costs are offset by CAWCD utilizing 4¢ *ad valorem* tax monies held in its accounts.

Mr. Neal inquired about the status of the general fund request since the plan is showing the use of withdrawal fees to pay for the additional SSRB deliveries. Chairman Fabritz-Whitney responded saying the Governor's budget will come out after the first of the year. At that time, ADWR will know if the appropriation request is moving forward. Mr. Neal asked if the proposal has been forwarded. Chairman Fabritz-Whitney responded yes. Mr. Mawhinney moved to adopt the CY2014 Water Budget. Mr. Neal seconded the motion and the CY 2014 Water Budget was adopted.

Call to the Public

Chairman Fabritz-Whitney asked if anyone from the public had comments. Hearing none, she announced a break for lunch, noting the meeting would resume in approximately 20 minutes.

Action Planning

Chairman Fabritz-Whitney reconvened the meeting and asked Terri Sue Rossi, Technical Administrator, to facilitate Step 2 of the action planning process. Ms. Rossi explained the overall action planning process had been amended slightly since the last meeting. There are now five steps and part three includes a tandem piece.

1. Environmental scan
2. Vision, current reality and commitments
3. Stakeholder feedback coupled with staff development of implementation plans for each commitment
4. AWBA final decision
5. Incorporation of action planning results into Annual Report and FY 2015 budget

The focus question for the day was "What potential roles, responsibilities and functions should the AWBA pursue in the future to assist the water community in managing water resources in Arizona?" To answer the question, the group determined what accomplishments the AWBA would like to see in place in the next 3-5 years:

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

The group then assessed its current reality including what may have prevented the AWBA from having met these accomplishments already and what resources the AWBA has now to move forward. The group then developed several one-year commitments to make progress on the proposed accomplishments:

- Develop legislative and public outreach/support programs
- Address differing statutory interpretations
- Develop updated modeling to clarify AWBA goals
- Review draft recovery plan
- Communicate urgency of recovery plan to CAWCD
- Use recovery plan to target storage locations in the Annual Plan of Operation
- Develop concept paper to explain ways AWBA could mitigate agricultural shortage and reduce groundwater pumping
- Continue monitoring and commenting on Enhanced Aquifer Management process to maintain AWBA flexibility during shortage
- Ask ADWR to identify opportunity outside CAP service area
- Update augmentation options study
- Evaluate need for additional staff

Chairman Fabritz-Whitney left the meeting at 3:00 p.m. Vice-Chairman Maureen George assumed the responsibilities of the Chair at that time.

The third step of the action planning process, public review and development of implementation plans for projected accomplishments, will be conducted over the next couple of months. The results will be brought back to the AWBA at its regular Quarterly March meeting.

The meeting adjourned at 3:15 p.m.

JOINT PUBLIC WORKSHOP
between
the Arizona Department of Water Resources, the Central Arizona Project and the Arizona Water Banking Authority
Draft Minutes

February 5, 2013
Arizona Department of Water Resources

Welcome/Opening Remarks

Acting Director of Water Resources, Michael J. Lacey welcomed attendees. In addition to Mr. Lacey, other Authority members present included Cliff Neal, John Mawhinney and Jim Hartdegen (CAWCD Board member representative). The following CAWCD Board members were present: Cynthia Moulton, Gayle Bums and Jim Hartdegen.

Overview of Draft Recovery Plan

Laura Grignano, Senior Policy Analyst for CAP, presented the draft plan, Recovery of Water Stored by the Arizona Water Banking Authority: A Joint Plan by AWBA, ADWR and CAP. The Joint Recovery Plan and the PowerPoint presentation can be found at the following address: http://www.cap-az.com/index.php/departments/planning/service-area-planning/recovery.

The public comment period ends on February 28, 2014. Instructions for submitting comments are found at the above link.

Questions and Comments from the Public

During the workshop, questions were addressed by members of the Interagency Recovery Planning Group. An AMWUA city representative asked about the volume of water assumed for the conversion between on-River agriculture and on-River P4 M&I. Staff responded saying 40,000 acre-feet.

Pinal County interests asked if the terminology could be modified to include recovery of AWBA credits discharged into non-CAP distribution systems as direct recovery instead of indirect recovery. Specifically, discharges into the Santa Rosa canal seem like direct deliveries and not indirect. Staff responded saying the definition of the terms is a result of past terminology and because of CAP's contractual and owner/operational responsibilities relative to the United States that require recovered credits discharged into the CAP system to be regarded separately from recovered credits discharged into non-CAP infrastructure.

Mining interests asked if groundwater savings facilities could be used as a credit exchange mechanism in addition to underground storage facilities. Staff responded no

as groundwater savings facilities use water delivered by the AWBA and others to grow crops and consequently cannot be curtailed because of the secondary impact.

Mr. Neal asked what kind of action will be taken by the CAWCD Board and AWBA with regard to the Joint Recovery Plan. Staff responded saying because the Joint Recovery Plan is not a policy, there would not be a formal approval of the Joint Recovery Plan. Staff is instead seeking formal acknowledgment that the Plan advances the objectives of intergovernmental agreement signed by the three agencies. Staff is currently drafting a preface to the Joint Recovery Plan that could be signed by the President of the CAWCD Board, the Chairman of the AWBA and the Director of ADWR.

Phoenix area interests asked knowing the water stored at the Tonopah Desert Recharge Project (TDRP) is not going to be recovered in the near future, what changes staff would recommend for future storage to make recovery planning easier. Staff responded saying as a point of context, the TDRP identified from the Western Area Recharge Feasibility Project was intended to be built in a location where pumping would not occur for some time. Consequently, it is not problematic that a large volume of water is stored there. The Joint Recovery Plan indicates the vast majority of recovery will take place decades from now. The fact that there is not infrastructure now does not mean it will not be there in the future. AWBA staff would continue to propose storing water in TDRP. Storage and recovery from TDRP could potentially provide water management benefits because these activities would occur outside the central portions of the AMA minimizing possible impacts. In the Tucson area, the AWBA has already been making changes in storage locations shifting away from Lower Santa Cruz.

Phoenix area interests asked how the Joint Recovery Plan will work with the enhanced aquifer management concepts. Staff responded saying the Joint Recovery Plan does not speculate about the outcome of the Fourth Management Plan. Still, all the proposals do not address currently accrued credits. The focus of this plan is about the credits that have already been accrued.

Mr. Neal asked if there was really only one Tier 3 shortage in all the Colorado River modeling traces. Staff responded saying there is only one Tier 3 shortage in the 2017 traces. There are, however, many Tier 3 shortages in the entire data set.

Mr. Neal further asked how will recent out-of-the-box discussions on the structural deficit on the Colorado River impact the Recovery Plan. Staff members responded saying the modeling assumes the CRSS longer-term view. One of the strengths of this Plan is that it is flexible. This Plan also shows that even if more aggressive shortage scenarios are used, there is still sufficient time to address the needs of subcontractors. The tools developed for the Joint Recovery Plan are suitable for doing comparative analyses and updates. One planning assumption is that the interim surplus guidelines continue past 2026. Discussions about the structural deficit and attempts to bend the curve may change this planning assumption in the future.

A CAP representative asked who the potential recovery partners are and if they should be identified in the Plan. Staff responded saying recovery partners have not yet been identified. There is, however, a survey in the appendix that will be used to find such partners.

Comments:

- Under Technical Studies and Future Project Feasibility Section 8, add language to indicate stakeholders will be involved.
- Section 8 (Future Shortages Decisions) refers to findings of this Plan and that the AWBA may want to initiate discussions to decide whether or not it should make any changes to where future water is stored. The findings referred to cannot be found in the report.
- The efforts of the Ad Hoc Recovery Group in helping prepare the draft Joint Recovery Plan are appreciated.
- Include more information on the location of future storage by the AWBA as a result of the findings of the Joint Recovery Plan.
- Regarding the location of interstate credits stored in the Pinal AMA and future recovery of those credits, efforts should be made to "move" those credits to outside the Pinal AMA to leverage infrastructure in other AMAs.

Next Steps

Ms. Grignano indicated the public comment period will end February 28, 2014. At the March CAP Board meeting, there will be a briefing on the Joint Recovery Plan. Also in March, the Joint Recovery Plan will be presented to the AWBA and CAP's CAGRD and Underground Storage Committee for potential action. Finally, CAP staff will present the Joint Recovery Plan to CAP Board for action in April.

The meeting adjourned at 11:45 a.m.

ARIZONA WATER BANKING AUTHORITY
Draft Minutes

February 14, 2014
Arizona Department of Water Resources

Welcome/Opening Remarks

Acting Chairman Michael Lacy welcomed the attendees. All members of the Authority were present except for *ex-officio* members, Senator Gail Griffin and Speaker of the House Andy Tobin. Commission member Maureen George attended via teleconference.

Arizona House Bill 2326

Virginia O'Connell, AWBA Manager, provided an overview of the process leading up to the introduction of House Bill (HB) 2326 and Ken Slowinski, ADWR Chief Counsel, described HB 2326 as introduced. Jim Hartdegen asked if the changes were mainly technical or substantive. Mr. Slowinski indicated that changes were substantive in nature including conforming changes. Mr. Hartdegen also asked what funding sources would be available to offset Indian firming if this bill passes. Ms. O'Connell responded saying this bill did not include a request for an appropriation. The only funds available for Indian firming would be withdrawal fees, regardless of the legislation passing.

Ms. O'Connell introduced a letter from Central Arizona Water Conservation District (CAWCD) President Pamela Pickard dated February 12, 2014, requesting that the Commission defer HB 2326 this legislative session to allow additional public discussion. The AWBA members discussed the contents of the letter and the significance of its meaning. AWBA members expressed concerns about the agencies battling each other as the legislation moves forward. AWBA members disagreed with Ms. Pickard's statements about the process and described the process as being fairly inclusive. Ultimately, the members decided to consider the two versions of amendments before considering what if any action should be taken regarding the letter.

Mr. Slowinski then briefed Commission members on two versions of potential amendments to HB 2326, each having similar changes with the exception of the funding sources that could be used by the AWBA to purchase long-term storage credits. The first version, submitted by CAWCD staff, explicitly excluded the use of funds collected pursuant to § 48-3715.02 (4¢ ad valorem tax) to purchase long-term storage credits. The second version, drafted by AWBA and ADWR staff, did not mention and therefore allowed the use of the 4¢ ad valorem tax for credit purchase. In the second version, Mr. Slowinski indicated that amendments to § 45-2423(B)(7)(h) were incorrect and the original language needed to be retained.

After some discussion about how to process the information, Mr. Mawhinney suggested the AWBA members start with the version prepared by AWBA/ADWR staff with the correction noted by Mr. Slowinski. From here, the AWBA members could consider the substance which Mr. Mawhinney described as whether or not the AWBA should be allowed to use any funding source deposited into the Arizona Water Banking Fund to

purchase credits or if 4¢ tax monies should be excluded. As such, Mr. Mawhinney moved the AWBA recommend that the amendments prepared by AWBA/ADWR staff with the correction noted, be proposed to the sponsors of the bill. Ms. George seconded Mr. Mawhinney's motion.

Mr. Mawhinney described the history of the 4¢ tax monies being deposited into the Water Banking Fund, indicating that CAWCD has not deposited funds into the Water Banking Fund since 2003 and that the balance was depleted in 2007. Since that time, 4¢ tax monies have only been used to offset the cost to deliver and store water for water banking purposes and this is done by resolution of the CAWCD Board annually. As such the AWBA has no access to the 4¢ tax monies. He did not understand how this issue would be addressed or resolved by excluding the use of 4¢ tax monies deposited in the Water Banking Fund.

Mr. Hartdegen expressed concern that if the legislation suggests the State's obligations to the Indian settlements can be paid for using 4¢ tax, then the State would feel relieved of its responsibility. Ms. O'Connell noted that the legislation does not authorize the AWBA to use the 4¢ tax for meeting Indian settlement obligations. Mr. Hartdegen also expressed concern that bringing up the 4¢ tax will put the tax at risk given the upcoming sunset provisions.

Several members expressed concern about the three agencies (i.e. CAWCD, ADWR and AWBA) needing to work together and that the current circumstances are potentially harming those relationships. After further discussions, the AWBA members asked to hear from the public.

Kathy Ferris, Executive Director for the Arizona Municipal Water Users Association, addressed the Board. She supported the AWBA/ADWR staff amendments, arguing these amendments only included those that could be agreed upon by all parties. Regarding CAWCD's proposal to prevent the use of 4¢ tax monies deposited in the Water Banking Fund for purchasing credit, she expressed great concern because it would take legislative change in the future to undo such a change. She said she was puzzled by CAWCD's position, since nothing in the legislation changes CAWCD's authority to decide to deposit or not deposit funds in the Water Banking Fund. With shortages coming sooner than expected, she argued the AWBA would need this flexibility. One of the AWBA's primary responsibilities is firming for M&I subcontractors. 80% of the 4¢ tax monies collected by CAWCD were generated by landowners and businesses located inside the jurisdiction of AMWUA members. Clearly, this legislation is in the best interest of the subcontractors. Regarding the process used to develop the legislation, she said it was clear to her that the proposal was always intended to include the 4¢ tax monies. She argued no one was deliberately left out of discussions. At this point, she argued, we needed to move beyond the process and pass this legislation.

Linus Everling, Gila River Indian Community (GRIC), stated that the GRIC gave up a large entitlement of water in exchange for the State to firm certain volumes of water for the GRIC. The GRIC supports the AWBA having as much flexibility as possible to meet the State's responsibility and consequently, the GRIC supports the version of the bill prepared by ADWR/AWBA staff.

Mr. McCann added to Mr. Mawhinney's account of the 4¢ tax monies saying that the reason CAWCD stopped depositing 4¢ tax monies into the Water Banking Fund was because the Legislature was sweeping the funds. Moreover, Mr. McCann stated that he could not understand the urgency at hand. There have been no 4¢ tax monies in the fund since 2007, so why is there a rush at this point. He asked if the AWBA has some credits it wants to purchase. Regarding comments made by Ms. Ferris about getting beyond the process, Mr. McCann remarked that if CAWCD followed this same process, the AMWUA cities would have complained loudly. He suggested a double standard was being applied. He told the AWBA members that all CAWCD is asking for is a reasonable process to develop a consensus around the use of the 4¢ tax monies that could be supported by everyone and moved forward to the Legislature.

Ms. George responded to Mr. McCann's comments saying she finds it ironic Mr. McCann would bring up past legislative sweeps when CAWCD recently did the same thing. To Mr. McCann's point on urgency, Ms. George responded saying there is in fact urgency. The amount of excess water available to the AWBA to meet its responsibilities is one-third of past volumes while many of the AWBA responsibilities are left unmet. Finally, regarding Mr. McCann's request for an open process Ms. George had no sympathy stating that CAWCD routinely conducts business without consulting anyone.

Mr. Neal expressed concern that the organizations were approaching an impasse. He asked Mr. McCann to explain the real issue. Mr. McCann replied stating the biggest issue really is the process. He expressed confidence that with time, the parties can sit down with other stakeholders and work something out. Reflecting on why this is problematic for the CAWCD board, Mr. McCann made a supposition that if the AWBA is expressly authorized to use 4¢ tax monies transferred to the Water Banking fund for purchasing credits, then there is implicit pressure put on the Board to use this money for this purpose. Mr. McCann expressed concern that there are many existing pressures competing for the use of that money many times over. This particular expenditure may or may not be the best use of the money at the time. By directly authorizing it, the Board gets put in an awkward position. He insisted the intent is not to prohibit it forever. CAWCD just does not want to authorize it at this time.

Mr. Neal asked if there was any language that would balance the AWBA's flexibility and putting the CAWCD Board into an awkward position. Mr. McCann responded he did not have any language, and he did not think the Commission meeting was conducive to developing such language. Mr. Mawhinney suggested that the legislative process creates an opportunity for such an environment. There is still plenty of time to work together and the legislative process does not need to be stopped. In fact, Mr. Mawhinney argued, the process creates the proper incentives for coming to agreement.

Ms. George disagreed that discussions need to happen at the legislature. She explained that the AWBA has a responsibility to its stakeholders and it is time to move on. She expressed concern about Mr. McCann's statements regarding CAWCD wanting to use the 4¢ tax monies for other purposes. She suspected that CAWCD has other uses for the money even though the funds have historically been earmarked for firming. She posited that this discussion about shifting the use of funds has been happening without the AWBA's involvement.

Mr. McCann specifically responded to Ms. George's last comment stating that all discussions about the use of 4¢ tax monies occur before the CAWCD Board. Furthermore, the primary purpose of the 4¢ tax monies is for the repayment, operation and maintenance, not firming. Mr. Hartdegen supported Mr. McCann's comments about the Board discussing the use of 4¢ tax monies.

Mr. Neal asked Mr. McCann if the CAWCD proposal goes forward, will the CAWCD support that bill. Mr. McCann was not sure. Mr. Neal further asked Mr. McCann, in light of the letter from President Pickard, if CAWCD would object to any version or only the AWBA/ADWR version. Mr. McCann stated he could not answer today. There have been many discussions and the letter indicated a trend toward a newer position. He did not know what that new position would be.

Mr. Hartdegen expressed concern about losing the 4¢ tax altogether by raising the 4¢ tax now. Mr. Neal asked which proposal Mr. Hartdegen thinks is more quiet on the 4¢ tax.

Chris Avery, Counsel for Tucson Water, suggested we cannot have the agencies fighting over this legislation and he hopes there is flexibility in CAWCD's official position and the letter from President Pickard. He believes progress can be made without deferring the legislation. While he finds the bill to have merit, he believes Tucson Water would not support legislation that is not supported by both CAWCD and the AWBA. He urged the parties to reach agreement in the next couple of months and move the bill forward. Without that agreement, he believes Tucson Water would recommend the bill be deferred or not be heard.

Robin Stinnett, Salt River Project, explained that SRP has a long-standing commitment to settling Indian water rights claims in Arizona. SRP sees HB 2326 as an opportunity to move this process along. The AWBA needs additional tools to ensure the State meets its commitments to the US, the benefitting tribes and the parties to the various settlement. Allowing the AWBA the authority to purchase credits along with the full complement of financial resources would help demonstrate and ensure that commitment. SRP also supports using these tools and resources to meet firming obligations for subcontractors in particular those located inside SRP boundaries. She recommended moving forward with the legislation and amendments proposed by AWBA/ADWR staff.

Mr. Lacey indicated that there is a motion and a second on the table. Mr. Neal asked Mr. Lacey to repeat the motion. After some discussion the motion was as follows:

> Motion is to recommend to the sponsors of the legislation that the AWBA recommends the second version of amendments drafted by AWBA/ADWR staff as amended at B.7(h) having the deletion of the word "earned" not accepted and the insertion of words "accrued and purchased" not accepted such that the text would simply read "earned by".
>
> The motion passed by a 3-2 vote.

A second motion was made to direct staff to continue discussions with CAWCD staff and Board to develop consensus language on the use of the 4¢ tax for HB 2326 that is agreeable to both entities. The motion passed by a 4-1 vote.

Mr. Mawhinney commented that the 4¢ tax is scheduled for sunset. Losing this tax would be a tragedy for Arizona. He added that the AWBA has always supported CAWCD and its attempts to make sure the 4¢ tax monies are forthcoming even though some CAWCD Board members have attempted to lead motions to terminate the tax. He stated that it is essential to work together and provide an atmosphere so the AWBA can support CAWCD's efforts to continue the 4¢ tax. One day, CAWCD has to recognize the AWBA has responsibilities that CAWCD does not. Indian firming, M&I firming, on-river firming are the AWBA's responsibilities and not CAWCD's. Understanding we have different responsibilities and goals, we still find it necessary to work with CAWCD and ADWR. We will try to work together and see if this issue is resolvable. Otherwise, we will suffer whatever the Legislature decides to achieve.

Call to the Public

There were no additional comments.

The meeting adjourned at 3:12 p.m.

ARIZONA WATER BANKING AUTHORITY
Draft Minutes

March 7, 2014
Arizona Department of Water Resources

Welcome/Opening Remarks

Chairman Michael Lacy welcomed the attendees. All members of the Authority were present except for Jim Hartdegen. Pamela Pickard, CAWCD Board President attended on behalf of her designee Mr. Hartdegen. *Ex-officio* members, Senator Gail Griffin and Speaker of the House Andy Tobin, were also not in attendance. Commission member Maureen George attended via teleconference.

Authority of AWBA to Purchase Long-term Storage Credits

Virginia O'Connell, AWBA Manager, provided an overview of proposed Amendment No. 1 to the Intergovernmental Agreement among ADWR, AWBA and the CAWCD. The amendment identifies a procedure for using *ad valorem* water storage tax monies (4¢ tax) to purchase long-term storage credits. Cliff Neal asked if staff was satisfied with the amendment. Ms. O'Connell replied saying it is in line with what staff currently does with regard to developing the AWBA Plan of Operation for water storage and was also something that worked for all parties. Mr. Neal asked if CAWCD has already put 4¢ *ad valorem* tax monies into its account, would that preclude those monies from later being put into the Water Banking Fund. Ken Slowinski, ADWR Chief Counsel responded that it would not.

John Mawhinney asked if the amendment, as written, could allow CAWCD to reject the AWBA's request for funds once the AWBA had secured a purchase agreement. Ms. O'Connell replied no. She noted that when a purchase agreement is presented to the AWBA members, regardless of the funds that will be used to purchase the credits, the details of the agreement will become available to all stakeholders, including CAWCD, for review and comment. The AWBA members will consider these comments and potential concerns before taking action on the purchase agreement. If approved, and assuming the purchase amount is within the dollar amount established in the AWBA's annual plan of operation, CAWCD will then transfer the funds according to Amendment No. 1. Mr. Mawhinney also asked if the AWBA had expended the amount of 4¢ tax funds that had been set aside in a given year and an opportunity arose to purchase additional credits, could CAWCD amend its resolution to provide additional funds. Ms. O'Connell responded that the resolution could be amended subject to CAWCD Board approval. Chairman Lacey asked if the annual plan of operation would also need to be amended. Ms. O'Connell responded that it would.

Mr. Slowinski described the proposed changes to the draft legislation, indicating that the legislation was still showing as HB 2326, but because the legislation will need to be included in another bill, the number will be changing. He pointed out that the language was the same as the version the AWBA approved in February with minor changes. The changes to § 45-2423(A)(6) were moved to § 45-2456(E)(7) with some language added

that states the credits purchased by the authority must be accounted for by active management area. This section deals with the information that must be included in the AWBA's annual plan of operation. Additional language was also added to § 45-2456(E)(4) requiring that the plan include a projection of expenditures for credits, including the funding sources that will be used. These changes correspond with the proposed amendments to the IGA. Chairman Lacey asked if there were any further questions. Hearing none, he asked for a motion.

Mr. Mawhinney moved to approve Amendment No. 1 to the Intergovernmental Agreement among ADWR, AWBA and CAWCD as presented with execution conditioned on passage of legislation substantially similar to the amendments presented, and that the AWBA Commission support such legislation. Mr. Neal seconded the motion. Mr. Lacey asked for any comments from the public. Hearing none, Mr. Lacey asked for a vote. The motion passed by a 4 to1vote with Ms. George voting nay.

Call to the Public

There were no additional comments. Ms. O'Connell announced that the March 19, 2014 meeting has been postponed. The meeting has tentatively been rescheduled for April 16, 2014 and will be confirmed shortly. Chairman Lacey thanked Ms. Pickard for her leadership and for the efforts of the staff of the three agencies.

The meeting adjourned at 10:18 a.m.

III. Water Bank Staff Activities

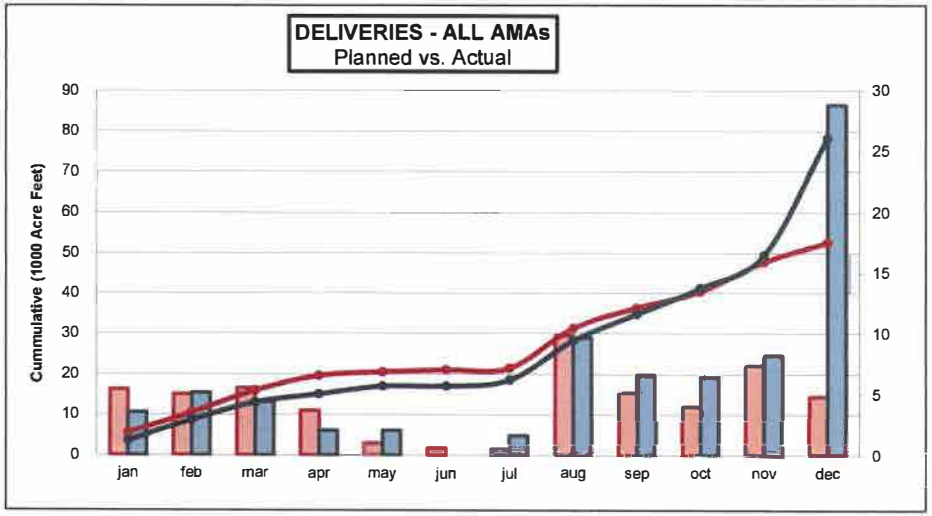
NOTES: (No action required, agenda item for discussion only)

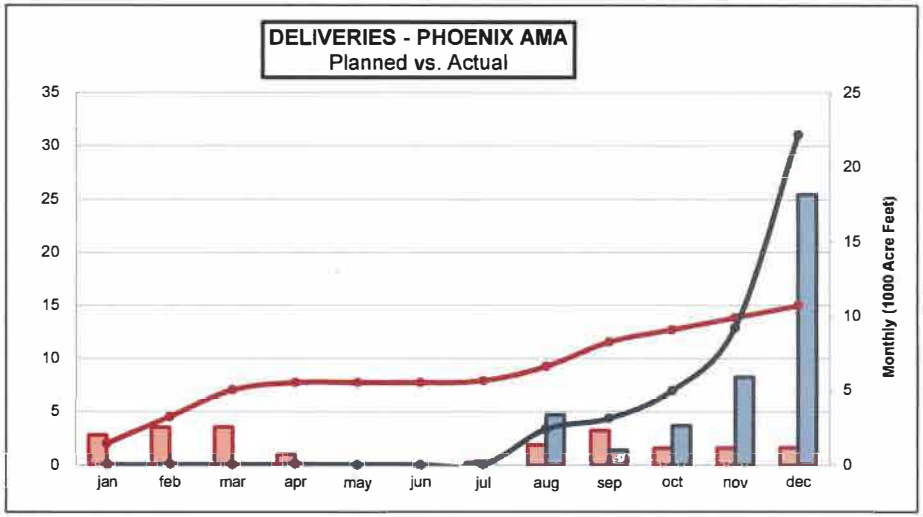
Call on **Virginia O'Connell** to update members on:

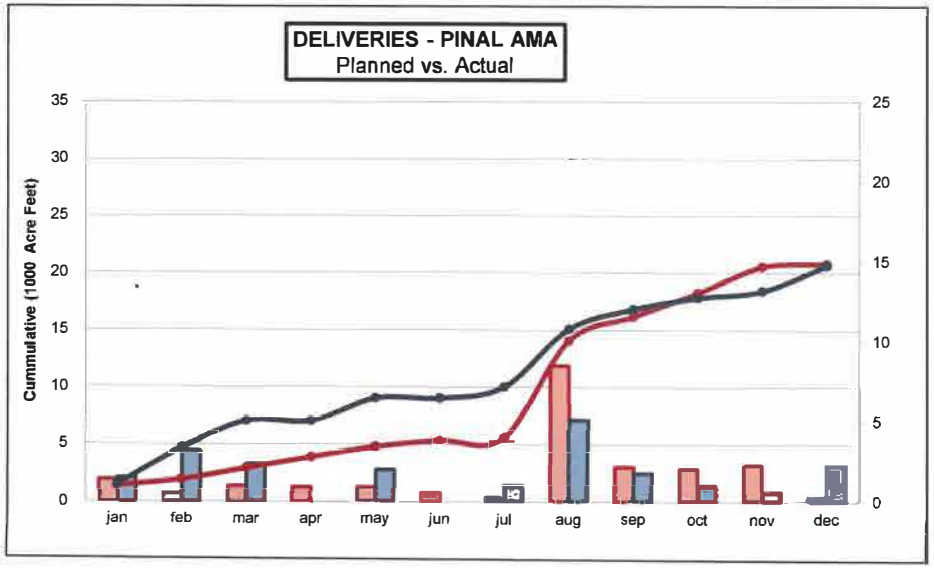
- Monthly deliveries
- Enhanced Aquifer Management meeting
- Colorado River status
- Action planning
    - SB 1478
    - General Fund appropriation
    - Virginia O'Connell will call on **Terri Sue Rossi** to provide an update on 1-Year accomplishments
    - **Provide direction on action planning** – potential direction for staff to seek public comment on 1-Year accomplishments

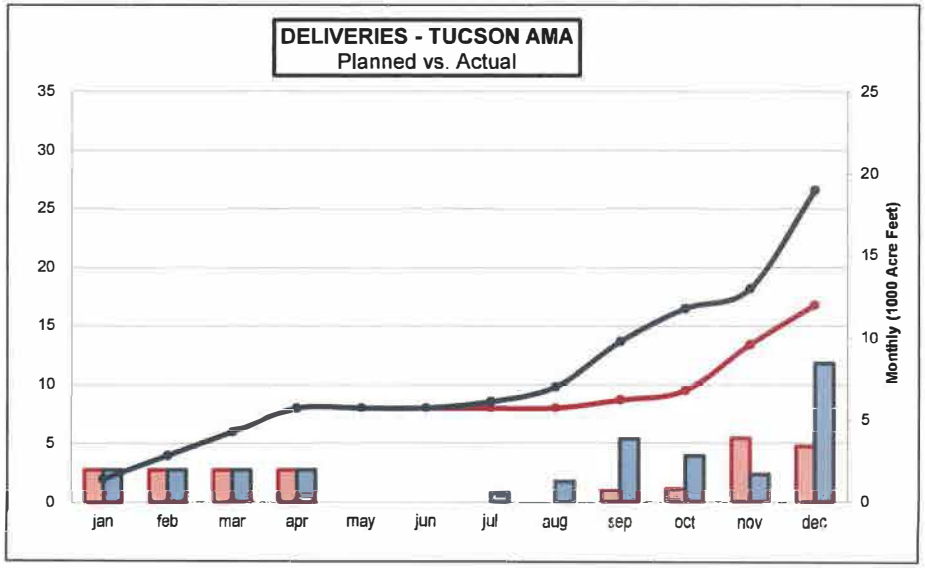
ACTION: No action

2013 Plan of Operation - INTRASTATE





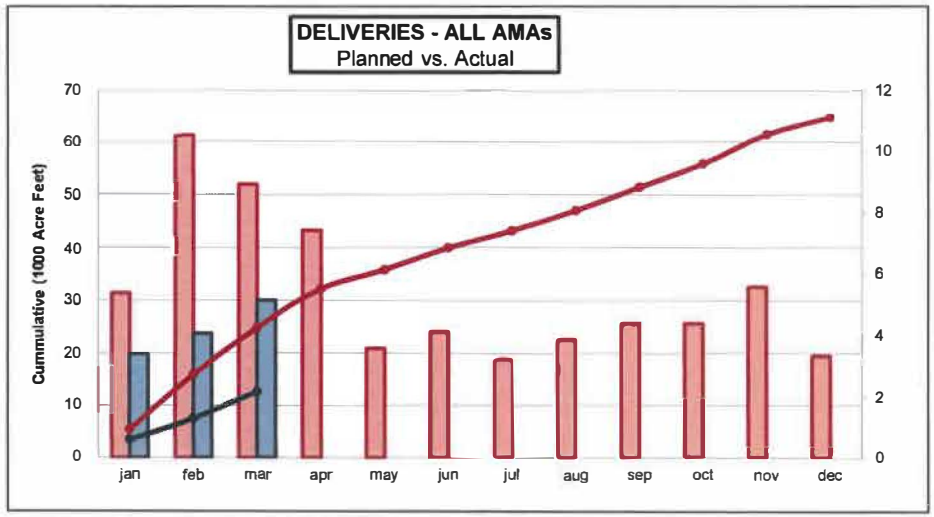


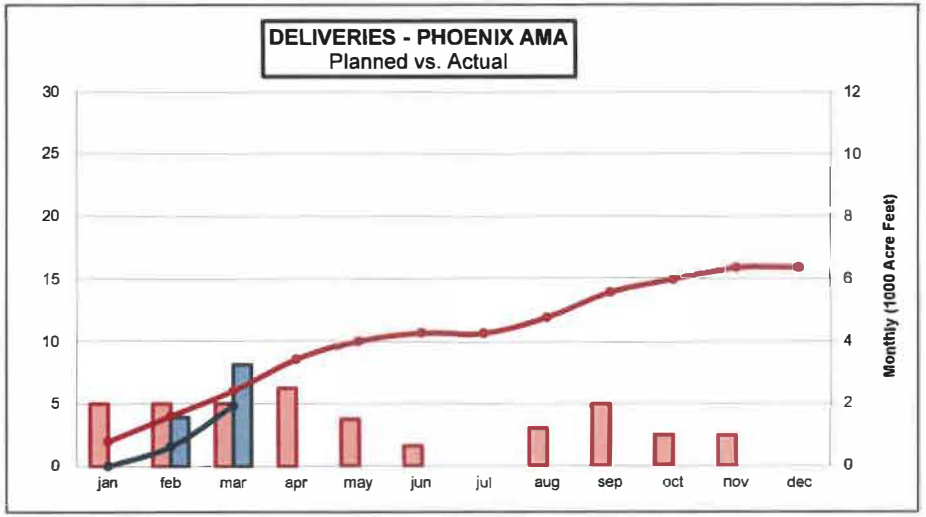


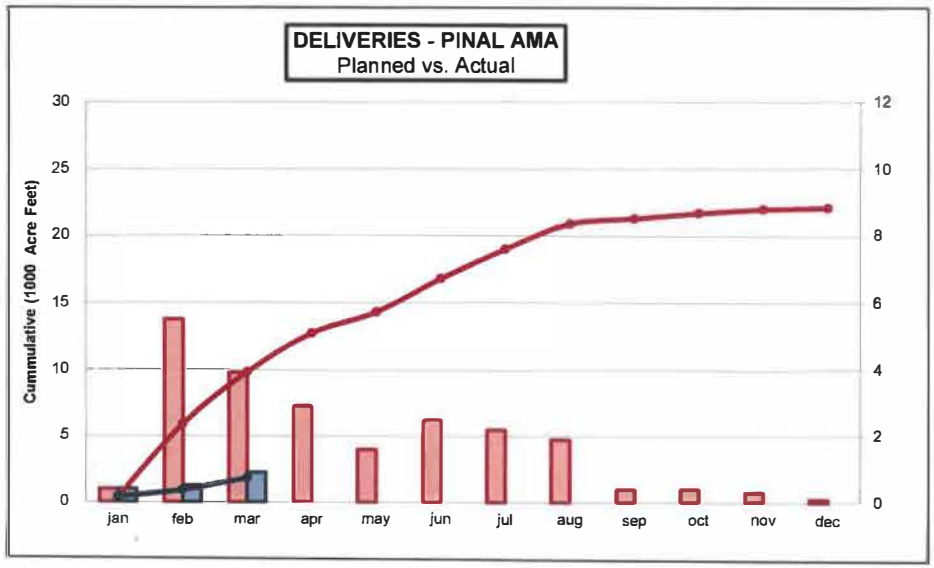
Actual deliveries 2013 15-Apr-14
Plan of Operation

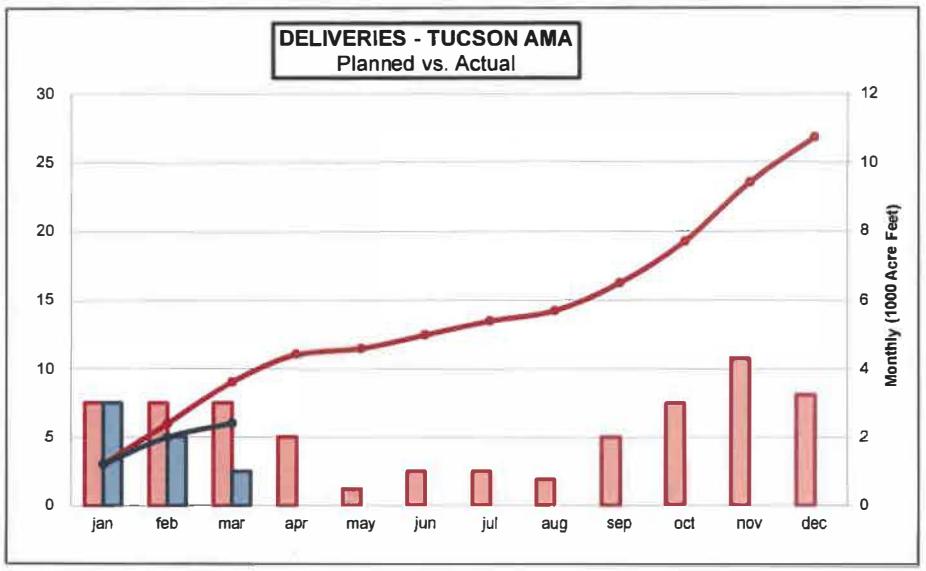
	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total
Phoenix AMA													
TONOPAH DESERT	0	0	0	0	0	0	0	0	0	0	393	12,504	12,897
	2,000	*2,000*	*2,030*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6,030*
Hieroplyphics Mtns	0	0	0	0	0	0	0	0	0	0	22	1,032	1,054
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
AGUA FRIA	0	0	0	0	0	0	0	3,034	0	1,269	3,176	2,731	10,210
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
QCID	0	0	0	0	0	0	0	0	0	448	987	574	2,009
	0	*0*	*0*	*0*	*0*	*0*	*175*	*1,343*	*2,285*	*1,142*	*1,143*	*1,142*	*7,230*
SUPERSTITION MTNS	0	0	0	0	0	0	0	300	1,000	907	1,313	1,337	4,857
	0	*500*	*500*	*702*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1,702*
Subtotal	0	0	0	0	0	0	0	3,334	1,000	2,624	5,891	18,178	31,027
Total to date	0	0	0	0	0	0	0	3,334	4,334	6,958	12,849	31,027	31,027
Projected total to date	*2,000*	*2,500*	*2,530*	*702*	*0*	*0*	*175*	*1,343*	*2,285*	*1,142*	*1,143*	*1,142*	*14,962*
Pinal AMA													
CAIDD	0	0	0	0	0	0	0	2,868	1,732	0	0	2,095	6,695
	0	*0*	*0*	*0*	*0*	*0*	*0*	*6,600*	*0*	*0*	*0*	*0*	*6,600*
MSIDD	510	3,140	2,350	0	600	0	0	0	0	0	0	0	6,600
	0	*0*	*0*	*0*	*0*	*0*	*0*	*1,650*	*1,650*	*1,650*	*1,650*	*0*	*6,600*
HIDD	0	0	0	0	1,400	0	1,000	2,200	0	1,000	600	133	6,333
	408	*536*	*989*	*935*	*935*	*536*	*247*	*218*	*472*	*400*	*670*	*254*	*6,600*
Southside Bank	1,000	0	0	0	0	0	0	0	0	0	0	0	1,000
	1,000	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1,000*
Subtotal	1,510	3,140	2,350	0	2,000	0	1,000	5,068	1,732	1,000	600	2,228	20,628
Total to date	1,510	4,650	7,000	7,000	9,000	9,000	10,000	15,068	16,800	17,800	18,400	20,628	20,628
Projected total to date	*1,408*	*536*	*989*	*935*	*935*	*536*	*247*	*8,468*	*2,122*	*2,050*	*2,320*	*254*	*20,800*
Tucson AMA													
AVRA VALLEY	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*183*	*700*	*883*
CAVSARP	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
SAVSARP	2,000	2,000	2,000	2,000	0	0	0	0	0	0	1,500	3,755	13,255
	2,000	*2,000*	*2,000*	*2,000*	*0*	*0*	*0*	*0*	*0*	*0*	*2,000*	*1,901*	*11,901*
LOWER SANTA CRUZ	0	0	0	0	0	0	0	201	2,696	2,322	184	3,897	9,300
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
PIMA MINE ROAD	0	0	0	0	0	0	0	0	800	500	0	767	2,067
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*700*	*800*	*1,700*	*800*	*4,000*
CMID	0	0	0	0	0	0	551	1,041	361	0	0	0	1,953
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
BKW FARMS	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
KAI FARMS - Red Rock	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Subtotal	2,000	2,000	2,000	2,000	0	0	551	1,242	3,857	2,822	1,684	8,419	26,575
Total to date	2,000	4,000	6,000	8,000	8,000	8,000	8,551	9,793	13,650	16,472	18,156	26,575	26,575
Projected total to date	*2,000*	*2,000*	*2,000*	*2,000*	*0*	*0*	*0*	*0*	*700*	*800*	*3,883*	*3,401*	*16,784*
TOTAL	3,510	5,140	4,350	2,000	2,000	0	1,551	9,644	6,589	6,446	8,175	28,825	78,230
Total to date	3,510	8,650	13,000	15,000	17,000	17,000	18,551	28,195	34,784	41,230	49,405	78,230	78,230
Projected total to date	*5,408*	*5,036*	*5,519*	*3,637*	*935*	*536*	*422*	*9,811*	*5,107*	*3,992*	*7,346*	*4,797*	*52,546*

2014 Plan of Operation - INTRASTATE









Actual deliveries updatec	15-Apr-14	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total
Plan of Operation														
Phoenix AMA														
	HIEROGLYPHIC MTNS			1,320										1,320
		500	*500*	*500*	*500*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2,000*
	AGUA FRIA		548											548
		500	*500*	*500*	*500*	*1,500*	*647*	*0*	*0*	*0*	*0*	*0*	*0*	*4,147*
	TONOPAH DESERT													
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
	SUPERSTITION MTNS		1,020	1,921										2,941
		1,000	*1,000*	*1,000*	*1,500*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*4,500*
	QCID													0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*1,230*	*2,000*	*1,000*	*1,000*	*0*	*5,230*
Subtotal		0	1,568	3,241	0	0	0	0	0	0	0	0	0	4,809
Total to date		0	1,568	4,809	4,809	4,809	4,809	4,809	4,809	4,809	4,809	4,809	4,809	4,809
Projected total to date		*2,000*	*2,000*	*2,000*	*2,500*	*1,500*	*647*	*0*	*1,230*	*2,000*	*1,000*	*1,000*	*0*	*15,877*
Pinal AMA														
	CAIDD													0
		0	*0*	*3,000*	*2,000*	*700*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*5,700*
	HIDD													0
		0	*0*	*0*	*0*	*0*	*2,000*	*2,000*	*1,700*	*0*	*0*	*0*	*0*	*5,700*
	MSIDD	400	500	900										1,800
		400	*500*	*900*	*900*	*900*	*500*	*200*	*200*	*400*	*400*	*300*	*100*	*5,700*
	SSRB													0
		0	*5,000*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*5,000*
Subtotal		400	500	900	0	0	0	0	0	0	0	0	0	1,800
Total to date		400	900	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Projected total to date		*400*	*5,500*	*3,900*	*2,900*	*1,600*	*2,500*	*2,200*	*1,900*	*400*	*400*	*300*	*100*	*22,100*
Tucson AMA														
	AVRA VALLEY													0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*300*	*700*	*1,000*
	LOWER SANTA CRUZ	1,000	1,000											2,000
		1,000	*1,000*	*1,000*	*0*	*0*	*0*	*0*	*0*	*1,000*	*1,000*	*1,500*	*0*	*6,500*
	PIMA MINE ROAD													0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1,000*	*500*	*544*	*2,044*
	CAVSARP													0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	SAVSARP	2,000	1,000	1,000										4,000
		2,000	*2,000*	*2,000*	*2,000*	*0*	*0*	*0*	*0*	*1,000*	*1,000*	*2,000*	*2,000*	*14,000*
	CMID													0
		0	*0*	*0*	*0*	*482*	*1,000*	*1,000*	*750*	*0*	*0*	*0*	*0*	*3,232*
	KAI FARMS - Red Rock													0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	BKW FARMS													0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Subtotal		3,000	2,000	1,000	0	0	0	0	0	0	0	0	0	6,000
Total to date		3,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Projected total to date		*3,000*	*3,000*	*3,000*	*2,000*	*482*	*1,000*	*1,000*	*750*	*2,000*	*3,000*	*4,300*	*3,244*	*26,776*
TOTAL		3,400	4,068	5,141	0	0	0	0	0	0	0	0	0	12,609
Total to date		3,400	7,468	12,609	12,609	12,609	12,609	12,609	12,609	12,609	12,609	12,609	12,609	12,609
Projected total to date		*5,400*	*10,500*	*8,900*	*7,400*	*3,582*	*4,147*	*3,200*	*3,880*	*4,400*	*4,400*	*5,600*	*3,344*	*64,753*

AWBA Action Plan Summary

Practical vision	Current reality	Commitments
What do we want to see in place in 3-5 years as a result of our actions?	*What are the resources at our disposal that will help us reach our vision and what are the kinks in the hose keeping us from our vision?*	*What are 3-5 commitments the AWBA is serious about accomplishing in the next year to move the AWBA closer to its practical vision?*
• ...moving toward **meeting AWBA responsibilities (buying the tools)** – Acquired new water supplies – Access to and flexibility of funding streams – Indian firming agreements • ...moving toward **implementing AWBA responsibilities (buying the tools)** – Adopted implementable recovery plan – Improved storage plan • Alternative shortage management strategy • Decision on AWBA statewide role • Outreach efforts incorporated into annual reports	**Resources at our disposal:** • Great staff, AWBA members and stakeholders • Statutory authority • Existing water supplies • Storage capacity • Distribution system • Clear goals and objectives • Pending crisis (i.e. shortage) **Kinks in the hose:** • AWBA roles expanded • Rules of game have changed • Uncertainty of goals • Differing interpretation of statutes • Stretched thin • 4¢ tax can only be used for M&I firming • Difference of opinion with CAP about how to use the 4¢ tax monies to achieve goals • Imbalance between funding sources relative to AWBA goals • People growing into entitlement leaving less water for AWBA	**1. Meeting AWBA responsibilities (buying the tools)** • Legislative and public outreach/support and 4¢ tax extension • Develop updated modeling to clarify M&I and tribal goals • Institute negotiations with CAWCD on an IGA for statute interpretation and permanent disbursement of 4¢ tax to AWBA • Update augmentation options study • Identify where differences of opinion are in statutes **2. Implementing AWBA responsibility (using the tools)** • Prompt and thorough review of draft recovery plan with an eye toward improving storage plans • Communicate our position on urgency of recovery plan to CAWCD • Begin incorporation information from recovery plan (process) into AWBA annual operation plan for 2015 to assist in identifying storage locations • Identifying where differences of opinion are in statutes **3. Developing alternative shortage management strategy** • Evaluate need for additional staff • Develop concept paper to explain ways AWBA could mitigate agricultural shortage and reduce groundwater pumping • Continue to monitor and comment on Enhanced Aquifer Management process to maintain AWBA flexibility during shortage • Identify where differences of opinion are in statutes **4. Making Decision on AWBA statewide role** • Outreach – legislative/public - support • Ask ADWR to identify opportunity outside CAP service area

YEAR-ONE ACCOMPLISHMENTS

	Current Reality	First-Year Accomplishments	Success Indicators
COMMITMENT: Meeting AWBA responsibilities (buying the tools)	• Existing 4¢ tax available only through 2016 • Collected 4¢ tax monies held by CAP • CAP uses 4¢ tax monies to offset AWBA M&I firming costs • Concern 4¢ tax monies might not be used for AWBA purposes in future • Modeling goals established in 1997 • AWBA can acquire supplies only if excess CAP water is not available • AWBA cannot acquire long-term storage credits except in very limited conditions • Draft legislation for purchase of long-term credits prepared • Have a Water Supply Survey Report	• Run credit purchase legislation • Update the AWBA goals using latest Colorado River modeling • Participate in discussions with CAP and others on extension of 4¢ tax levy • Evaluate next steps to follow up on Water Supply Survey Report	• 4¢ tax is extended beyond 2016 for uses including AWBA purposes • AWBA can acquire long-term storage credits • Modeling goals have been re-evaluated and updated given current information • Updated Water Supply Survey Report • Confidence 4¢ tax monies will continue to be used for AWBA purposes
COMMITMENT: Implementing AWBA responsibilities (using the tools)	• Draft Joint Recovery Plan out to members and CAP Board ready for review by stakeholders and Boards • Tentative Joint Recovery Plan workshop scheduled for February 4 • Unclear how to adopt Joint Recovery Plan by multiple agencies	• Conduct Joint Recovery Plan workshop • Review comments received and incorporate into a final draft Joint Recovery Plan • Decide how to adopt Joint Recovery Plan by AWBA and CAP Boards and ADWR Director • Adopt Joint Recovery Plan • Incorporate Joint Recovery Plan concepts into Ten-Year Plan and Annual Plan of Operation	• Adopted Joint Recovery Plan • Incorporated Joint Recovery Plan elements into the Plan of Operation for 2015 • CAP has recovery partner agreements in place • Regular interagency coordination • Stakeholder recognition of Joint Recovery Plan • In the event of shortage, AWBA credits are distributed and recovered

YEAR-ONE ACCOMPLISHMENTS

	Current Reality	First-Year Accomplishments	Success Indicators
COMMITMENT: Developing alternative shortage management strategy	• 23,724 acre-foot Indian firming obligation • Credit recovery only method to mitigate shortages • Can extinguish water management credits • Ten-Year Plan that evaluates water availability • Potential ways CAP can meet shortfalls during shortage • Recovery is limited by Third Management Plan • Enhanced Aquifer Management process is underway that could affect accrual and recovery of future AWBA credits • Majority of on-river users have recovery agreement with CAP	• Continue discussions with Gila River Indian Community to negotiate firming agreement • Initiate discussions with White Mountain Apache Tribe to develop firming agreement • Prepare preliminary list of ways to meet AWBA obligations in addition to recovering credits • Effectively communicate AWBA's position on Enhanced Aquifer Management • Initiate discussions with CAP regarding CAP based alternative shortage management strategies for potential incorporation into Joint Recovery Plan	• Executed Indian firming agreements that incorporate multiple firming opportunities • List of ways to meet AWBA obligations in addition to recovering credits • Multiple firming opportunities incorporated into Ten-Year Plan • Operational flexibility is maintained for AWBA under Fourth Management Plan including enhanced aquifer management • Efficient and effective use of AWBA credits • Shortage management strategies incorporated into Joint Recovery Plan
COMMITMENT: Making Decision on AWBA statewide role	• AWBA jurisdiction limited to CAP service area (M&I firming), certain Indian settlements and on-river communities with P4 M&I contracts • Funding limited to 4¢ tax and withdrawal fees • ADWR's Draft Strategic Vision has been released • Unclear about how AWBA could help those not currently within the AWBA jurisdiction	• Coordinate with ADWR to identify potential statewide roles for the AWBA in the Draft Strategic Vision • Develop outreach program to inform Legislature and public about the AWBA and its role in statewide water management	• Decision on AWBA statewide role • Support from legislature and others assuming expanded AWBA role • Funding available to support potential expanded role

Preliminary
April 3, 2014

CENTRAL ARIZONA PROJECT
2015-2020 RATE SCHEDULE

DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

Units = $/ acre-foot

(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)

	2014	Firm 2015	Provisional 2016	Advisory 2017	Advisory 2018	Advisory 2019	Advisory 2020
Municipal and Industrial							
Long Term Subcontract (B+C) [1]	$ 146	$ 157	$ 161	$ 166	$ 171	$ 174	$ 196
Non-Subcontract (A+B+C) [2]	166	179	184	190	196	199	221
Recharge (A+B+C) [3]	166	179	184	190	196	199	221
AWBA Interstate Recharge (A+B+C+D) [4]	189	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Federal (B+C) [5]	$ 146	$ 157	$ 161	$ 166	$ 171	$ 174	$ 196
Agricultural							
Settlement Pool (C) [6]	$ 67	$ 75	$ 76	$ 79	$ 81	$ 82	$ 99
Agricultural Incentives [6]							
Meet Settlement Pool Goals	(14)	(18)	(15)	(14)	(12)	(9)	(22)
Meet AWBA/CAGRD GSF Goals	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Meet Recovery Goals	(2)	(2)	(2)	(2)	(2)	(2)	(2)

RATE COMPONENTS

Units = $/acre-foot

	2014	Firm 2015	Provisional 2016	Advisory 2017	Advisory 2018	Advisory 2019	Advisory 2020
Capital Charges							
(A) Municipal and Industrial - Long Term Subcontract [7]	$ 20	$ 22	$ 23	$ 24	$ 25	$ 25	$ 25
Delivery Charges							
(B) Fixed OM&R [8]	$ 79	$ 82	$ 85	$ 87	$ 90	$ 92	$ 97
(C) Pumping Energy Rate 1 [9]	67	75	76	79	81	82	99
(D) Property Tax Equivalency [10]	23	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.

DIRECT UNDERGROUND WATER STORAGE

Units = $/acre-foot

	2014	Firm 2015	Provisional 2016	Advisory 2017	Advisory 2018	Advisory 2019	Advisory 2020
Underground Water Storage O&M [11]							
Phoenix AMA	$ 8	$ 9	$ 10	$ 12	$ 13	$ 14	$ 15
Tucson AMA	15	15	15	15	15	15	15
Underground Water Storage Capital Charge [12]							
Phoenix AMA	$ 15	$ 15	$ 15	$ 15	$ 15	$ 15	$ 15
Tucson AMA	9	9	9	9	9	9	9

CENTRAL ARIZONA PROJECT
2015-2020 RATE SCHEDULE

NOTES:

1) Long-Term Municipal and Industrial (M&I) Subcontract include those users that hold a M&I subcontract.
2) Non-Subcontract includes M&I users that are taking water under an agreement other than a subcontract and may also be referred to as "Excess" water. It is administered according to CAP's Access to Excess policy.
3) Recharge includes the Arizona Water Banking Authority, CAGRD, BOR and M&I subcontract holders and other Arizona entities who have valid Arizona Department of Water Resources water storage permits and accrue long-term storage credits. It is administered according to CAP's Access to Excess policy.
4) The AWBA Interstate Recharge rate is currently not published (n.p.) and will be provided upon request as there is not any anticipation of water available for this class.
5) Federal water may also be referred to as "Indian" water.
6) Rate is the Pumping Energy Rate 1 component. Incentives may be earned for meeting delivery goals in three areas. Any incentives earned are applied to Settlement Pool deliveries.
7) For M&I subcontract water, the Capital Charge is paid on full allocation regardless of amount delivered and not included in delivery rates.
8) Fixed O&M costs divided by projected total water volumes plus components to fund capital replacements and a rate stabilization reserve. This amount is collected on all ordered water whether delivered or not.
9) The energy rate applies to all actual water volumes as opposed to scheduled. The calculation is pumping energy costs divided by projected volumes.
10) The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2012, the tax equivalency is the levy for the 2010-2011 tax year divided by the average water deliveries for 2008, 2009 and 2010). This rate is currently not published (n.p.) and is available upon request, although it is not anticipated there will be water available for this class.
11) Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.
12) Underground Water Storage Capital Charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.

IV. Draft Joint Recovery Plan

NOTES: (Potential action on Preface that would be included in the Final Joint Recovery Plan)

Call on **Virginia O'Connell** to discuss

- Comments received on the Draft Joint Recovery Plan
- Preface to the Joint Recovery Plan

POTENTIAL ACTION:

Move to authorize Chair Michael Lacy to sign the Preface, after signature by the President of the CAWCD Board of Directors, to be included in the *Recovery of Water Stored by the Arizona Water Banking Authority: A Joint Plan by AWBA, ADWR and CAP*, acknowledging that the Plan advances the objectives of the IGA among ADWR, AWBA, and CAWCD, to develop a coordinated and cooperative planning process for the recovery of water stored by the AWBA.

2014

Recovery of Water Stored by the Arizona Water Banking Authority

A Joint Plan by AWBA, ADWR and CAP

4/14/2014

Table of Contents

Executive Summary

For nearly two decades, the Arizona Water Banking Authority (AWBA), the Arizona Department of Water Resources (ADWR) and the Central Arizona Water Conservation District (CAWCD, referred to in this plan as CAP) have been engaged in an innovative program to store Colorado River water in the aquifers of Central and Southern Arizona. The AWBA has stored nearly 4 million acre-feet of Central Arizona Project water (CAP water) underground since its inception in 1996.

The AWBA's storage credits will be recovered to meet the needs of CAP Municipal and Industrial (M&I) Priority subcontractors and Fourth Priority (P-4) on-River M&I users during declared shortages on the Colorado River; to meet the State's obligations pursuant to Indian water rights settlements; and to meet interstate water banking obligations with Nevada.

This Plan is a collaborative effort among the AWBA, ADWR, CAP and stakeholders to provide a roadmap for recovering AWBA credits. It builds on past planning efforts and practical experience to clarify roles, provide updated analysis and identify key decision points and actions. The focus of this Plan is on projected recovery needs and actions through 2045.

The analysis in this Plan relies on two models, the Bureau of Reclamation's Colorado River Simulation System (CRSS) and a custom recovery model that was developed to calculate the probability of specific recovery volumes occurring through time, based on a range of supply and demand conditions.

The range of possible future recovery needs identified in this Plan frames the general likelihood, timing and magnitude of potential recovery activity. Modeling results suggest that the earliest recovery may be triggered sometime around 2017, though the annual volume and probability is very low. Recovery for on-River users and the state's portion of Indian Non-Indian Agricultural (NIA) water are projected to occur first and well before recovery for CAP M&I firming which is not projected until at least 2035. Recovery for Nevada could occur as early as 2018 but is not projected to occur until sometime after 2025.

The Pinal Active Management Area (AMA) appears to be the focus of early recovery for a significant portion of the planning horizon. This is because the majority of the credits (credits earned with withdrawal fees, general funds and interstate funds) needed for much of the recovery projected in the near and mid-term planning periods (Indian NIA, On-River P-4 M&I users and requests from Nevada) are located in the Pinal AMA. Recovery in the Phoenix and Tucson AMAs will become more significant in the long-term planning period when recovery for M&I users is needed and credits generated with ad valorem credits are recovered.

Successful recovery depends on the effective implementation of various recovery opportunities using methods such as credit exchange, indirect recovery and direct recovery. This plan makes recommendations for pursuing these recovery opportunities in each AMA. While some aspects of implementation may be premature for consideration in this Plan (e.g., terms of yet-to-be developed contracts or agreements), the plan identifies important

process steps, including critical points in the operational timeline and issues related to the collection of recovery costs.

CAP is committed to entering into long term recovery agreements with recovery partners to meet projected recovery capacities and commissioning the technical studies required to develop the infrastructure for new recovery projects when necessary. ADWR, AWBA, and CAP are committed to ongoing collaboration, monitoring and analysis to ensure that recovery modeling assumptions remain reasonable and up to date.

Section 1:
Background, Purpose & Scope

Background

Arizona relies on a multi-faceted approach to mitigating and responding to shortages on the Colorado River including shortage sharing guidelines, tiered priorities of CAP water, the banking and recovery of CAP water, water provider's drought response programs, and drought provisions under the State's Assured Water Supply (AWS) rules. This plan focuses on the recovery of CAP water stored by the Arizona Water Banking Authority (AWBA).

For nearly two decades, the AWBA, the Arizona Department of Water Resources (ADWR) and the Central Arizona Water Conservation District (CAWCD, referred to in this plan as CAP) have been engaged in an innovative program to store Colorado River water in the aquifers of Central and Southern Arizona. The AWBA has stored nearly 4 million acre-feet[1] of Central Arizona Project water (CAP water) underground since its inception in 1996.[2]

The storage of CAP water by the AWBA has occurred pursuant to regulations administered by ADWR, which issues long-term storage credits (credits) for both direct recharge and for irrigation with CAP water in-lieu of pumping groundwater. The AWBA has storage credits in the Phoenix, Pinal and Tucson Active Management Areas[3] that can be recovered[4] in the future when the need arises.

The AWBA's credits will be recovered to meet the needs of CAP Municipal and Industrial (M&I) Priority subcontractors and Fourth Priority (P-4) on-River M&I users during declared shortages on the Colorado River; to meet the State's obligations pursuant to Indian water rights settlements; and to meet interstate water banking obligations with Nevada.[5]

The need to recover AWBA credits will unfold over many decades and will be triggered by shortages on the Colorado River, Indian settlement requirements, specific interstate contractual obligations and possible disruptions in operations to the CAP system. Many factors will determine the timing, magnitude, location and method of this recovery, and numerous entities will be involved. Effective planning and coordination among AWBA, ADWR, CAP, P-4 on-River M&I users, CAP customers, recovery partners and Nevada are essential to successful recovery of this water.

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[1] That storage has resulted in 3.8 million acre-feet of long-term storage credits, after subtracting losses and a 5% "cut-to-the-aquifer." One acre-foot equals 325,851 gallons.

[2] Arizona Water Banking Authority, 2013 Plan of Operation

[3] Active Management Areas were established under the 1980 Groundwater Management Act. Strict groundwater management statutes and rules exist in these areas.

[4] Recovery is the act of turning long-term storage credits into a useable water supply

[5] Interstate banking obligations with Nevada are related to a series of agreements, including but not limited to the Third Amended and Restated Agreement for Interstate Water Banking among AWBA, Southern Nevada Water Authority (SNWA), the Colorado River Commission of Nevada (CRCN) dated May 20, 2013 and the Recovery Agreement among AWBA, CAP, SNWA and CRCN dated June 9, 2010 and established the terms for storage and recovery of interstate storage credits accrued for the benefit of SNWA and the State of Nevada.

In response to past recovery events for California and in response to requests from CAP customers, there have been a number of efforts by the AWBA, ADWR and CAP to plan for recovery.[6] This latest plan builds on these efforts and solidifies a comprehensive and coordinated approach among the three organizations.

This document and the associated planning are products of the Interagency Recovery Planning Group which includes staff from the AWBA, ADWR and CAP. In May of 2012, ADWR established the Ad Hoc Recovery Planning Group to serve as a venue for feedback and guidance by regional representation of customers and stakeholders for the joint agency planning process. The Ad Hoc Group includes representatives from CAP, AWBA, ADWR, Arizona Municipal Water Users Association (AMWUA), Southern Arizona Water Users Association (SAWUA), Salt River Project (SRP) and Pinal County water users. Additional input on the Plan was received from stakeholders through a Joint Public Workshop as well as formal written comment.

Purpose and Scope

This Plan is a collaborative effort among the AWBA, ADWR, CAP and stakeholders to provide a roadmap for recovering AWBA credits. It builds on past planning efforts and practical experience to clarify roles, provide updated analysis and identify key decision points and actions.

The focus of this Plan is on projected recovery needs and actions through 2045. The three entities believe that this time period provides a reasonable balance between the uncertainty of long-range planning and the practical decisions and actions needed to ensure successful implementation of future recovery. Specifically, the Plan is intended to:

- Clarify roles and interactions of the primary institutions involved in the recovery of AWBA credits
- Establish planning-level certainty around key recovery concepts
- Identify both shortage and non-shortage recovery triggers
- Analyze and project the potential timing and magnitude of recovery under a range of future supply and demand conditions
- Identify potential recovery partners and opportunities to meet recovery needs
- Identify key recovery decision points and actions to be taken within the planning horizon
- Assist in improving future storage decisions
- Provide the framework for continued cooperation between CAP, ADWR, AWBA, CAP customers and stakeholders

[6] CAP's Draft Conceptual Plans to Recover Stored Water, 2007; AWBA's Water Supply and Demand Study, 2011; CAP's Planning for Recovery, 2012

- Allow CAP to manage disruptions in operations on a case-by-case basis outside the scope of this document

As discussed in Section 5, the timing and magnitude of recovery depend heavily on factors such as future water supply and demand conditions that are highly uncertain. Given the complex nature of that uncertainty, this Plan employs a scenario-based approach which allows for the evaluation and preparation for a range of potential outcomes. This approach, combined with clarity on key concepts, is designed to provide ADWR, CAP, AWBA, P-4 on-River M&I users, CAP customers, Nevada and stakeholders with confidence that recovery can be accomplished in an effective and efficient manner.

Section 2:
Roles & Responsibilities

Understanding the roles and responsibilities of the entities involved in the recovery of AWBA credits is an essential first step in the planning process.

Arizona Water Banking Authority (AWBA)

The AWBA was formed in 1996 to store the unused portion of Arizona's annual entitlement of Colorado River water. At the time, Arizona was not fully utilizing its entitlement of 2.8 million acre-feet. By storing this water, made available as excess CAP water[7], the AWBA not only helped the state use its full entitlement but also created a long-term supply to meet future needs. Through 2012, the AWBA has accrued more than 3.8 million acre-feet of credits within CAP's three county service area to support various goals and obligations:

- To firm[8] water supplies for CAP Municipal and Industrial (M&I) Priority subcontractors and P-4 on-River M&I users during declared shortages
- To meet the State's obligation to firm up to 23,724 acre-feet of Non-Indian Agricultural (NIA) priority CAP water pursuant to Indian water rights settlements[9]
- To fulfill water management objectives of the Arizona Groundwater Code
- To meet interstate water banking obligations with Nevada

The AWBA stores water to meet these goals and obligations utilizing several funding sources, each of which has statutory purposes and restrictions that are discussed in Section 3.

The AWBA manages its activities through its Annual Plan of Operation and Ten-Year Plan, including the storage of water and the distribution of credits for recovery, consistent with its statutory and contractual responsibilities. In anticipation of a recovery event, the AWBA will review requests for long-term storage credits from CAP before distribution.

The AWBA is also responsible for certifying the amount of water recovered in a given year for the purpose of developing intentionally created unused apportionment (ICUA) for Nevada. ICUA is the mechanism that allows Nevada to receive the water that was stored in Arizona on its behalf. Interstate banking between Arizona and Nevada is discussed in more detail in Section 5.

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[7] Excess CAP water is the water available for delivery on a year-to-year basis after meeting orders pursuant to long-term CAP entitlements

[8] Firming is the use of one supply to increase the reliability of another supply. In this case, it is the use of stored water to supplement Colorado River water in times of reduced supply

[9] For all practical purposes, this firming obligation will only occur as a result of a declared shortage on the Colorado River; however, it could also result in the extreme case that Arizona on-River demand would reach high enough levels, which could cause a shortage in CAP's 1.415 million acre-feet of long-term entitlements

Central Arizona Water Conservation District (CAP)

The Central Arizona Water Conservation District (CAP) was created in 1971 to manage and operate the Central Arizona Project (Project) and to repay the Federal government for the State's portion of the construction costs. There are over 80 M&I and Indian long-term contract and subcontract holders, and these long-term CAP entitlements total 1.415 million acre-feet. However, CAP's right to divert Colorado River water entitles CAP to divert the difference between Arizona's 2.8 million acre-feet and the amount used by on-River right holders. For example, in 2012, CAP diverted over 1.6 million acre-feet of water, of which approximately 1 million acre-feet went to long-term CAP entitlements and 600,000 acre-feet[10] was delivered as excess CAP including approximately 136,000 acre-feet delivered to the AWBA.

As a designated recovery agent for the AWBA, CAP is responsible for recovering water stored by the AWBA in support of CAP M&I subcontract firming, on-River firming (specifically with Mohave County Water Authority (MCWA)[11]) and interstate banking on behalf of the Southern Nevada Water Authority (SNWA). CAP may also have recovery responsibilities to satisfy the State's obligation to Indian tribes under the Arizona Water Settlements Act (Settlements Act) though no specific recovery agreement with the AWBA for this purpose exists at this time.

CAP is responsible for scheduling deliveries and, when necessary, determining the specific reductions to each class of user firmed by the AWBA in accordance with its established priorities. CAP will then make a request to the AWBA for credits to meet these shortfalls. Likewise, with regard to the AWBA's on-River and interstate contractual obligations, CAP will coordinate with the AWBA and those parties to determine the volume of credits that will need to be recovered to meet those obligations. CAP will work closely with its voluntary recovery partners to turn the credits into a useable water supply. If necessary, CAP may also construct and operate recovery infrastructure pursuant to recovery well permits issued by ADWR[12].

Arizona Department of Water Resources (ADWR)

ADWR was created in 1980, as part of the Groundwater Management Act, to ensure long-term reliable supplies for the state. ADWR administers and enforces Arizona's groundwater code and surface water laws. ADWR's Director also consults, advises, and cooperates with the United States Secretary of the Interior on Colorado River issues.[13]

ADWR serves two primary roles in the recovery process: regulatory and advisory. In its regulatory role, ADWR administers and enforces the Underground Water Storage and Recovery Program. It is responsible for reviewing and issuing permits, such as underground storage facility permits, water storage permits and recovery well permits. It also handles long-term storage credit accounting, including credit recovery and transfers. In its advisory role,

[10] This figure includes 400,000 acre-feet of excess designated as the Agricultural Pool
[11] Exchange Agreement between Central Arizona Conservation District and The Mohave County Water Authority
[12] A.R.S. § 48-3713.B
[13] A.R.S. § 45-107

ADWR will work closely with CAP and AWBA to ensure planned recovery activities are consistent with ADWR statues, rules and policies.

Bureau of Reclamation (Reclamation)

The Secretary of the Interior (Secretary), through Reclamation is the contracting authority for water on the Lower Colorado River. Reclamation, through the Lower and Upper Colorado Regions, manages and administers programs related to the Colorado River for the Department of the Interior, including making a determination on the condition of the Colorado River system.

For recovery activities that rely directly on CAP facilities and project power, Reclamation has a role that is determined by contracts, agreements and the stipulated judgment with CAP. Reclamation also has a role in ensuring that recovery cost collection policies are consistent with its contractual agreements with CAP. Additionally, Reclamation oversees Colorado River accounting, including aspects of interstate banking and the development of ICUA.

The Secretary, like the State, also has an obligation to firm certain NIA priority CAP water supplies for existing and future settlements of Indian water rights claims under the Arizona Water Settlements Act. Although this Plan does not address recovery on behalf of Federal customers, CAP, AWBA and ADWR are committed to coordinating with Reclamation on these efforts.

CAP's Recovery Partners

CAP's recovery partners are entities that *voluntarily* enter into an agreement with CAP to facilitate meeting demands during a shortage on the Colorado River, or an interstate request, by "receiving" a portion of their CAP water order in the form of AWBA credits. Recovery partners can agree to receive credits for all or a portion of their order and, by doing so, help CAP offset a shortfall to a particular pool of water.

Recovery partners may include CAP M&I subcontractors, irrigation districts or Indian communities that hold and use a CAP long-term entitlement[14]. In some circumstances, a third party that owns the necessary infrastructure (regional conveyance system) may perform the physical recovery for a CAP customer that has agreed to be a recovery partner with CAP. For this document, these entities will be referred to as "third party recovery partners."

Beneficiaries

Beneficiaries of recovery are any Colorado River water users for which the AWBA has a firming responsibility or contractual obligation. Specific beneficiaries are CAP M&I Priority subcontractors and P-4 on-River M&I users, Indian Tribes that receive a portion of the NIA priority CAP supply subject to AWBA firming, and Nevada. It is important to note that being a recovery beneficiary does not require becoming a recovery partner.

[14] CAP Ag Pool water is not considered a long-term entitlement but irrigation districts using this supply are ideal recovery partners for interstate recovery during non-shortage conditions

Other Interested Parties

There are numerous other parties such as AMWUA, SAWUA, SRP, Active Management Area Groundwater User Advisory Councils (AMA GUACs) and Pinal AMA water users that have an interest and stake in how the future recovery of AWBA storage will be managed and implemented.

Section 3:
Funding, Purpose & Location of Credits

The AWBA has accrued over 3.8 million acre-feet of credits through 2012. Of these, approximately 3.2 million acre-feet are for Arizona's needs, and just over 600,000 acre-feet[15] are for interstate purposes, accrued specifically on behalf of the Southern Nevada Water Authority (SNWA) under the state's interstate banking program.

There are several factors that will determine where the recovery of these credits will occur including: the funding sources that are used to accrue the credits; the statutory purpose for distributing the credits; and the location of both the credits and CAP's recovery partners.

Funding Sources

The AWBA credits are accrued utilizing four main revenue sources:

- an *ad valorem* property tax of up to four cents per $100 assessed valuation in the three-county CAP service area levied and collected by CAP
- $2.50 per acre-foot of the $3.00 per acre-foot groundwater withdrawal fee in the Tucson, Phoenix, and Pinal AMAs collected by ADWR
- general fund appropriations
- proceeds of interstate banking activities

While the AWBA is authorized to use these funding sources, the availability of revenues from each source varies on an annual basis. Furthermore, CAP's authority to levy the *ad valorem* property tax is set to expire January 2, 2017. A.R.S. § 45-2425 further describes how revenues are made available to the Arizona Water Banking Fund.

In addition to its primary funding sources, the AWBA has received revenue from two other sources—shortage reparations and the water storage capital charge. As part of the Arizona-Nevada Shortage-Sharing Agreement executed on February 9, 2007, SNWA agreed to provide $8 million in "shortage reparations" funding to the AWBA to assist Arizona in offsetting impacts from any shortages during the "Interim Period".[16] The AWBA also utilizes monies collected from CAP's water storage capital charge[17] at recharge projects in Pima County that were constructed with State Demonstration Funds. Those revenues are deposited into the *ad valorem* tax fund for Pima County.

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[15] AWBA 2012 Annual Report

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

[17] CAP assesses an underground water storage capital charge, currently $9/AF in Pima County, for use of its storage facilities by certain classes of users.

Credits accrued by the AWBA are further categorized according to the AMA/County in which the funds were collected. **Table 1** identifies the amount of credits accrued by location and the funding source used.

Table 1 AWBA Credits Accrued through 2012, by AMA and Funding Source (AF)

Funding Source	Phoenix AMA	Pinal AMA	Tucson AMA	Total
4-Cent Ad Valorem Tax[1]	1,329,925	187,465	390,334	1,907,724
Withdrawal Fees	293,632	394,896	98,788	787,316
General Fund	42,316	306,968	54,546	403,830
Other Intrastate:				
Indian Firming Appropriation	-	-	28,481	28,481
Shortage Reparation	20,642	60,507	1,227	82,376
GSF Operator Full Cost Share[2]	-	14,125	-	14,125
Intrastate TOTAL	1,686,514	963,961	573,376	3,223,851
Interstate - Nevada	51,009	439,851	109,791	600,651
TOTAL	1,737,523	1,403,812	683,167	3,824,502

[1] Funds are collected by County, but storage and credits are accounted by AMA. To date, all Maricopa County funds are stored in the Phoenix AMA, Pinal County in the Pinal AMA and Pima County in the Tucson AMA.

[2] GSF operators paid all of the AWBA's water delivery costs because AWBA funding resources were fully subscribed and the water was needed to avoid crop losses.

Statutory Purposes

While the AWBA has the authority to distribute, extinguish, or exchange its credits, this authority does not apply equally across all categories of credits held by the AWBA.[18] (see **Table 2**)

Ad Valorem Tax Credits

AWBA credits accrued using the ad valorem water storage tax fund can only be distributed by the AWBA for the benefit of the county in which the monies were collected and cannot be extinguished or exchanged. Statute requires that the AWBA distribute these credits to CAP to the extent necessary to meet the demands of its M&I subcontractors during shortages or disruptions in operations to the CAP system. At the determination of the AWBA that the amount of credits accrued using the ad valorem tax

[18] The purposes for which each category of credits may be used is further described in A.R.S. § 45-2457.

exceeds the amount needed for the purposes described above, the AWBA may also distribute the credits to M&I providers within CAP's service area to firm other surface water supplies[19] (e.g. SRP water).

Withdrawal Fee Credits

Credits earned using withdrawal fees have a broad range of statutorily authorized uses including firming CAP M&I subcontracts, implementing Indian water rights settlements to the extent credits accrued from legislative appropriations are not available, and furthering the water management objectives in each of the three AMAs. The AWBA may only distribute or extinguish credits accrued using withdrawal fees for the benefit of the AMA in which the monies were collected. At this time, except for 5,621 acre-feet of withdrawal fee credits in the Tucson AMA that have been identified by the AWBA for meeting its Indian settlement obligation to the federal government, these credits have not been dedicated for a specific purpose. Therefore, these credits remain available to the AWBA for meeting any of the purposes identified above.

General Fund Credits

Credits earned using appropriations from the State's General Fund can be used for firming on-River P4 M&I users, firming CAP M&I subcontractors, settling Indian water rights claims, or extinguished to further water management goals. The AWBA is required (45-2457(B)(1)) however, to reserve a reasonable number of General Fund credits for firming on-River P4 M&I users and has therefore resolved to give first priority for use of these credits for this purpose.[20] The AWBA has accrued 403,830 acre-feet of credits of the 420,000 acre-feet of credits originally identified as the amount of credits that should be set aside for on-River P-4 M&I firming.

To provide additional certainty, the Mohave County Water Authority (MCWA) entered into a contract with the AWBA to firm specific on-River P4 M&I users. To date, 256,174 acre-feet of the 403,830 acre-feet of General Fund credits have been reserved as part of the MCWA contract.[21] CAP and MCWA have also entered into an agreement for the exchange and recovery of these reserved credits when they are transferred to MCWA's long-term storage credit account during shortages.[22]

At this time, MCWA is the only on-River P-4 M&I entity that has contracted with the AWBA for firming. Through resolution, the AWBA established the procedures by which other On-River entities can also enter into a contract with the AWBA. [23] The AWBA has further resolved that as these General Fund credits are used and replaced, the new credits will be earmarked for the entity that paid the replacement costs and that they would be

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[19] ARS§ 45-2457 (B)(8)(a)
[20] AWBA Resolution 2002-1 prioritizes use of general fund credits in the following order 1) firming on-River M&I users, 2) implementing the settlement of water right claims by Arizona Indian communities, 3) firming CAP M&I priority subcontracts, and 4) fulfilling water management objectives of the Groundwater Code.
[21] The AWBA has currently reserved Pinal AMA credits for this purpose, but General Fund credits stored in the Phoenix or Tucson AMA credits are also available for reservation
[22] Exchange Agreement between CAP and MCWA dated September 27, 2005, amended November 4, 2010.
[23] AWBA Resolution 2010-1

used for the same purpose the original credits were used.[24] The AWBA also received a general fund appropriation authorized specifically for meeting part of the State's Indian settlement obligations, which resulted in the accrual of 28,481 acre-feet of credits. These credits will be made available to the Federal government as part of the State's obligation to assist the Federal government in meeting its Indian firming obligations under the Southern Arizona Water Rights Settlement Act. The State does not have an obligation to recover these credits.

Credits accrued with General Fund appropriations may also be exchanged for credits held by others if those credits were accrued in a location that better enables the AWBA to meet its goals and obligations.

Shortage Reparation Credits

The primary purpose for credits accrued with shortage reparation funds is to assist in making water available to those entities that are impacted by shortages during the Interim Period. The AWBA does not have statutory limitations on how or where these credits may be utilized. Any credits not used during the Interim Period would remain available to the AWBA for meeting any of its goals and obligations.

Table 2 Summary of Intrastate Funding Sources and Allowable Use

FUNDING SOURCE	Firming M&I CAP	Firming On-River M&I (P-4)	Firming Indian Settlements (NIA)	Fulfilling Water Management Objectives
Ad Valorem Taxes	X			
Groundwater Withdrawal Fees	X		X	X
General Fund	X	X	X	X
Shortage Reparations	X	X	X	X

Interstate Banking Credits

Credits accrued pursuant to an interstate banking agreement are recovered within CAP's service area so that an equal amount of Colorado River water, or intentionally created unused apportionment (ICUA) from Arizona, can be made available to the contracting state for diversion when it requests the stored water. The amount of credits that can be accrued annually or used to develop ICUA are governed by state statute and a number of separate agreements including, the individual storage agreements between the AWBA and the contracting state, storage and interstate release

[24] AWBA Resolution 2008-1

agreements among the U.S., AWBA, and contracting state parties, agreements for developing ICUA between AWBA and CAP, and agreements for recovering the credits among the AWBA, CAP and the contracting state parties. A complete description of this process is provided in Section 5.

Location

Since 1997, the AWBA has stored water at two dozen different recharge facilities at various times located in the Phoenix, Pinal, and Tucson AMAs (see **Figure 1** and **Table 3** for more detail). By statute, recovery must occur within the AMA where the original storage took place, and there are often hydrologic and policy advantages for recovery to take place in the vicinity of the specific storage facility. Location of the credits is therefore a key consideration in recovery planning.

The AWBA has accrued over 3.2 million acre-feet of intrastate credits through 2012. Of these, nearly 1.7 million acre-feet of credits are in the Phoenix AMA, over 960,000 acre-feet are in the Pinal AMA, and over 570,000 acre-feet are in the Tucson AMA. The AWBA has also accrued over 600,000 acre-feet of credits on behalf of SNWA. More than two-thirds of these credits, nearly 440,000 acre-feet, have been accrued in the Pinal AMA. There are many factors that will determine where the recovery of AWBA credits will occur, including; the funding source, the statutory purpose, and the location of both the credits and recovery partners.

AWBA storage activity is accounted for at the level of individual recharge facility, while the financial accounting is tracked at the AMA (and County) level. As a consequence, credits earned at an individual facility are not specifically differentiated by funding source. It is only when recovery takes place that the storage facility and funding source accounting is reconciled.

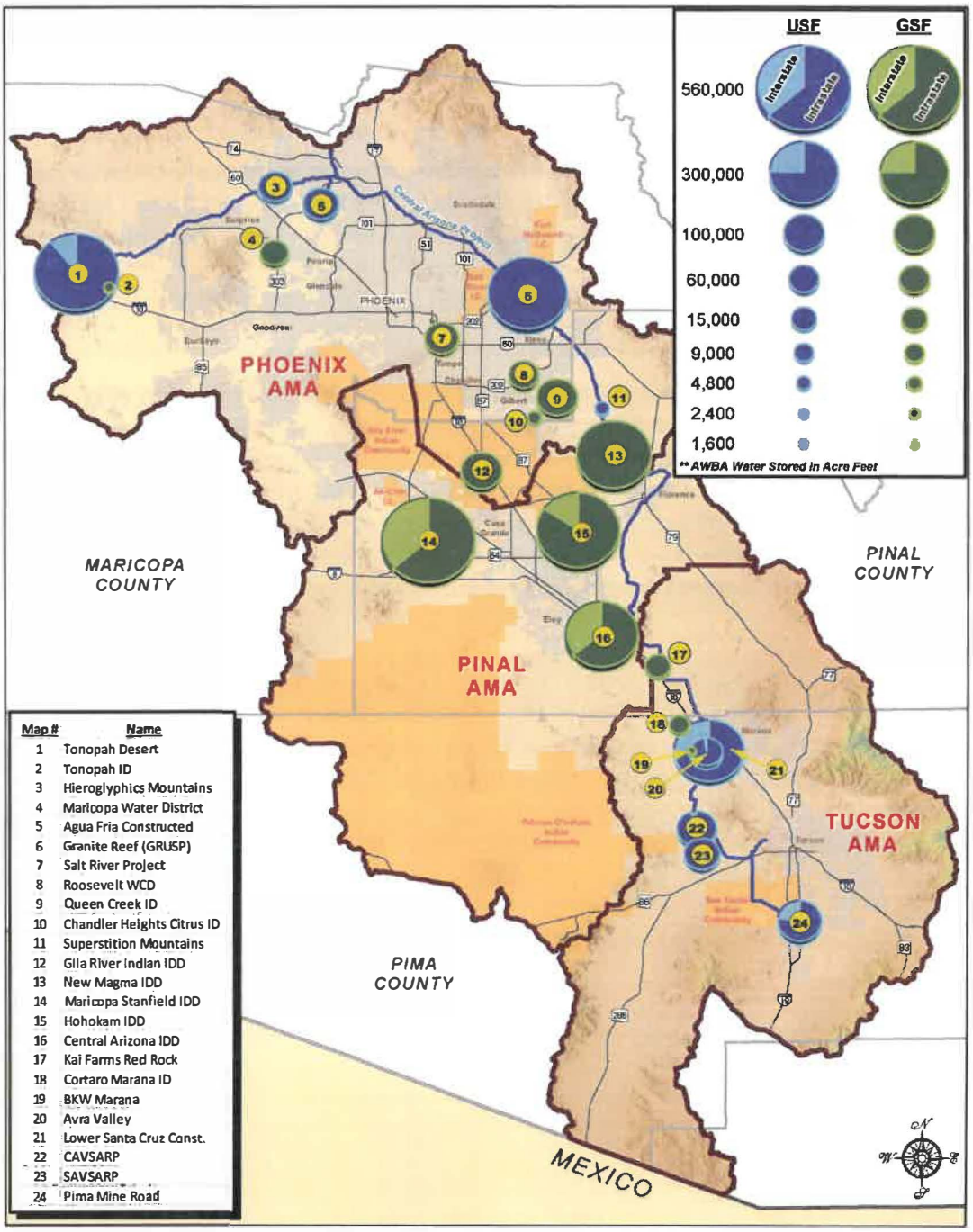

Figure 1 Map showing locations of intrastate and interstate credits (AF) by recharge facility

Table 3 AWBA LTS Credits Accrued through 2012 by Site

AWBA - Recharge Sites		LTS Credits Accrued Through 2012		
PHOENIX AMA		Intrastate	Interstate	Total
USF	GRUSP	399,967	-	399,967
	AGUA FRIA	75,325	-	75,325
	HIEROGLYPHIC MTNS	67,684	-	67,684
	TONOPAH DESERT	403,095	51,009	454,104
	SUPERSTITION MTNS	4,571	-	4,571
	Subtotal	*950,642*	*51,009*	*1,001,651*
GSF	CHANDLER HGTS CID	4,518	-	4,518
	MWD	47,172	-	47,172
	NEW MAGMA	353,519	-	353,519
	QUEEN CREEK	104,080	-	104,080
	SRP	77,327	-	77,327
	RWCD	58,575	-	58,575
	TONOPAH ID	2,368	-	2,368
	GRIIDD-PHX	88,313	-	88,313
	Subtotal	*735,872*	-	*735,872*
	Total Storage	**1,686,514**	**51,009**	**1,737,523**
PINAL AMA				
GSF	CAIDD	217,673	117,497	335,170
	HOHOKAM	369,391	71,407	440,798
	MSIDD	359,820	250,946	610,766
	GRIIDD-Pinal	17,077	-	17,077
	Total Storage	**963,961**	**439,851**	**1,403,812**
TUCSON AMA				
USF	AVRA VALLEY	59,588	1,315	60,903
	CAVSARP	90,444	4,717	95,161
	PIMA MINE RD	97,190	29,828	127,019
	LOWER SANTA CRUZ	224,544	73,930	298,475
	SAVSARP	76,758	-	76,758
	Subtotal	*548,524*	*109,791*	*658,315*
GSF	CMID	8,642	-	8,642
	KAI FARMS (Red Rock)	14,335	-	14,335
	BKW-FARMS	1,641	-	1,641
	Subtotal	*24,618*	-	*24,618*
	Total Storage	**573,142**	**109,791**	**682,933**
	45-841.01 Credits	**234**		**234**
	TOTAL	**3,223,851**	**600,651**	**3,824,502**

Section 4:
Methods & Cost

Recovery to make up for shortfalls to a firmed user pool or to fill an interstate request can be accomplished using a number of different recovery methods, each with its own attributes and associated costs.

Methods

There are three basic methods of recovery that CAP will use to recover AWBA credits: direct recovery, indirect recovery and credit exchange. The methods are differentiated by their reliance on the CAP system and whether or not additional pumping and energy are required over normal operations. (see **Table 4**).

Table 4 Differences among the three types of Recovery

	Direct Recovery	Indirect Recovery	Credit Exchange
Water into CAP system	**Yes**	**No**	**No**
Additional Pumping & Energy required over normal operations	**Yes**	**Yes**	**No**

Indirect recovery and credit exchange also require that some CAP customers voluntarily become recovery partners by agreeing to a reduced delivery of their CAP water order and in turn receive AWBA credits to make up for the reduced delivery. It is important to note, that recovery performed by a CAP recovery partner is for the benefit of the pool being firmed not recovery for the individual recovery partner. The recovery partner will receive compensation for the agreed upon arrangement with CAP. Factors such as where credits are located, the cost of recovery and the needs and availability of recovery partners will all determine which methods are utilized.

Direct Recovery

Direct recovery is when stored water is pumped from permitted recovery wells and then returned directly to the CAP system for delivery to CAP customers. (see **Figure 2**)

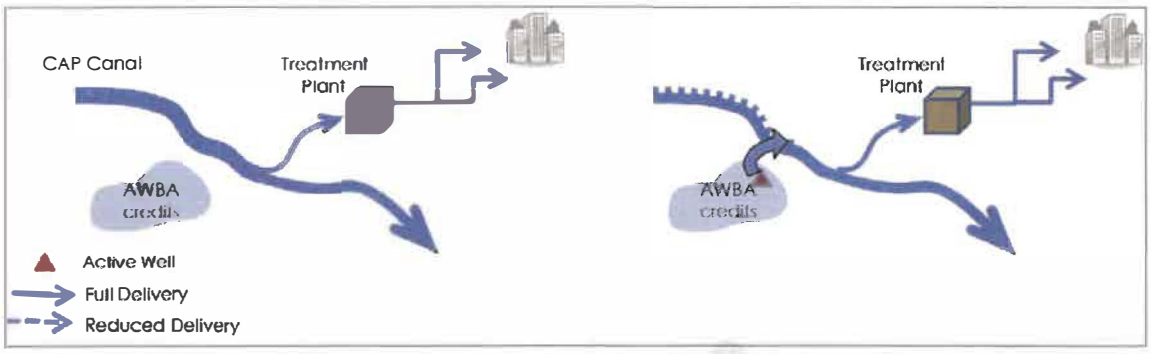

Figure 2 Normal Conditions vs. Direct Recovery

In most cases, CAP would be the entity performing direct recovery. Although existing wells could be used for direct recovery, it is likely that new recovery wells will be needed. An example of direct recovery would be the development of a new recovery well field and related pipeline relatively close to the CAP canal. AWBA credits would then be pumped from the recovery wells and directly returned to the CAP canal for delivery to CAP customers to offset the shortfall to CAP supplies due to a shortage or interstate request.

Indirect Recovery

Indirect recovery is when stored water is pumped and delivered by a CAP recovery partner from permitted recovery wells to fulfill a portion of a CAP water order that would have otherwise been directly delivered by the partner. (see **Figure 3**)

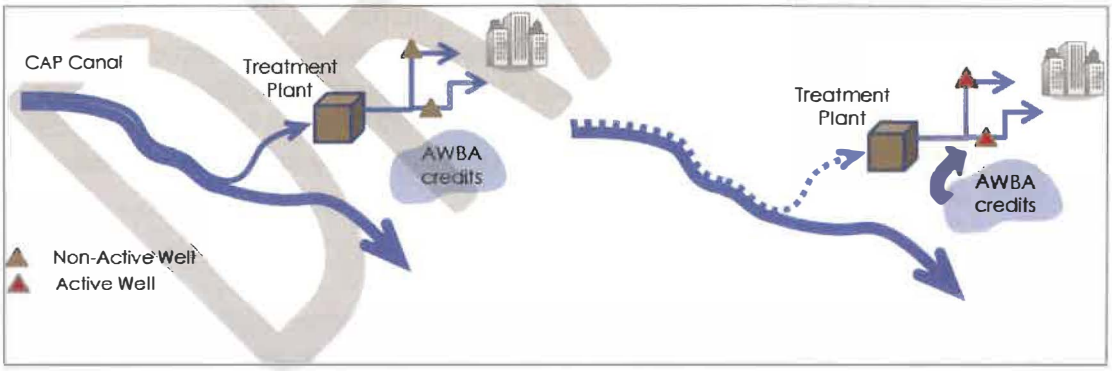

Figure 3 Normal Conditions vs. Indirect Recovery, Municipal

In this method of recovery, recovered water is ***not*** returned directly to the CAP system. Indirect recovery requires a CAP recovery partner or third party to have additional recovery well capacity available to use when CAP deliveries are reduced. Existing wells will most likely be used to perform indirect recovery. Recovered credits could be directly applied to the water use, as in the case of irrigated lands, or could be placed into a conveyance system ***other*** than the CAP system and delivered to the customer.

The following is an example of indirect recovery with an irrigation district that receives Ag Pool water (see both **Table 5** and **Figure 4**). This method was used successfully under normal supply conditions between 2007 and 2010 for interstate recovery for the Metropolitan Water District of Southern California (MWD). This specific arrangement only works when Ag Pool water is available say for interstate recovery during a non-shortage year or for on-River P4 M&I recovery during a shortage when a portion of Ag Pool water is still available.

Table 5

	Irrigation District using 75 kAF of CAP Ag Pool on their crops	
INDIRECT	**Normal mode**	75 kAF CAP water delivered directly to crops
	25 kAF recovery mode	As a recovery partner, the irrigation district voluntarily agrees to a reduced delivery of 50 kAF of CAP water ; the remaining 25 kAF of water is produced from district wells that recover (pump) AWBA LTSCs

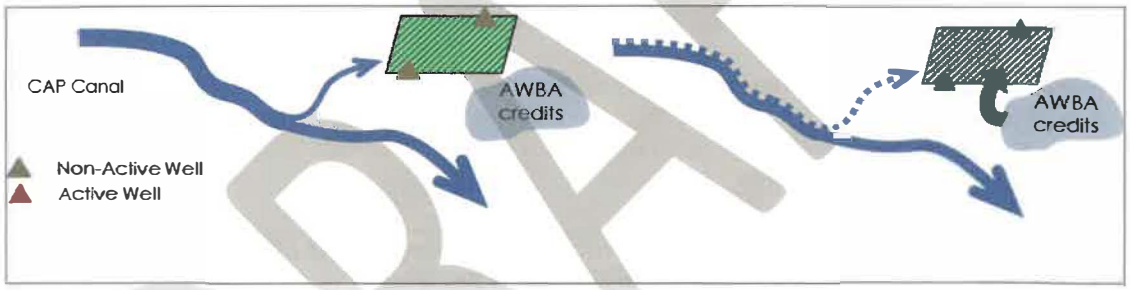

Figure 4 Normal Conditions vs. Indirect Recovery, Ag Pool

Credit Exchange

Credit exchange is when a CAP recovery partner has scheduled CAP water for delivery to an Underground Storage Facility (USF) and instead agrees to receive a portion of that water order as previously accrued storage credits. (see **Figure 5**)

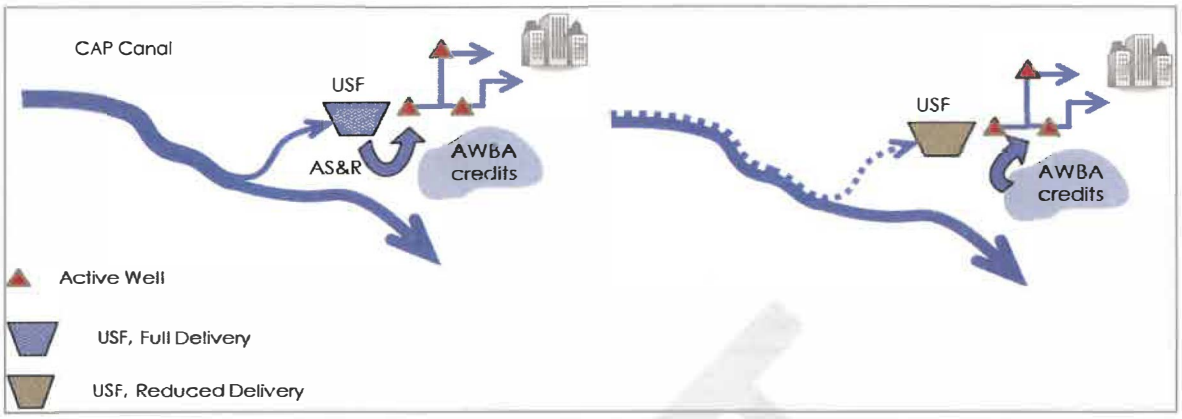

Figure 5 Normal Conditions vs. Credit Exchange

CAP customers performing annual storage and recovery (ASR) or replenishment are ideal recovery partners for using the credit exchange method, especially if those customers are storing at or near a USF where the AWBA has previously accrued credits. This method has also been identified as an option for developing ICUA for meeting interstate requests and has previously been used to make water available for MWD.

Table 6 is an example of the credit exchange method with a CAP M&I subcontractor as a recovery partner.

Table 6

	M&I Subcontractor performing 75 kAF of Annual Storage & Recovery	
CREDIT EXCHANGE	**Normal mode**	75 kAF of CAP water is delivered to USF; 75 kAF recovered into M&I subcontractor's service area and reported to ADWR as Annual Recovery
	25kAF recovery mode	As a recovery partner, the M&I subcontractor voluntarily agrees to a reduced delivery of 50 kAF of CAP water to the USF; the 50 kAF is recovered and reported to ADWR as Annual Recovery, and 25 kAF of previously stored AWBA LTSCs are transferred, recovered, and reported to ADWR by the recovery partner as recovered CAP water.

Method Flexibility

One of the additional considerations for the selection of a recovery method is how quickly the capacity can be developed, and how that relates to the likelihood it will be needed. If the probability of needing recovery during a specific time period is relatively

low, choosing a recovery method such as credit exchange or indirect recovery may make more sense over direct recovery which can require the installation of costly infrastructure that may or may not be used for years. Methods such as credit exchange and indirect recovery allow for flexibility and lower cost options when demand for recovery is highly uncertain. However, as the probability of recovery increases, SNWA's recovery schedule becomes more certain and/or recovery partner agreements do not appear sufficient to meet projected recovery demands, direct recovery options may be needed. Because the construction of direct recovery facilities will likely take considerable time to design, approve and construct, adequate lead time should be built into the planning schedule.

Costs

General cost comparison by method

The overall cost of recovery will depend on the method, or combination of the methods used. Depending on the purpose for which the recovery is taking place, recovery costs may also be apportioned to an overall class of users (e.g., all M&I subcontractors), in those cases the per-unit costs may be quite modest. The collection of recovery costs by user class is discussed further in Section 7.

Cost components for **direct recovery** include energy used for pumping recovery wells and operations and maintenance (O&M) costs of the wells and the conveyance system. Capital costs must also be factored into the overall cost of recovery if new wells and conveyance systems need to be constructed. Capital costs would include costs for planning, permitting, design and construction, etc. Costs needed to purchase land and/or easement rights must also be considered, if applicable.

Indirect recovery cost components generally include the same cost components as direct recovery, though likely lower. The cost components would include well pumping energy costs and well O&M costs above and beyond normal operational costs. If the wells permitted for recovery are existing, but in poor condition, additional costs to rehabilitate the well may be incurred. To the extent new infrastructure is needed, capital costs must also be factored into the total cost. Recovery partners will be compensated for these additional costs through recovery partnership agreements with CAP.

CAP performed indirect recovery for California using existing irrigation district wells in the Pinal AMA between 2007 and 2010. The average costs for recovery was just under $60/acre-foot. Of this total, approximately $20/acre-feet was attributed to well O&M costs and repairs. The remaining costs were associated with energy, which varied between wells and electrical providers. As irrigation districts pump more groundwater in the future, recovery costs could increase because some districts face tiered energy rates that could result in the additional pumping charged at higher rates. In addition to potentially higher energy rates, the total energy required to pump water may increase because of dropping water levels due to increased groundwater pumping caused by shortages to CAP supplies available to the districts.

Costs associated with **credit exchanges** are likely to be even lower than indirect recovery. In an example of a credit exchange arrangement between CAP and a subcontractor conducting ASR, the operational costs should be no greater than normal operating costs. This is because the recovery partner's day-to-day operations would not change. In another example of credit exchange, the CAGRD, could forego planned delivery to a USF fulfilling replenishment obligations in exchange for previously stored AWBA credits. No pumping occurs and no direct costs would be incurred. Avoided storage facility fees would, however, still need to be paid to the recharge facility owner because the facility owner was otherwise going to receive a wet water supply and the associated storage fees. Storage fees currently run between $8-16/acre-foot

Section 5:
Likelihood, Timing & Magnitude of Recovery

Estimating the likelihood, timing and magnitude of future recovery is useful in planning for recovery. Projecting future recovery requires an understanding of the factors affecting recovery, a method for modeling those factors, and an approach to synthesize the results.

Factors Affecting Recovery

The need for recovery can result from shortages on the Colorado River, a CAP outage[25] or a request by Nevada for the creation of ICUA. Requests for ICUA by Nevada may also be tied to shortage, but are primarily expected to be triggered by requests to supplement Nevada's apportionment during non-shortage years.

Shortage Related

Whether or not recovery is triggered by a shortage is dependent on the magnitude of the shortage and the demands by Arizona Colorado River water users at the time of shortage. Recovery of AWBA credits during shortage will be required when the reduction in Arizona's Colorado River supply intersects deliveries to CAP users (pools) and On-river P4 M&I users for which the AWBA has firming responsibilities.

Supply Factors

Each year, the Secretary of the Interior makes a determination on the Colorado River water supply availability conditions for the Lower Division states[26] in terms of Normal, Surplus or Shortage[27]. The factors influencing the water supply determination include the amount of water in reservoir storage, runoff from snowmelt and precipitation, consumptive uses in the Upper Basin, and the policies governing reservoir operations.

The 2007 Colorado River Interim Guidelines for the Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (Interim Guidelines), which are in effect through 2026, outline how and when the Secretary makes the annual water supply determination. Three tiers of shortage are designated and the trigger for each tier is tied to a specific elevation in Lake Mead (see **Table 7**). Arizona water contracts dated after1968, including the entitlement held by CAP, have lower priority than California's apportionment, causing Arizona to bear the majority of the Lower Basin shortage. Nevada also bears a portion of a shortage. In accordance with Minute 319 to the 1944 US-Mexico Treaty, which is in place through 2017, Mexico also takes a defined reduction in water deliveries during shortage.

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[25] As noted earlier, emergency CAP outages are not included in the scope of this planning document.
[26] Arizona, Nevada and California make up the Lower Division States
[27] A shortage condition exists when "...insufficient mainstream water is available to satisfy 7.5 million acre-feet of annual consumptive use in the Lower Division states." Record of Decision - 2007 Colorado River Interim Guidelines for the Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead

Table 7 Reduction in deliveries to Lower Division States and Mexico during a declared shortage

Shortage Tier	January 1 Elevation of Lake Mead	Delivery Reductions During Shortage (AF)		
		Nevada	Mexico	Arizona
Tier 1	1075' to 1050'	13,000	50,000	**320,000**
Tier 2	<1050' to 1025'	17,000	70,000	**400,000**
Tier 3	<1025' to 1000'	20,000	125,000	**480,000**
Tier 3+	below 1000'	*Basin States must consult (consultation triggered once Lake Mead drops below 1025')*		

Source: Interim Guidelines (2007) and Minute 319 (2012)

Arizona's reduction as specified in the Interim Guidelines is further shared among the state's P-4 water users. After an extensive public process in 2006, the Director of ADWR proposed a method for sharing Arizona's reduction between on-River P-4 users and CAP, which was sent as a recommendation to the Secretary of the Interior.[28] The recommendation proposes a proportional shortage reduction to P-4 on-River water supplies based on entitlement. Using this method, when on-River P-4 diversions reach full entitlement (164,652 AF), on-River P-4 diversions will be reduced by approximately 10% of the shortage volume. The remainder of the reduction will be borne by CAP. However, until on-River P-4 entitlements are fully utilized; CAP will bear most if not all of the delivery reductions to Arizona.

Demand Factors

On-River Demand

More than 90% or approximately 1 MAF of Arizona's on-River water use is pursuant to high-priority (P1-3) water entitlements and not affected by shortages on the River, but the P-4 entitlements provide a critically important supply to a variety of water users, including a number of the River communities.[29] In total, these P-4 entitlements are currently underutilized (~111,000 AF in 2012 out of a total of 164,652 AF of entitlement), however overall demand is expected to increase over time, particularly as population grows. Since the AWBA only firms P4 M&I water, the amount of recovery also depends on the proportion of entitlements being used for M&I purposes.

CAP Demand

The total volume of supply available for CAP is based on the Colorado River supply available to Arizona, less the use on-River. That available supply is first used to meet CAP long-term contract demands, and then any remainder is Excess Water, which is first used to satisfy the Agricultural Settlement Pool, and then other Excess users, including the AWBA (**Figure 6**).

[28] Arizona Director's Shortage Sharing Workgroup Recommendation from October 2006
[29] Such as Mohave Water Conservation District, Lake Havasu City, and Bullhead City

The CAP long-term entitlements total 1.415 MAF, and are grouped into four priority types; P-3, Indian, M&I, and NIA. The delivery volumes, from highest to lowest priority are:

- 68,400 acre-feet of higher priority P-3 water: 47,500 acre-feet for the Ak-Chin Community and 20,900 acre-feet of Salt River Pima-Maricopa Water Rights Settlement exchange water for seven Valley cities[30]

- 981,902 acre-feet[31] of M&I priority subcontracts and Indian priority contracts[32]

- 364,698 acre-feet[33] of NIA priority water for both Indian and non-Indian parties

Long-term entitlement demand is expected to increase over time, primarily driven by population growth and increased industrial use. Full utilization of the NIA priority entitlements depends on the reallocation of163,595 AF; 96,295 AF for M&I uses, and 67,300 AF reserved for Indian water right settlements.[34]

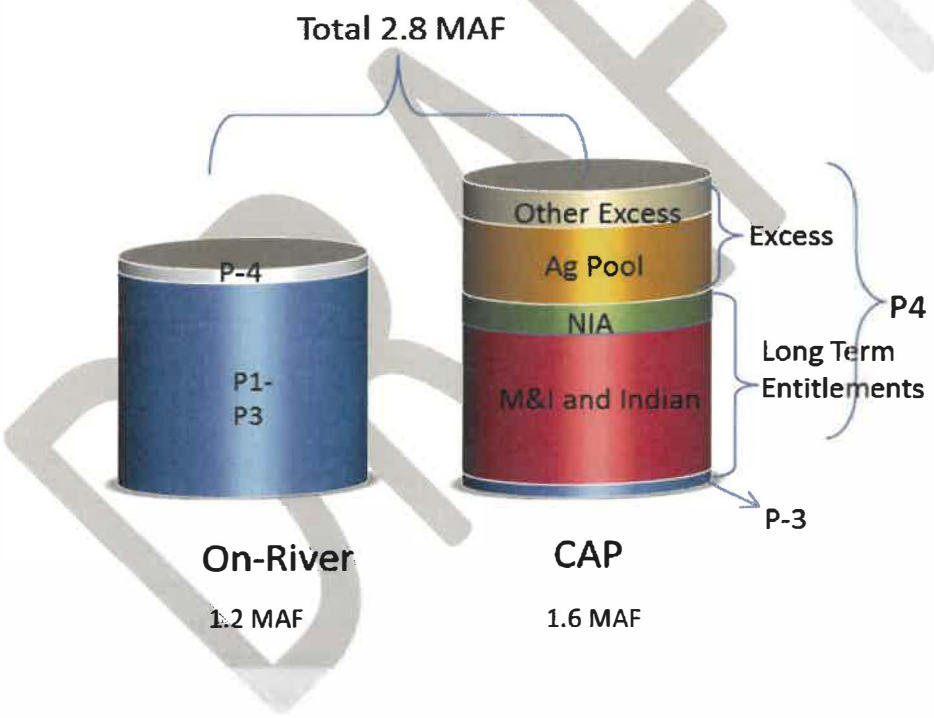


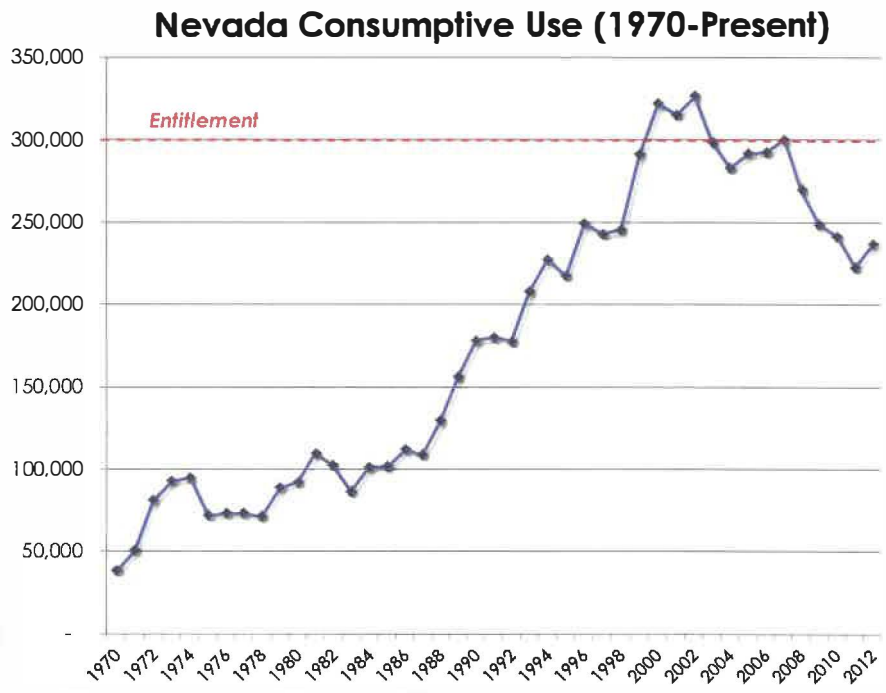
Figure 6 Arizona Colorado River Priorities and CAP Pool (based on 2012 Use)

[30] This water was originally 72,000 AF of on-River P-3 water. Delivery through the CAP system incurs 5% losses resulting in 68,400 AF available.
[31] 1,029,205 acre-feet after 2044 once 47,303 acre-feet of NIA (HIDD) water is converted to M&I priority
[32] Shortage is shared between these two higher priority categories based on the formula developed in the Gila River Indian Community Water Rights Settlement
[33] 317,395 after 2044
[34] 23,782 Af of the 67,300 AF reserved for Indian water right settlements are pending for the White Mtn Apache

Interstate Requests

Recovery of interstate credits and the development of ICUA will be triggered by requests from Nevada for the release of ICUA. The timing and magnitude of these requests can be independent of shortage conditions, and are expected to be driven primarily by Nevada's future demand and the desire to supplement its apportionment of Colorado River water (300,000 acre-feet). Nevada is currently using less than their full entitlement (237,161 AF in 2012[35], see **Figure 7**), but population growth is expected to result in increased future demand.

Figure 7 Nevada's Historic Consumptive Use



The interstate banking program is governed by state statute, and four inter-related agreements.[36] The agreements allow Arizona to store CAP water on behalf of Nevada,[37] as well as develop the mechanisms necessary to enable its recovery and exchange. Upon request of the release of ICUA by Nevada, a portion of Arizona's entitlement will be made available for diversion by Nevada from Lake Mead, and CAP will recover an equal volume of interstate credits and deliver the recovered water to its customers to make up for CAP's reduced diversion.

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[35] USBR Degree Accounting Report

[36] Storage and Interstate Release Agreement (SIRA); Agreement for Interstate Water Banking, as amended; Agreement for the Development of Intentionally Created Unused Apportionment (ICUA); and Recovery Agreement, with subsequent amendments

[37] More specifically, the Colorado River Commission of Nevada holds Nevada's Colorado River apportionment. The Southern Nevada Water Authority has several diversion contracts, the largest being 308,000 acre-feet.

Starting in 2015, Nevada is required to annually provide the AWBA and CAP with a schedule of potential ICUA requests for the following ten year period. A minimum lead time of three years is required for any year in which there is an amendment to the schedule. Nevada is also limited in the magnitude of ICUA that can be requested in any single year: 20,000 acre-feet in the initial year, 30,000 acre-feet in the second year and 40,000 acre-feet any year thereafter. During a declared shortage, up to an additional 13,000-20,000 acre-feet per year may be requested (depending on shortage tier), and additional ICUA will be developed to the extent recovery capabilities exist. On an annual basis, the parties may also agree to additional interstate storage, but the 600,651 acre-feet of existing credits must be recovered by 2063.

Modeling Approach

Quantification of the factors described above, and evaluation of potential future recovery, requires the use of models. The analysis in this Plan relies on two models: the Bureau of Reclamation's Colorado River Simulation System (CRSS) and a custom recovery model that was used to calculate the probability of specific recovery volumes occurring through time, based on a range of supply and demand conditions.

CRSS was used to generate a range of future Colorado River supplies available to Arizona. The CRSS model incorporates parameters such as basin hydrology, upper basin demands and current operating rules. **Table 8** lists some of the key CRSS assumptions used for this Plan. These assumptions are generally conservative in nature, and are part of a regularly updated consensus "Arizona Baseline" developed jointly by ADWR, CAP and the AWBA. Using these assumptions, CRSS generated over one hundred future water supply scenarios, commonly referred to as traces.

Table 8 Key Modeling Parameters & Assumptions that affect Arizona's Colorado River Supply

Modeling Parameters	Modeling Assumptions
Basin Hydrology	Observed Record (1906-2010)
Upper Basin Demands	ADWR Upper Basin Demand Assumption - 4.8 MAF by 2031, then flat
Operation of Yuma Desalting Plant	No
Mexico Shortage Sharing	Yes, Minute 319, extended
Reservoir Operations	2007 Interim Guidelines, extended[38]
Initial Reservoir Condition	2014 Lake Mead elevation (Projected from August 2013 24-month study)

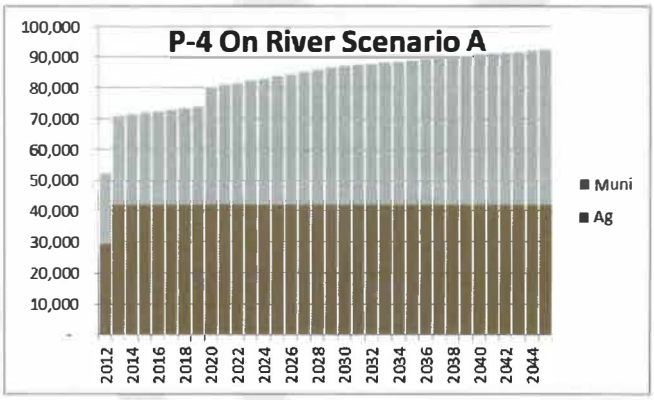
[38] Model does not simulate shortages greater than a Tier 3 (480,000 AF)

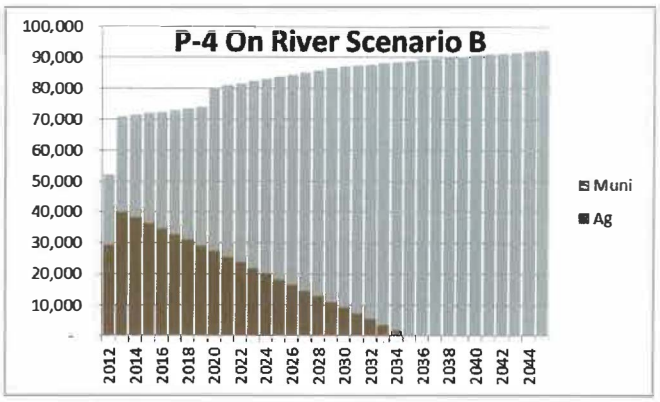
The water supply traces from the CRSS model were incorporated into the recovery model, where the traces were matched against a range of projected on-River and CAP demands. The model determines the instances in which available supplies do not meet the projected demands, and calculates the probability, timing and magnitude of potential recovery of water stored by the AWBA. The recovery model also allows ICUA requests to be analyzed and combined with shortage-based recovery.

To capture the uncertainty of future demand, two different variations were developed for both on-River and CAP utilization.

On-River demand is projected to increase to approximately 1.22 million acre-feet by 2045[39], of which 92,000acre-feet[40] is P-4 on-River. Two variations of the amount of on-River P-4 remaining for agricultural use were developed. In one, the P-4 agricultural demand was held constant through the planning horizon (at 42,000 acre-feet of consumptive use) and in the second, the P-4 agricultural demand is converted entirely to M&I use by 2035 (See **Figure 8**). This later assumption increases the amount of P-4 supply that would potentially require recovery during a shortage.

Figure 8 Projected On-River P-4 Consumptive Use (Scenarios A & B)[41]





[39] This is the same assumption that ADWR called "Scenario A" in its recent NIA reallocation process modeling
[40] 92,000 AF of consumptive use correlates to approximately 146,000 AF of diversion. On-River P-4 entitlements are capped at 164,652 AF of diversion
[41] 2012 actuals

The two variations in CAP utilizations differ in how quickly full utilization of long-term entitlements is achieved; one achieves full-use by 2045(See **Figure 9**), the other achieves full use ten years sooner (**Figure 10**) (See **Appendix A** for detailed assumptions).

Figure 9 CAP Demand Schedule for Scenario A

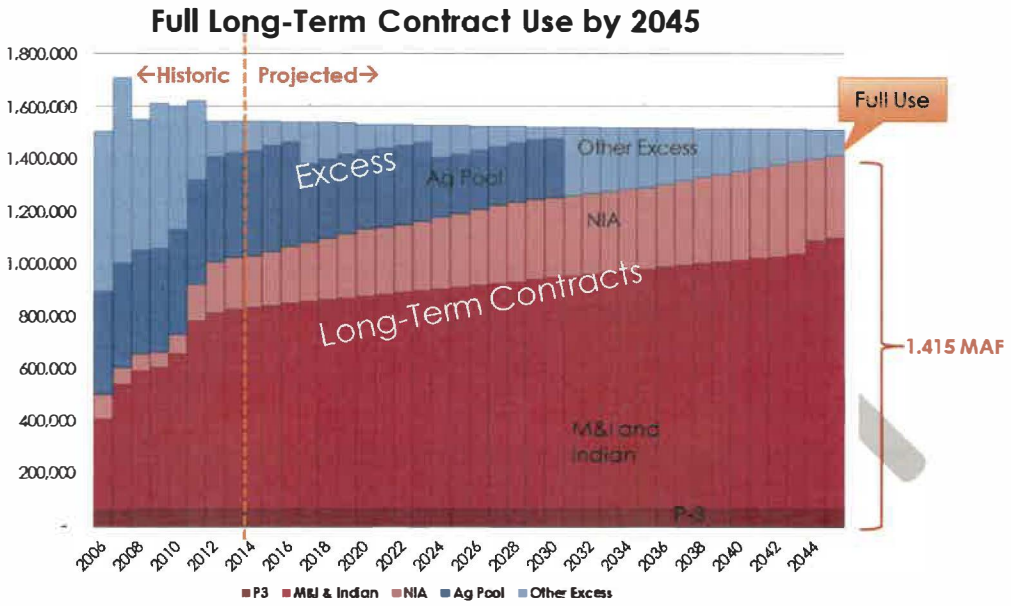
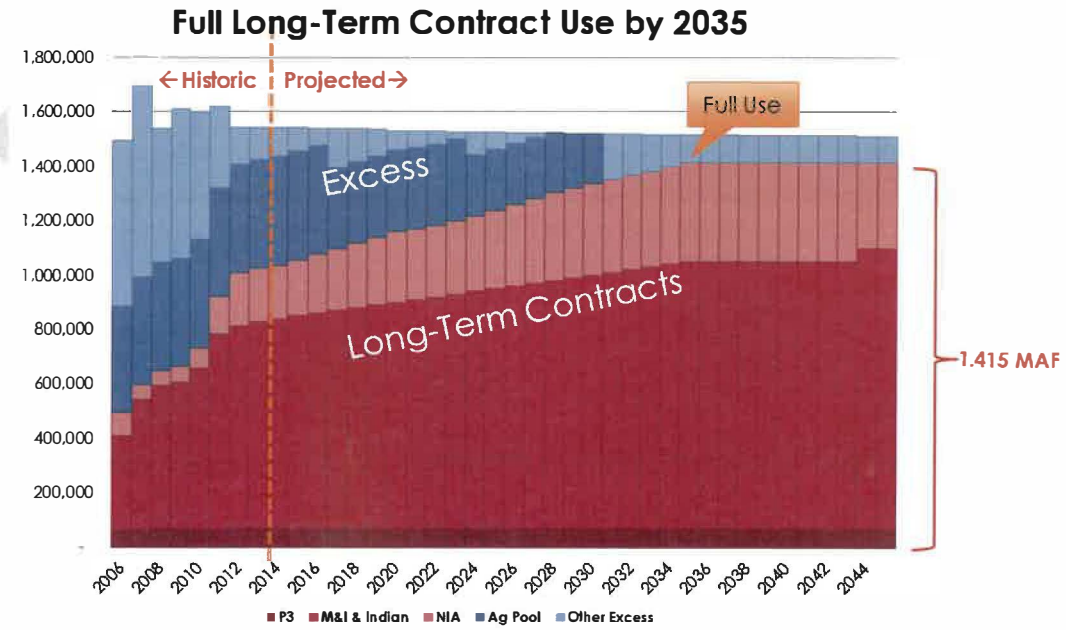


Figure 10 CAP Demand Schedule for Scenario B



For interstate recovery, a larger number of potential outcomes were modeled. The variations included the timing of the first request for ICUA (2025 or 2035), the magnitude of request

(maximum or evenly distributed to 2063), and whether an additional request for ICUA during shortage was made.

Modeling Results

Synthesizing Results

Even with a relatively small number of factors and variations, a large number of model results can be generated. To make these results manageable, two approaches were taken. First, composite scenarios were developed based on specific sets of assumptions. Four combinations of assumptions where chosen to represent a plausible range of future intrastate and interstate demands: Scenario A with Early Steady Interstate, Scenario A with Later Steady Interstate, Scenario B with Early Max Interstate, and Scenario B with Later Max Interstate (see **Table 9**). In comparison to Scenario B, Scenario A assumes less on-River P-4 M&I use by 2045, slower utilization rates of CAP entitlements as well as smaller volumes of future interstate requests.

Table 9 Scenario Assumptions

Scenarios	Intrastate Assumptions		Interstate Assumptions
	On-River Demand	CAP Demand	Nevada Request
Scenario A	Increase to 1.22 MAF by 2045; no conversion of P-4 agricultural use (ADWR's Scenario A for NIA reallocation)	Full long-term contract use by 2045	**Early Steady:** Start in 2025; steady to 2063 (~15 kAF/yr); no shortage request
			Later Steady: Start in 2035; steady to 2063 (~21 kAF/yr); no shortage request
Scenario B	Increase to 1.22 MAF by 2045; full conversion of P-4 agricultural use to M&I by 2035	Full long-term contract use by 2035	**Early Max:** Start in 2025; max request; additional shortage request
			Later Max: Start in 2035; max request; additional shortage request

Second, the recovery model was developed to display probabilistic results of the underlying shortage traces. The recovery modeling tool generates graphs which depict the probabilities that a specific annual recovery volume will be needed, for each year in the planning horizon (see **Figures 11 and 12**). The shade of the cell indicates the probability that the specific volume of recovery will be needed at a particular time. The darker the cell, the higher the

probability is that recovery at that volume will be needed. For instance, for a given year the very pale blue at the top may indicate a 15% probability that 20,000 AF of recovery may be necessary, but the darker blue below indicates there is a 30% probability of 5,000 AF of recovery for that same year. To further aid in the discussion of the results as well as future planning efforts, the planning horizon was divided into three different periods: Near-term (2013-2023), Mid-term (2024-2034) and Long-term (2035-2045). These planning periods are depicted as gold, blue and red on the chart's timeline.

Figure 11 Example of graph generated by the Recovery Modeling Tool

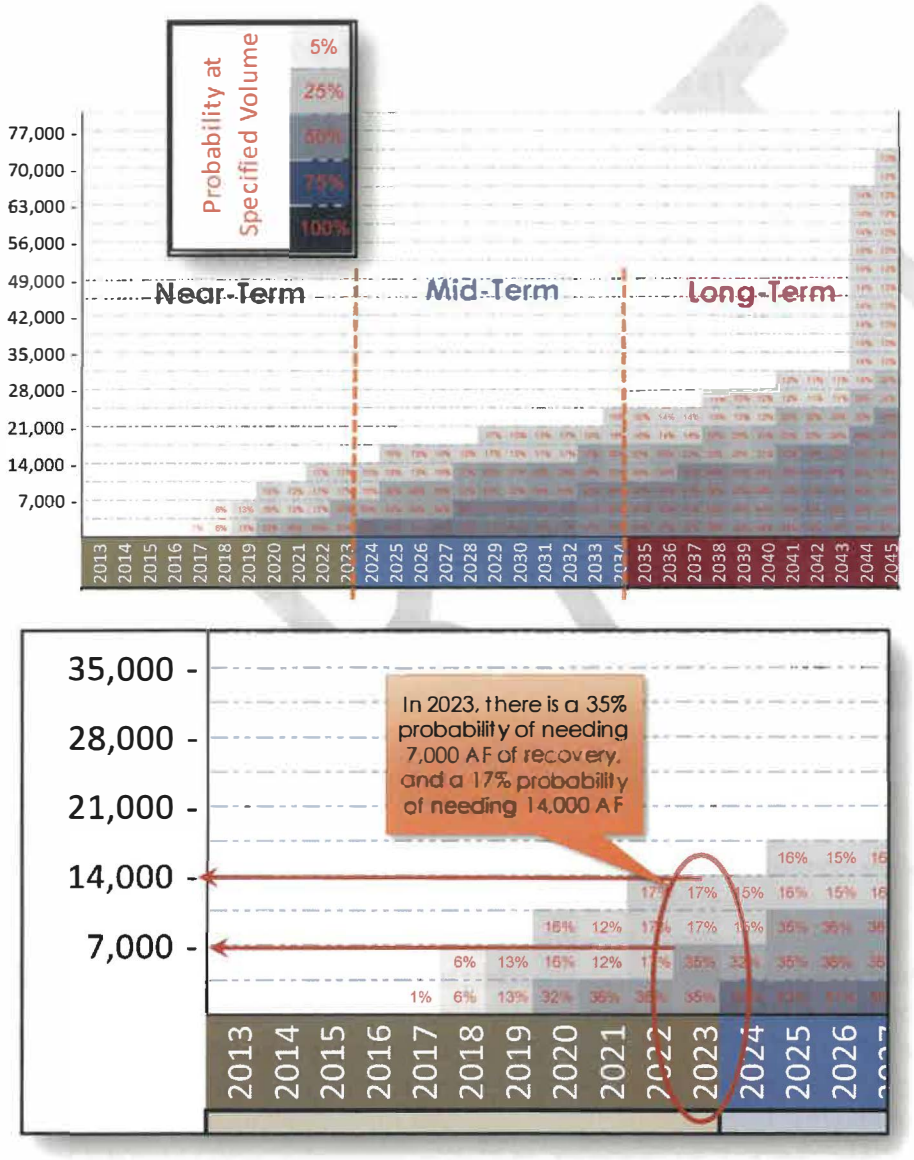


Figure 12

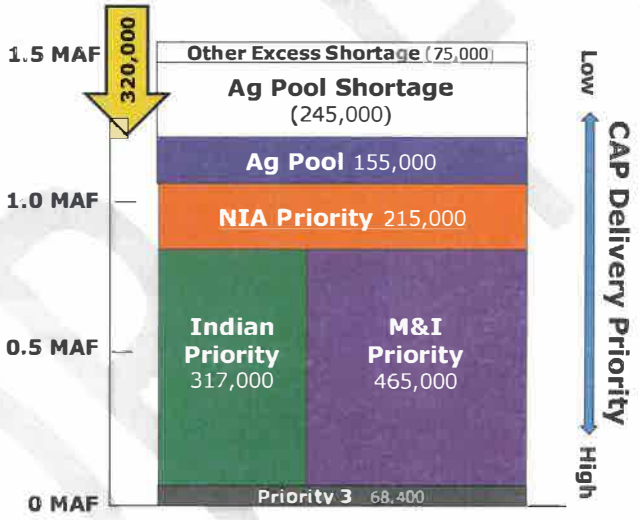
Modeling Results

Intrastate Recovery Component

Modeling results suggest that the earliest intrastate recovery may be triggered sometime around 2017, though the annual volume and probability is very low. Recovery for on-River users and the state's portion of Indian NIA water are projected to occur first and well before recovery for M&I firming which is not projected until at least 2035.

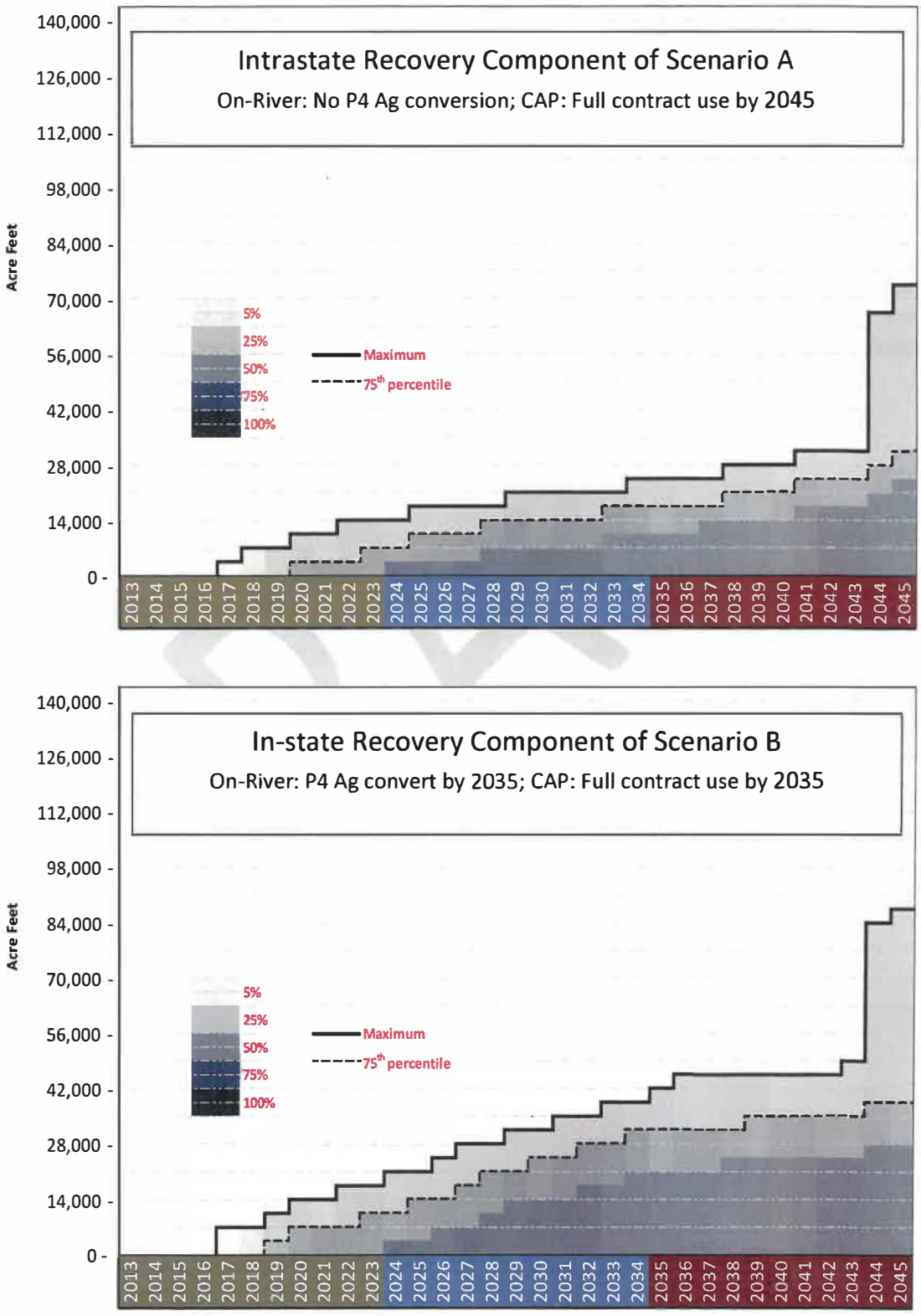
> *It is important to note that CRSS modeling done in September, 2013 shows a high probability (>50%) that a level 1 shortage could occur in 2016, but the recovery modeling indicates that the potential shortage would not intersect with projected on-river or NIA priority pool demands.* ***Figure 13*** *shows projected CAP water orders for 2016 and the approximate impact a level 1 shortage would likely have on the projected delivery schedule. Excess CAP including Ag Pool water would be significantly impacted; however no intrastate recovery would be triggered.*

Figure 13 2016 Level 1 Shortage



The intrastate recovery component results of both Scenario A & B are shown in **Figure 14** before interstate recovery is added. The magnitude and likelihood of annual recovery, in both Scenario A & B, gradually increases through the planning horizon as the use of on-River P-4 and CAP long-term entitlements increases. Shading of the graph indicates the underlying shortage tiers and probability that the annual recovery volume will be necessary. Potential recovery during the Near Term (2013-2023) and Mid Term planning period (2024-2034) consists of a combination of on-River and Indian NIA recovery (see **Appendix B** for more details). Recovery in the Long Term planning period consists of on-River, Indian NIA and M&I firming. The spike in 2044 is due to the conversion of 47,303 acre-feet of water from the NIA priority pool to the M&I user pool in 2044. This increases the volume of firmed water for the M&I pool. Scenario B shows higher recovery volumes due to the faster utilization rate of long-term entitlements.

Figure 14 Scenario A & B before Interstate Recovery Component is Added



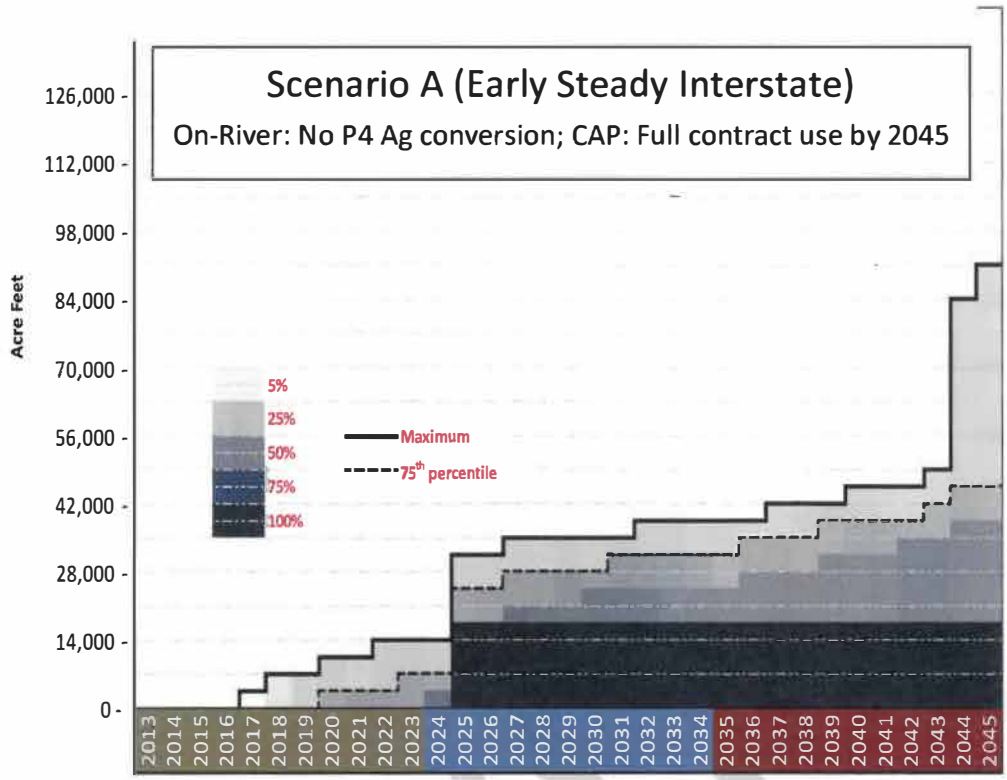
Interstate Component

Interstate recovery could occur as early as 2018 but is not expected to occur until the Mid-Term (2024-2034) or Long-Term planning period (2025 or later) and the maximum volume could be up as much as 40,000 acre-feet plus up to 20,000 acre-feet during shortages. Four different interstate assumptions were created to represent a plausible range of future interstate recovery: early (2025) and steady (15KAF/Y), later (2035) and steady (21KAF/Y), early (2025) and max (40KAF/Y plus shortage if applicable) and later (2035) and max (40kAF/Y plus shortage if applicable).

Combined Results

When the intrastate recovery results (graphs previously shown) were combined with the interstate recovery assumptions mentioned above, four scenarios were generated: Scenario A with Early Steady Interstate, Scenario A with Later Steady Interstate, Scenario B with Early Max Interstate, and Scenario B with Later Max Interstate (See **Figures 15-16**).

Figure 15


Scenario A (Early Steady Interstate)
On-River: No P4 Ag conversion; CAP: Full contract use by 2045
Acre Feet
126,000
112,000
98,000
84,000
70,000
56,000
42,000
28,000
14,000
0
5%
25%
50%
75%
100%
Maximum
75th percentile
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045

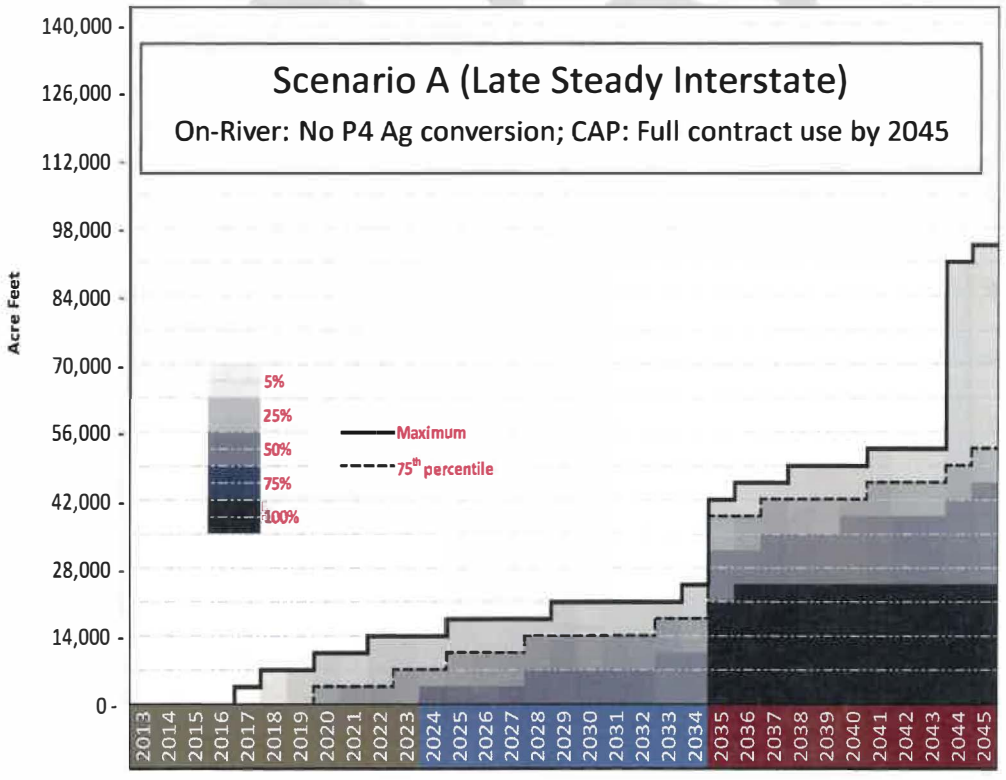
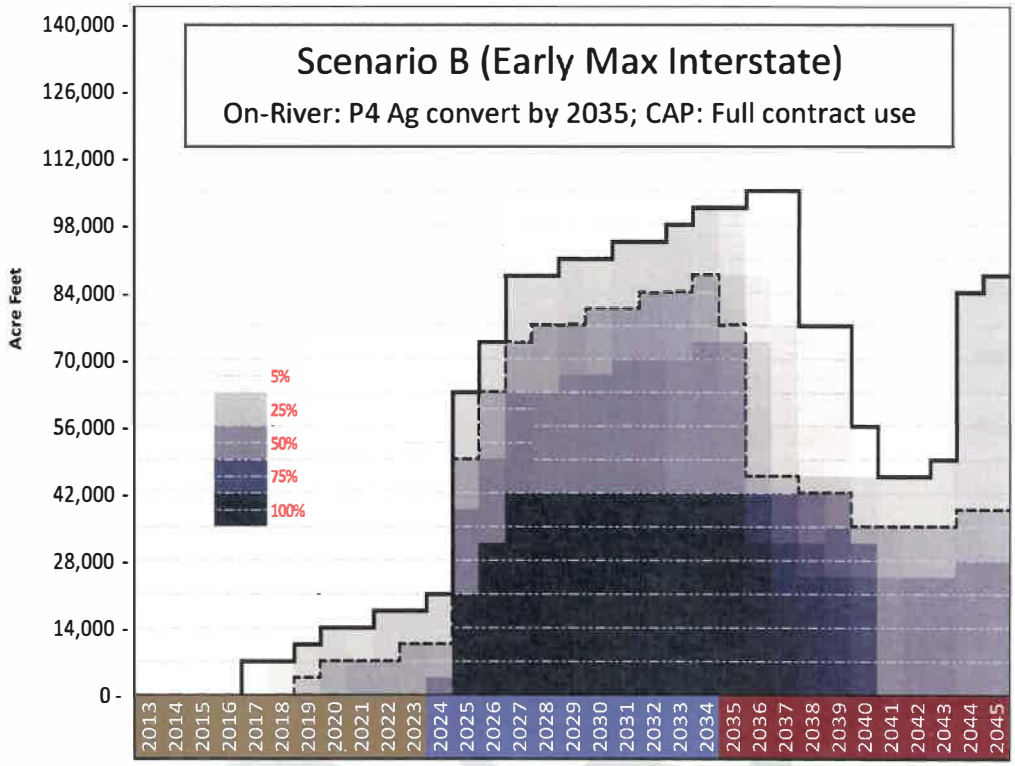
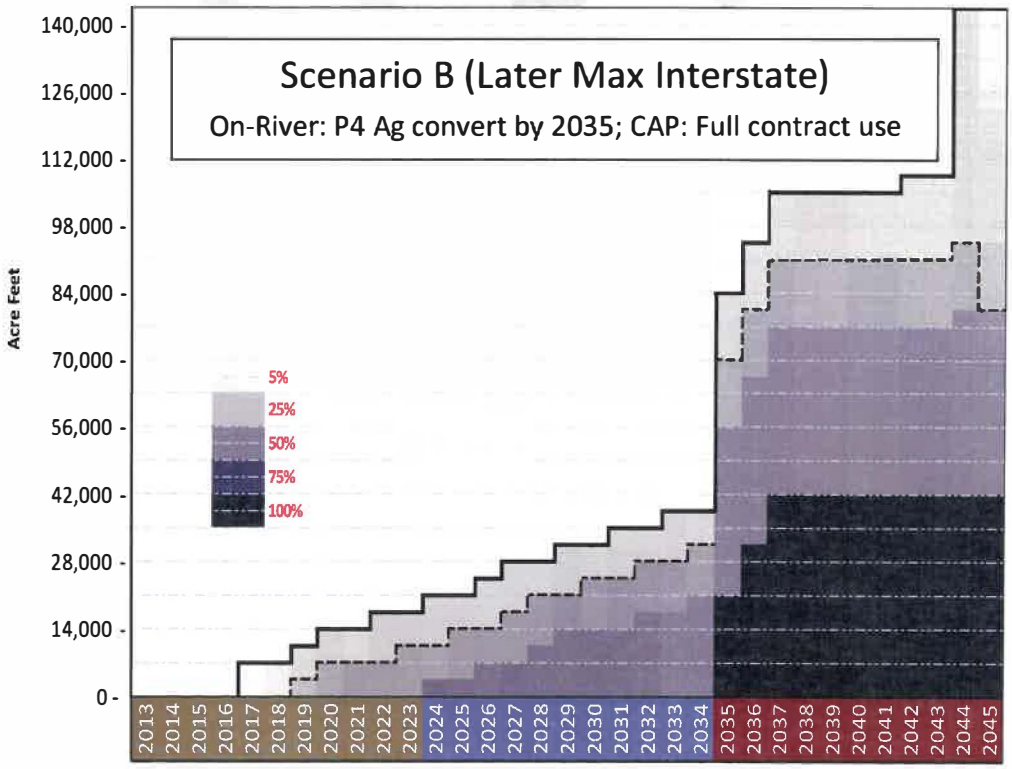

Scenario A (Late Steady Interstate)
On-River: No P4 Ag conversion; CAP: Full contract use by 2045
Acre Feet
140,000
126,000
112,000
98,000
84,000
70,000
56,000
42,000
28,000
14,000
0
5%
25%
50%
75%
100%
Maximum
75th percentile
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045

Figure 16


Scenario B (Early Max Interstate)
On-River: P4 Ag convert by 2035; CAP: Full contract use
Acre Feet
140,000
126,000
112,000
98,000
84,000
70,000
56,000
42,000
28,000
14,000
0
5%
25%
50%
75%
100%
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045


Scenario B (Later Max Interstate)
On-River: P4 Ag convert by 2035; CAP: Full contract use
Acre Feet
140,000
126,000
112,000
98,000
84,000
70,000
56,000
42,000
28,000
14,000
0
5%
25%
50%
75%
100%
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045

Modeling Highlights

- Earliest projected intrastate recovery is 2017 (at 1% probability; Indian NIA and On-River)
- Total intrastate recovery during Near-Term Period is projected to be no greater than 17,000 acre-feet per year, during Mid-Term no greater than 38,200 acre-feet per year and in the Long-Term no greater than 84,500 per year.
- 36% or less probability of needing to recover in any given year during the Near-Term planning period (2013-2023)
- 55% or less probability of needing to recover in any given year during the Mid-Term planning period (2024-2034)
- No M&I recovery projected until the Long-Term planning period (2035-2045) and even then less than 17% probability of needing to recover in any given year

It is evident from the modeling results that the timing and magnitude of Nevada's request plays a significant role in projecting future recovery volumes. The AWBA, CAP and ADWR should have a better idea of future requests from Nevada when SNWA submits its first 10 year plan to the AWBA in 2015.

Figure 17 takes the maximum total projected recovery in each planning period from all scenarios and disaggregates it by recovery type. Note that M&I recovery is not projected until the Long Term planning period. Of the intrastate recovery needs, only On-River and Indian NIA are projected in the first two planning periods. Requests for interstate recovery are not expected to occur until at least the Mid Term period.

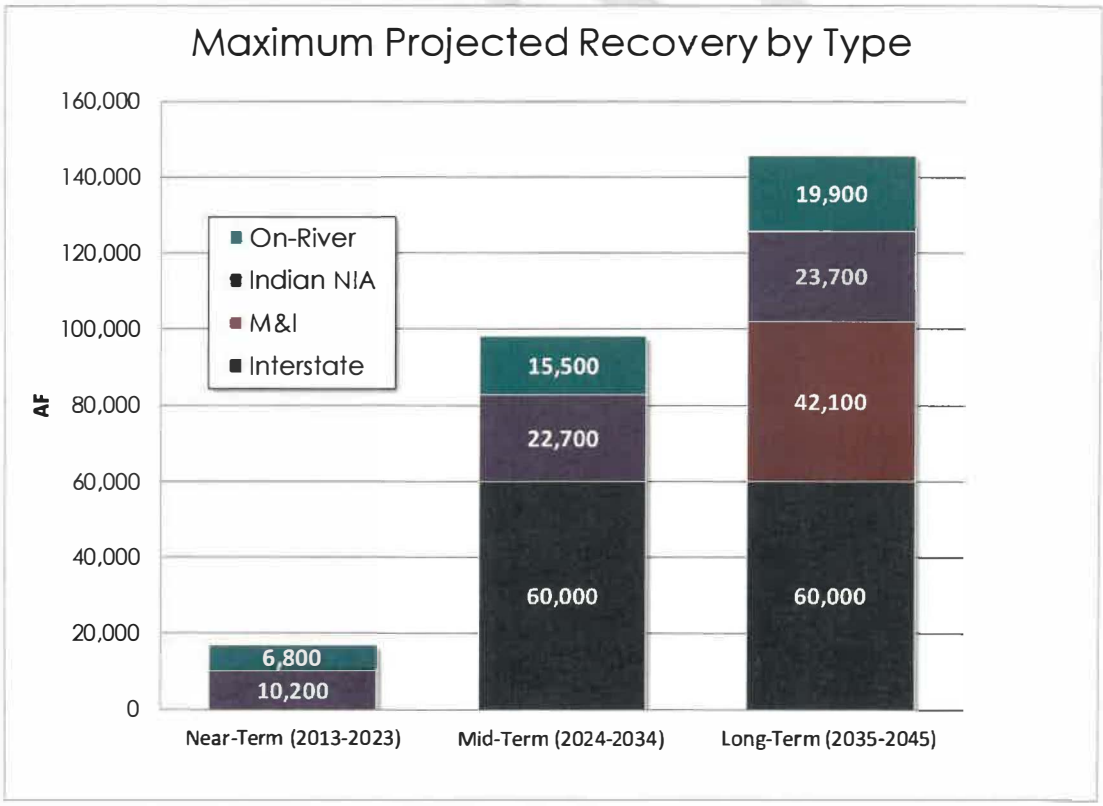


Figure 17

Section 6:
Credit Request, Distribution & Recovery Opportunities

The range of possible future recovery identified in the previous section frames the general likelihood, timing and magnitude of potential recovery activity. This section builds on that information to determine the general volume and location of future recovery. There are three factors that will govern these specific decisions: credit requests, credit distribution, and recovery opportunities.

Credit Request & Distribution

During shortage on the Colorado River, the volume of AWBA credits needed for recovery will be based on requests for firming by on-River P4 contractors pursuant to recovery and exchange agreements (currently only with MCWA); the difference between supply and demand for the M&I priority class of CAP water and up to 23,724 AF for NIA Indian priority CAP water firmed by the AWBA; and up to 40,000 acre-feet per year of request for ICUA by Nevada (up to 60,000 acre-feet during shortage).

Prior to a year in which recovery is required, CAP, in consultation with the AWBA, will use the projected recovery volumes to develop a recovery schedule that identifies the volume of credits that will be utilized, the storage facility at which they were accrued, and the purpose for which they are needed (See Section 7 for a detailed operational timeline). By statute, recovery must occur within the AMA where the original storage took place. Current statutes allow water stored at any USF or GSF in an AMA to be recovered anywhere in the same AMA under a valid recovery well permit, but there are often hydrologic and policy advantages for recovery to take place in the vicinity of the specific storage facility, which is a view many potential recovery partners and water managers have expressed.

CAP's credit requests to the AWBA will need to consider credit funding sources. As discussed in Section 3, a credit's funding source dictates the allowable use(s) of that credit. **Table 10** shows total credits accrued through 2012 by funding source and the percentage stored in each AMA.

Table 10 Credits (AF) accrued by funding source and percentage by AMA[42]

Acre-feet		PHOENIX	PINAL	TUCSON
1,907,724	Ad Valorem	70%	10%	20%
787,316	Withdrawal Fee	37%	50%	13%
403,830	General Fund	10%	76%	14%
82,376	Shortage Reparations	25%	73%	1%
600,651	Interstate	8%	73%	18%

[42] Not all funding source percentages add up to 100% due to rounding

CAP will also consider AWBA resolutions, statues and contractual obligations when developing its request to the AWBA. Based on current AWBA direction, this Plan assumes that recovery for meeting an Indian NIA firming obligation will be met using withdrawal fee credits (pending further legislative appropriations) and on-River P-4 M&I recovery will be met with General Fund credits.

Due to the anticipated shortfall in achieving the M&I firming goal in the Tucson AMA however, this Plan assumes that CAP will not request Tucson AMA credits accrued with withdrawal fees during the planning horizon, in order to preserve the option of using them for M&I firming in the future. The AWBA will need to make a policy decision on this issue at the appropriate time.

This Plan also affirms the statutory provisions that ad valorem credits will be used for CAP M&I recovery, and interstate credits will be used for interstate ICUA requests based on contractual obligations.

The AWBA has not yet developed a policy for the distribution of credits accrued with shortage reparation funds, so this Plan does not include an assumption about the request and distribution of those credits.

By statute and policy, ad valorem credits are to be distributed for the benefit of the county from which monies were collected. To date, Maricopa County funds have been expended exclusively in the Phoenix AMA; Pinal County funds in the Pinal AMA; and Pima County funds have generated Tucson AMA credits. This Plan assumes that the proportion of total M&I subcontract entitlements by county (see **Figure 18**)[43] will form the basis of CAP's request for credits from each of the associated AMAs. [44]

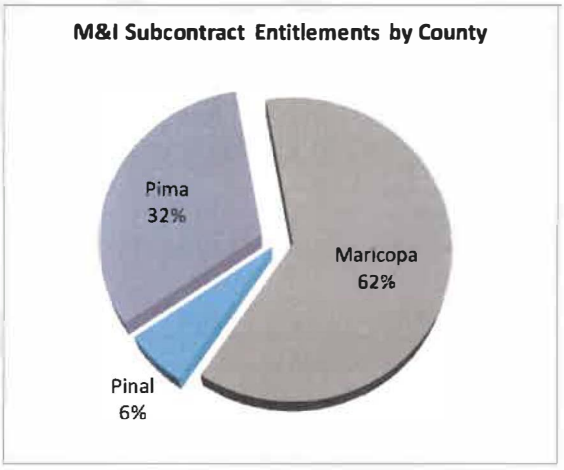


Figure 18

[43] These proportions will change slightly in 2044 when 47,303 of NIA priority water allocated in Maricopa County converts to M&I priority

[44] There has been periodic interest in the concept of inter-AMA firming in which 4-cent funds collected in Maricopa County, for instance, are used to accrue credits in the Tucson AMA. In this Plan, it is assumed that any inter-AMA credits would be used to benefit the County that funded the credits (i.e., the inter-AMA credits in the Tucson AMA would be used to satisfy Maricopa County firming needs).

To help illustrate what a CAP credit request (i.e. recovery schedule) might look like distributed by AMA, the general credit use assumptions made above (and summarized in **Table 11)** were applied to the maximum annual projected recovery volumes for each user type (see **Table 12** below) through the planning horizon. Maximum annual recovery volumes by AMA were then calculated and graphed (see **Figure 19**).

Table 11 General Credit Request Assumptions

TYPE	FUNDING	DISTRIBUTION			BASIS OF DISTRIBUTION
		PHX	PIN	TUC	
Indian NIA	Withdrawal Fee	43%	57%	0%	Based on Phoenix and Pinal storage only
On-River	General Fund	10%	76%	14%	Based on AMA storage (see Table 8)
M&I	Ad Valorem	62%	6%	32%	Based on entitlement by county (see Figure 18)
Interstate	Interstate Funding	9%	73%	18%	Based on AMA storage (see Table 8)

Table 12

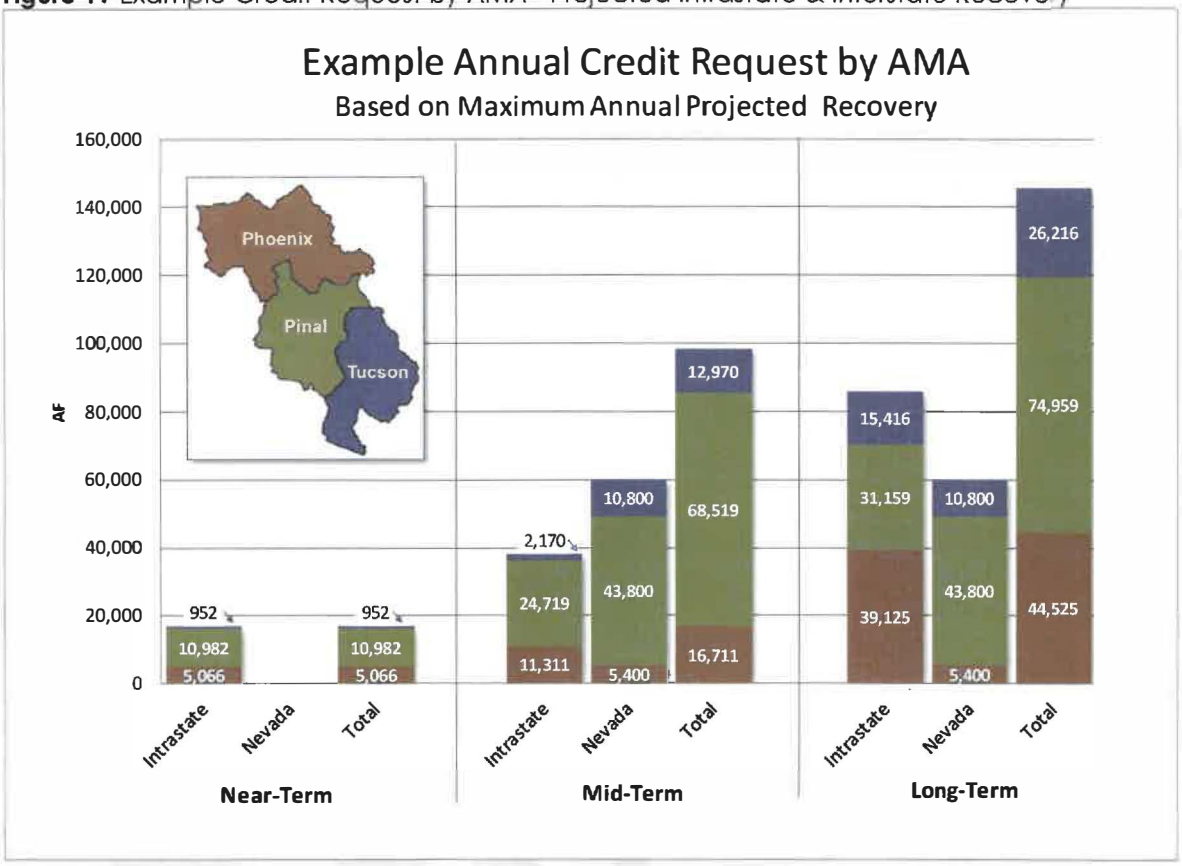
Recovery Type	Maximum Annual Volume (AF)		
	Near-Term (2013-2023)	Mid-Term (2024-2034)	Long-Term (2035-2045)
Indian NIA	10,200	22,700	23,700
On-River	6,800	15,500	19,900
M&I	0	0	42,100
Total Intrastate	**17,000**	**38,200**	**84,200**[45]
Interstate	0	60,000	60,000
TOTAL	**17,000**	**98,200**	**144,200**

Based on this credit request strategy, the Pinal AMA appears to be the focus of recovery for a significant portion of the planning horizon. This is because the majority of the credits (withdrawal fee credits, general fund credits and interstate credits) needed for much of the recovery projected in the Near and Mid-Term planning periods (Indian NIA, On-River P-4 M&I users and interstate requests), are located in the Pinal AMA. Recovery in the Phoenix and

[45] Total generated by the Recovery Model is slightly less than sum of its individual parts

Tucson AMAs will become more significant in the Long-Term planning period when recovery for M&I users is needed and credits generated with ad valorem credits are recovered.

Figure 19 Example Credit Request by AMA - Projected Intrastate & Interstate Recovery



The AWBA and ADWR will review CAP's proposed recovery schedule for consistency with State laws as well as conformance with the AWBA's goals and obligations. With the exception of the statutory provisions regarding the distribution of credits earned with Ad Valorem taxes, and as provided in any agreements entered into by the AWBA, the decision to distribute (or extinguish) any AWBA credits is at the complete discretion of the AWBA (A.R.S. § 45-2457(D)). Consequently, it is imperative that CAP and the AWBA work in close cooperation on the request of recovery credits.

The distribution of ad valorem credits has been a source of some uncertainty in previous recovery planning efforts. In order to provide clarity on this issue, CAP, AWBA and ADWR have developed the following proposal:

For shortages to the M&I priority pool, the AWBA will distribute credits earned with ad valorem funds to CAP, provided the following conditions exist;

- *AWBA has credits available to firm the supply*

- *CAP's recovery schedule is consistent with statutes, rules and policies*
- *Credits will be used to benefit the county for which they were accrued*
- *The shortage to the M&I priority pool is less than 20%*

Modeling suggests that shortages to M&I priority pool rarely exceeds 20%. However, in the event real-time projections indicate that shortages are anticipated to exceed 20%, the AWBA, CAP, and ADWR will initiate a consultation process, with input from stakeholders, to determine the most appropriate way to address the portion of the shortage that exceeds 20%. It is expected that the drought exemption provisions in the State's Assured Water Supply program, which have a similar 20% threshold, will be included in that discussion.[46]

Recovery Opportunities by AMA

In addition to the factors described above, CAP's recovery opportunities will also play a large role in where recovery will occur. CAP has, and will continue to, focus its efforts on developing recovery partnerships that will meet recovery where and when it is needed. This Plan identifies the primary recovery opportunities in each AMA that CAP is actively pursuing. Many of these opportunities have been mentioned in past planning efforts and CAP has commissioned a number of technical studies related to these options to further guide its planning efforts. Most of these opportunities are suitable for both shortage and non-shortage related recovery needs.

Phoenix AMA

The primary recovery opportunities in the Phoenix AMA are:

- **Credit Exchange with the CAGRD**

  The CAGRD currently holds a 7,996 acre-foot M&I subcontract that is prioritized for replenishment in the Phoenix AMA.[47] The CAGRD's use of that subcontract makes it a good candidate for credit exchange. The CAGRD could agree to forego planned deliveries to a USF and, instead, have credits previously stored by the AWBA assigned to the CAGRD's Conservation District Account (CDA), where the credits would satisfy replenishment obligations and are then considered extinguished. The CAGRD would receive the credits it needs to fulfill its replenishment obligations and CAP deliveries would have been reduced.[48] The credit exchange method with the CAGRD was successfully used by CAP to develop a portion of ICUA for Metropolitan Water District of Southern California (MWD).

  In December of 2014, ADWR recommended to the Secretary of the Interior that 18,185 acre-feet of NIA Priority CAP water be reallocated to the CAGRD. The CAGRD is also awaiting finalization of a 2,500 AFY lease of NIA priority CAP water from the White

[46] [AWS Rule citation]
[47] The CAGRD's subcontract was established as a result of several voluntary transfer/relinquishment actions, some of which included provisions governing where portions of the subcontract are to be used.
[48] In the case of replenishment, CAGRD Member pumping has occurred prior to the credit exchange, so the use of permitted recovery wells is not required.

Mountain Apache Tribe. Depending on the level of shortage and demand for higher priority CAP supplies, the CAGRD may be able to perform credit exchange with its NIA priority water as well (i.e. if some NIA supply is still available during shortage).

This Plan recommends that the credit exchange method be used with the CAGRD when possible.

- **Credit Exchange with Subcontractors performing ASR at USFs**

  Subcontractors conducting ASR at a USF in the Phoenix AMA would also make good recovery partners using the exchange method. The physical operation of their recovery wells would be identical. The only difference would be that instead of receiving and storing water at a USF facility, the recovery partner would recover water previously stored by the AWBA.

  To date, 22 of the 36 M&I subcontractors in the Phoenix AMA store CAP water in the same recharge facilities where the AWBA has stored water. Additionally, 24 of the 36 M&I subcontractors have a combined total of 485 recovery wells.[49] In 2012, approximately 30,000 AF of annual storage and recovery took place in the Phoenix AMA. Note that under limited circumstances, such as for the development of ICUA during a non-shortage year, there may also be opportunities to do credit exchange with a CAP subcontractor that was storing to accrue long-term storage credits.

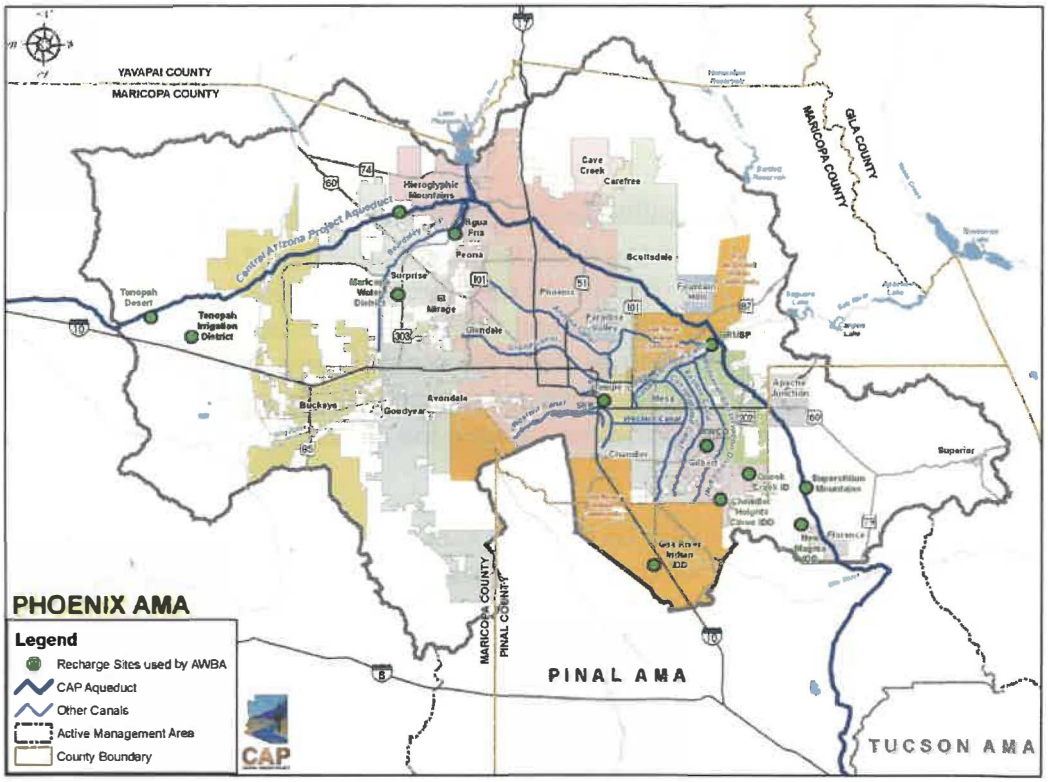
  This Plan recommends that CAP pursue recovery partnerships with subcontractors in the Phoenix AMA that are currently conducting Annual Storage and Recovery (ASR).

- **Indirect Recovery using Third Party Recovery Partners and Regional Water Delivery Systems**

  Many of the M&I subcontractors in the Phoenix AMA, and some of the Indian contractors, are served by regional water delivery systems other than CAP. These include canals and related infrastructure operated by SRP, MWCD and RWCD. There are existing arrangements in which CAP water is wheeled or exchanged, and in each case, the regional systems include permitted recovery wells. These factors provide an opportunity to enter into agreements with the long-term CAP contractors and the third party partners to recover AWBA credits. As discussed in Section 4, indirect recovery requires a CAP recovery partner or in this case a third party recovery partner to have additional recovery well capacity available to use when CAP deliveries are reduced.

[49] Draft Planning for Recovery, CAWCD, February, 2012

Figure 20 Phoenix AMA



With appropriate agreements among all parties, AWBA credits could be recovered by third party recovery partners and delivered to their customers to make up for a reduction in CAP deliveries. Preliminary discussions have occurred between CAP and the primary water districts, and there appears to be initial interest in developing these partnerships.

This Plan recommends that CAP pursue recovery partnerships with subcontractors and the districts operating regional infrastructure to make up for reduced CAP deliveries by recovering AWBA credits.

- **<u>Other Opportunities in the Phoenix AMA</u>**

  The AWBA has stored more than 450,000 acre feet at the Tonopah Desert Recharge Project (TDRP), in the far western portion of the Phoenix AMA, where there is little current groundwater pumping. This physical isolation helps protect the stored water, but will likely require new wells to be constructed when recovery is required. In 2009, CAP commissioned an initial investigation of a potential large-scale direct recovery well field at TDRP. That Phase 1 Study reached a preliminary conclusion that large-scale recovery at TDRP is hydrologically feasible, but would require a potentially large capital expenditure. Before that expenditure could be justified, an analysis of the timing, economics and purpose of proposed recovery will be required, and it is likely that such a project would need to have multiple recovery purposes (e.g., interstate in non-shortage,

and Indian NIA during shortage). It is also possible that a smaller scale project could be developed at lower costs.

Pinal AMA

The primary recovery opportunities in the Pinal AMA are:

- **Indirect Recovery using Irrigation District wells and the Ag Pool**

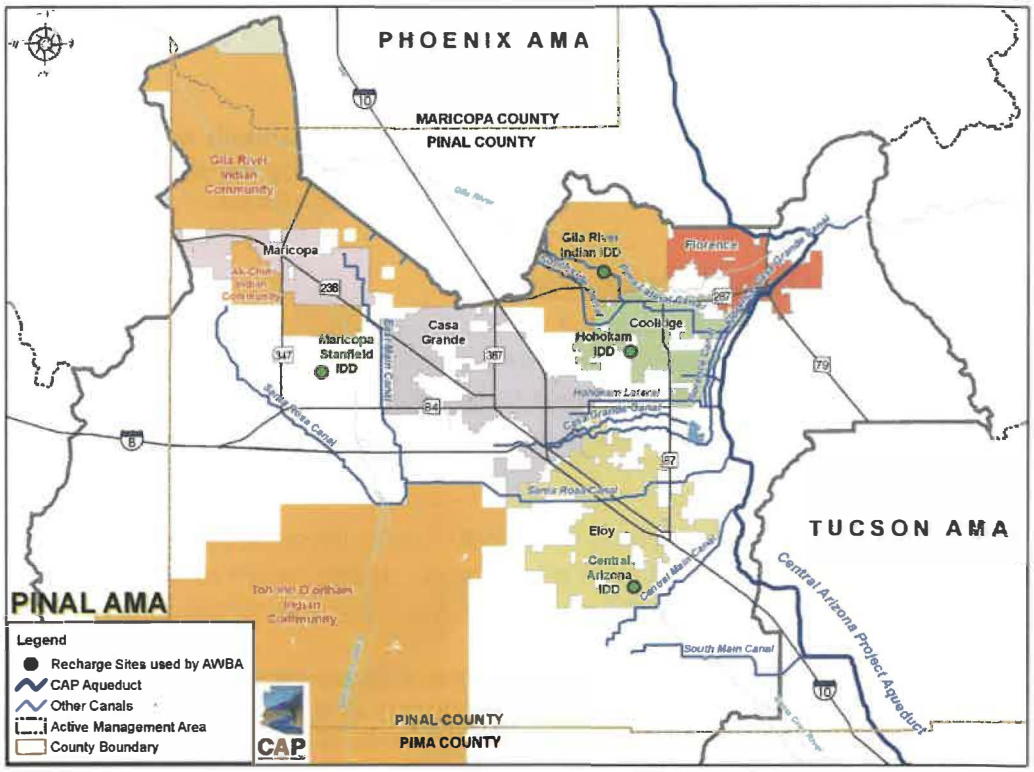
  The Agricultural Settlement Pool (Ag Pool), which is a category of excess CAP water allocated to specific irrigation districts and users, provides a good opportunity for indirect recovery for interstate recovery in non-shortage years. In this arrangement, irrigation district wells are permitted for recovery, and the districts agree to additional pumping (i.e., recovery of AWBA credits) in exchange for a reduced delivery of their Ag Pool water. Since most of the Ag Pool water is used in the Pinal AMA (~80%), the opportunity in this AMA is significant.

  Indirect recovery with the Ag Pool in the Pinal AMA was successfully employed by CAP, in partnership with MSIDD, CAIDD and HIDD, to recover 74,026 acre feet of water on behalf of California (MWD) between 2007 and 2010.[50] To help maintain that partnership, CAP has had a recovery incentive program in place with the three Pinal AMA irrigation districts since 2007. The participants have been compensated annually in order to maintain specific recovery wells. Program expenditures to date have been approximately $1.7 million and are associated with approximately 30,000-40,000 AFY of potential recovery capacity.

  CAP and the irrigation districts have also started to explore options for expanding the existing recovery capacity and developing the associated agreements. The timing is favorable because the districts are already working to increase their well capacity in preparation for potential shortages that will affect excess CAP water supplies, and in anticipation of the first step-down in the size of Ag Pool, from 400,000 AFY to 300,000 AFY in 2017.[51] However, precisely because the Ag Pool is scheduled for reduction over time, and its susceptibility to reduction or elimination in shortage, the opportunity to use this water supply for indirect recovery is time sensitive. Though the irrigation districts may still receive CAP water from GSF partners during shortage and after 2030, the lack of a CAP supply of their own would preclude indirect recovery with the districts.

[50] An additional 6,883 acre feet of ICUA was developed via the credit exchange method with the CAGRD
[51] In 2024 the Ag Pool will be reduced to 225,000 AFY, and in 2030 it reduces to zero.

Figure 21 Pinal AMA



This Plan recommends that CAP increase and formalize its recovery capacity with the three Pinal AMA irrigation districts that participate in the current Recovery Incentive Program.

- **<u>Indirect recovery using Third Party Recovery Partners and Regional Water Conveyance Systems</u>**

  There is an extensive network of canals and other water conveyance infrastructure in the Pinal AMA that may be useful for recovery of stored water. For instance, previous planning efforts have identified the potential opportunity for MSIDD to act as a third party recovery partner for delivering recovered water to the Ak-Chin Indian Community. The Community holds a large entitlement of high priority CAP water[52] that is delivered through the Santa Rosa canal, which first passes through MSIDD. The Santa Rosa canal is currently used to make agricultural deliveries that include both CAP water and groundwater pumped by MSIDD.[53] It might be useful to begin dialogue with both the Ak-Chin Indian Community and MSIDD to evaluate the potential for some type of arrangement whereby a portion of the Ak-Chin Community's full order would be satisfied with the combination of the recovered water and Colorado River water. Collaboration with all relevant parties would be critical to fully inform any such agreement.

[52] In Normal supply conditions, 47,500 acre-feet of former Yuma-Mesa Priority 3 water and 27,500 acre-feet of Indian Priority supply.

[53] In 2012, 311,464 AF of CAP water was delivered to the Santa Rosa turnout.

Further analysis suggests there may be opportunities to explore similar concepts utilizing CAIDD wells, and there may be options to satisfy a portion of the deliveries of Indian priority CAP water to the Gila River Indian Irrigation and Drainage District (GRIIDD) that originate in the Pinal AMA.[54]

This Plan recommends that CAP pursue cooperative agreements with subcontractors and contractors in the Pinal AMA for indirect recovery using the districts wells and regional conveyance systems, especially the Santa Rosa Canal.

- **Development of a Direct Recovery Well field**

  In 2009, CAP commissioned a Phase 1 study to evaluate four potential sites in Pinal County located reasonably near to the CAP canal where a large capacity groundwater production well field could be developed. It also identified underutilized wells adjacent to the CAP canal that could be used to recover AWBA credits for delivery to CAP customers.

  Three of the four sites were located in Pinal AMA. Two of these sites were found to have potential for practical and sustainable groundwater development for recovery operations. One ranged from 12,000-17,000 AFY, the other from 12,000-18,000 AFY.

  This Plan recommends that the Phase 1 study and its recommendations be pursued in a Phase II study. Siting and building direct recovery sites would require significant lead time and should be considered well in advance of the need.

- **Partnering with Potential USF Developers to Create Future Credit Exchange Opportunities**

  Currently there are no USFs in the Pinal AMA and, therefore, credit exchange would not be a viable option until one was operational. In 2009, CAP commissioned a study to investigate the feasibility of developing a USF at a previously identified site in the Pinal AMA. Preliminary results indicated that the site was not ideal for recharge and CAP has not pursued the project. However, there are other potentially suitable recharge sites in the Pinal AMA, and there are CAP M&I subcontracts (totaling 15,103 AFY) that may be interested in utilizing such a facility.

  This Plan encourages the development of USFs in the Pinal AMA for CAP storage by M&I subcontractors. To the extent that subcontractors wish to pursue the USF option, CAP has expressed interest in developing recovery partnerships with these storers.

[54] The GRIIDD itself spans both the Pinal and Phoenix AMAs, but the district's primary deliveries (74,303 AF in 2012) came through the Pima Lateral turnout, which is in the Pinal AMA.

Tucson AMA

The primary recovery opportunities in the Tucson AMA are:

- **Credit Exchange with Tucson Water performing ASR at Clearwater**

  In 2012, approximately 110,000 AF of annual storage and recovery (ASR) took place in the Tucson AMA. The majority of this ASR was done by Tucson Water, the largest CAP M&I subcontractor, at their Clearwater Renewable Resource Facility (CAVSRP, SAVSRP and associated recovery infrastructure). Tucson Water has also been entering into agreements for the storage and wheeling of other subcontract water, notably with the Town of Oro Valley, Vail Water Company, Pascua Yaqui Tribe, and possibly Metro Water. The AWBA has stored approximately 25% of all its Tucson credits in these recharge facilities, setting up the ideal situation for credit exchange.

  This Plan recommends that CAP pursue a recovery partnership with Tucson Water.

- **Credit Exchange with Metro Water performing ASR at Avra Valley USF**

  The Metropolitan Domestic Water Improvement District ("Metro Water") also relies on ASR for a majority of its annual deliveries. Metro stores approximately half of their 13,460 AFY CAP subcontract water at the Avra Valley Recharge Project in Marana, which it purchased from CAP. Currently, Metro's recovery is taking place outside of the Area of Impact of storage; however, Metro Water has plans to develop on-site recovery and conveyance infrastructure. In either case, the AWBA has accrued over half of its TAMA credits at Avra Valley and the near-by Lower Santa Cruz Recharge Project, setting up another ideal situation for credit exchange when Metro's recovery and conveyance infrastructure is built and operational (end of Near-Term period).

  This Plan recommends that CAP pursue a recovery partnership with Metro Water.

- **Credit Exchange with Town of Marana performing ASR at Lower Santa Cruz USF**

  The Town of Marana has a 1,528 AF M&I CAP subcontract, which it currently recharges at the Lower Santa Cruz USF. With more than half of the AWBA's credits residing in the Marana area (including 45% in Lower Santa Cruz), the Town is an obvious candidate for credit exchange recovery. Marana has also applied for an allocation of NIA priority CAP water, and there may be shortage and non-shortage circumstances in which the Town can perform credit exchange with NIA water, if they are successful in receiving an allocation.

  This Plan recommends that CAP pursue a recovery partnership with Marana.

- **Other Opportunities in the Tucson AMA**

  There have been several other recovery concepts considered in the Tucson AMA over the years, including potential direct recovery facilities in the vicinity of the Kai Red Rock GSF and the Lower Santa Cruz USF. These remain under consideration, but both may require infrastructure investments that would need to be carefully evaluated against other alternatives in the Tucson AMA.

Figure 22 Tucson AMA

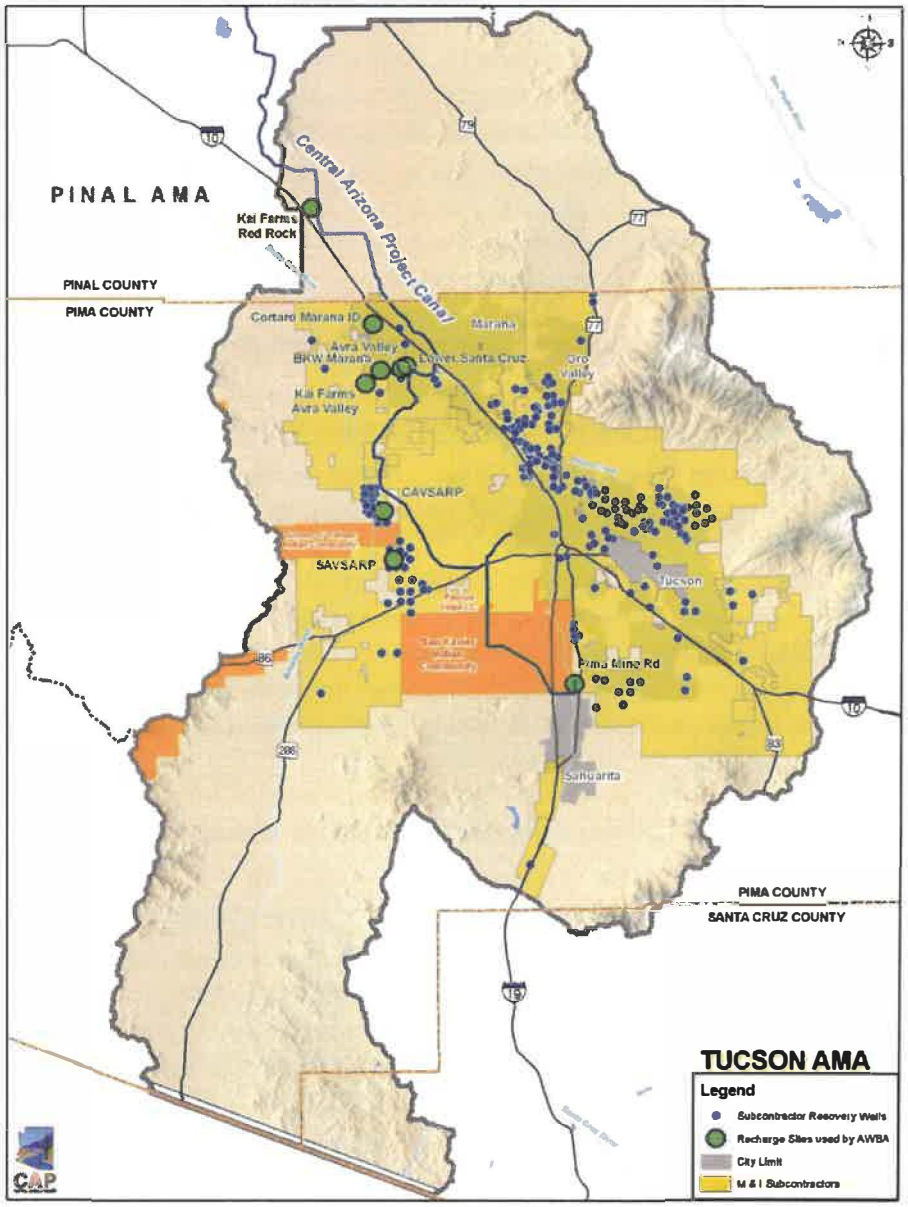


Table 13 Summary of Potential Recovery Opportunities by AMA

Method	Phoenix	Pinal	Tucson
Direct	Possible future well field at TDRP (potentially large capacity)	Possible future well fields, more analysis necessary (12,000-18,000 AFY)	Possible future well field, Red Rock or Lower Santa Cruz USF, more analysis necessary
Indirect	Irrigation Districts – when Ag Pool water is available M&I subcontractors, contractors, and/or third party (i.e. water districts like SRP, MCMWCD, and RWCD)with additional well capacity (quantity unknown but could be large)	Irrigation Districts – (30-40kAF current potential capacity) when Ag Pool is available M&I Subcontractors and Contractors and third party with additional well capacity	
Credit Exchange	CAGRD subcontract (8,000 AF) and NIA (18,000 AF) at USFs Subcontractors performing ASR at USFs (approximately 30kAF) During non-shortage years with subcontractors earning LTSCs		Subcontractors performing ASR at USFs (approximately 110 kAF) During non-shortage years with subcontractors earning LTSCs

Each of these potential opportunities will require additional steps before the recovery capacity can be relied on. Most of these opportunities (summarized in **Table 13**) will require further analysis, technical studies, and the development of specific agreements. Those steps are discussed in the final section of this Plan, "Future Activities & Commitments." However, successful recovery planning also requires consideration of the issues associated with implementation, the focus of the next section of this Plan.

Section 7:
Implementation

Successful recovery depends on the effective implementation of the kinds of recovery opportunities identified in the previous section. While some aspects of implementation may be premature for consideration in this Plan (e.g., terms of yet-to-be developed contracts or agreements), there are important process steps that can be identified, including critical points in the operational timeline and issues related to the collection of recovery costs.

Operational Timeline

The need to recover AWBA credits will be evident prior to the year in which it is required. For the creation of ICUA on behalf of Nevada for instance, there is a requirement for annual submission of a 10-year recovery request schedule, and notification from Nevada three years in advance of recovery. The timing of shortage-related recovery is less predictable, but is triggered by reservoir conditions—specifically Lake Mead elevations—that develop over a number of years. As the forecasted probabilities of shortage increase, the level of preparation should increase. In the year immediately preceding shortage-related recovery, there are specific provisions of existing agreements that are triggered (e.g., MCWA must notify CAP of its intent to exchange LTSCs), and CAP expects to include similar triggers in the agreements it develops with recovery partners.

Before Recovery Year

In the latter part of a year immediately before the expected recovery, there will be a number of process steps that will involve CAP, AWBA and ADWR (see **Table 14**). In particular, CAP will request credits from the AWBA by submitting a recovery schedule. The recovery schedule will identify the projected number of credits needed, including those credits MCWA plans to exchange with CAP, the purpose of recovery and the preferred locations of that recovery. The AWBA and ADWR will review CAP's recovery schedule for consistency with State laws, adopted policies and water management objectives If any changes to the schedule are proposed, the AWBA, ADWR and CAP will work in cooperation to modify the schedule. The AWBA will incorporate the final recovery schedule into its Annual Plan of Operation (APO)as part of its requirement to identify the projected amount, location , purpose, and recipient of credits that will be distributed in that year.

During Recovery Year

The primary activities during a recovery year will be dictated by the terms of the agreements between CAP and its recovery partners; however there are also credit transfer actions that will need to occur. By statute,[55] long-term storage credits can be recovered provided they were transferred into the account of the entity doing the recovery (i.e., CAP or CAP's recovery partner) by the end of the calendar year. That

[55] ARS§ 45-852.01(E)(1) and (F)

offers some flexibility of when credits are transferred, which can help ensure that credits are used judiciously to accomplish the goals and obligations of the AWBA.

After Recovery Year

Final accounting of credits recovered in the previous year can only occur after the recovery year has ended and after all Annual Water Use Reports have been submitted to ADWR for review and reconciliation, if neccessary. . The final accounting of credits will be determined by ADWR and identified in the AWBA's Annual Report.

Collection of Recovery Costs

Beneficiaries of recovery are expected to pay the associated costs. Interstate recovery costs are borne by SNWA, while intrastate recovery costs are borne by the class of users whose supplies are made firm by virtue of the recovery.

Interstate

Recovery costs for interstate banking with Nevada are assigned to SNWA. These costs include energy, O&M, and any capital for recovery facilities. The existing Interstate Recovery Agreement, executed on June 9, 2010, sets forth the development of recovery facilities and payment responsibilities. The recovery costs for the first 50,000 acre-feet of credits were pre-paid to CAP, who shall be responsible for the cost of recovery of that water; SNWA will pay for the recovery of the remaining credits. If new facilities are constructed solely to recover water for SNWA, SNWA is required to pay all of the associated costs. If new facilities are constructed for multiple purposes, including recovery for SNWA, then SNWA will pay the proportional share of costs associated with interstate recovery. SNWA will pay its share of operating costs associated with recovery for its benefit. The development of a recovery schedule for SNWA should not unreasonably allocate the higher recovery costs to SNWA. Likewise, SNWA may also benefit from cost saving measures, such as transfer of credits in-lieu of deliveries of water, so long as these opportunities do not burden Arizona water users.

On-River P4 Users - Mohave County Water Authority (MCWA) Agreement

The on-River P4 users are obligated by existing agreements and statutes to pay the recovery costs borne by CAP and to either pay the AWBA the replacement costs for the LTSCs or by mutual approval, assign credits to the AWBA in lieu of paying the replacement costs. The cost components for recovery will reflect the mix of recovery methods used to firm P4 on-River uses. The agreement with MCWA adds additional cost provisions for the contracts included in that agreement; including a provision that MCWA shall not be required to pay more than the cost of recovering credits for delivery to CAP customers It is then up to the MCWA and the signatories to the MCWA Agreement to determine how the costs for firming their supplies will then be borne by their users.

M&I

The cost of recovery for M&I firming will be collected from all M&I subcontractors. CAP anticipates including those costs in the calculation of fixed OM&R that is applied to municipal & industrial subcontractors (i.e., non-Federal deliveries). This approach is

consistent with Section 4(a) of the Revised Stipulation, which provides CAP with the authority to use an alternate method for calculating Fixed OM&R charged to M&I priority water. The M&I priority pool is quite large, and the percentage reductions to the pool are expected to be small (maximum of 6% in 2045 in Scenario B), the recovery costs are likely to have a very modest impact on the overall costs. For example, 20,000 acre-feet of recovery at $90/AF, collected over 600,000 AF of M&I priority deliveries, would translate to about $3/AF. However, that 20,000 AF reduction to the M&I pool would only occur if the overall CAP supply had been reduced by at least 25%, which would have much larger cost implications as fixed costs are spread over a smaller delivery volume. The actual impact of these costs would be determined by the CAP Board as part of its rate setting process.

Indian NIA

The cost collection method associated with the State's obligation to firm up to 23,724 AF of NIA priority water pursuant to the Arizona Water Settlement Act has not been determined. It is generally expected that these costs will be collected from the non-Federal CAP customers in a manner similar to the M&I priority described above.

Table 14 Recovery Operational Timeline

Year	Month	Task
Before (Preparation)	April	-24 Month Study from USBR provides likely water availability (i.e., Normal, Surplus or Shortage) for the upcoming year
	June	-SNWA provides preliminary request for ICUA for the upcoming year and an estimate for the two succeeding years -Initial discussions with on-River P-4 M&I users on potential water use
	August	-USBR indicates water availability for the upcoming year (i.e., Normal, Surplus or Shortage) based on 24 Month Study -CAP advises customers of expected CAP water availability for upcoming year
	September	-CAP sends AWBA a preliminary Recovery Schedule -AWBA and ADWR review the preliminary Recovery Schedule -SNWA makes final request to the Secretary for the release of the ICUA -On-River water orders due to USBR -Preliminary Annual Plan of Operation (APO), which includes preliminary Recovery Schedule, is presented to the AWBA Commission
	October	-Deadline for customers to submit CAP water orders for the upcoming year and estimates for the two succeeding years -Deadline for MCWA to notify CAP its intent to exchange LTSCs -CAP sends AWBA a draft Recovery Schedule
	November	-AWBA presents its preliminary APO to the GUACs -CAP holds annual customer workshop -CAP and AWBA work cooperatively on any adjustments to draft Recovery Schedule
	December	-Final Draft APO is presented to the AWBA Commission for adoption -Deadline for MCWA to transfer credits to CAP prior to Exchange Year -USBR makes official determination of water availability for next year in their Annual Operating Plan (AOP) signed in December
During (Recovery)	During Year	-CAP works with recovery partners to monitor and ensure compliance with contractual responsibilities
	Quarterly	-CAP sends AWBA any substantive changes to the Recovery Schedule -AWBA incorporates the changes in their quarterly reports
	December	-CAP sends AWBA a recovery report with accounting of credit utilization
	By End of Year	-AWBA credits must be transferred to recovery partner (or 3rd party partner)
After (Reporting)	March	-Deadline for CAP and recovery partners to submit annual reports to ADWR
	June	-Reconciliation of annual reporting, if necessary
	June	-Final accounting of credits recovered in previous year in AWBA's Annual Report

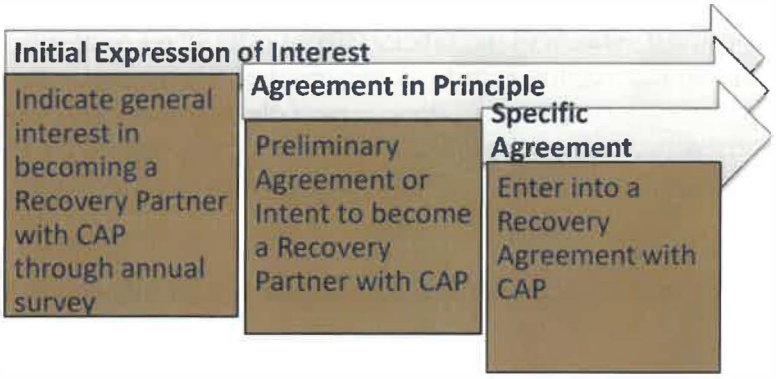
Section 8:
Future Activities & Commitments

In order to prepare for the potential recovery identified in this Plan, CAP is committed to entering into short and long term recovery agreements with recovery partners to meet projected recovery capacities. CAP is also committed to commissioning the technical studies required to develop the infrastructure for new recovery projects if necessary. And finally, ADWR, AWBA, and CAP are committed to ongoing collaboration, monitoring and analysis to ensure that recovery modeling assumptions remain reasonable and up to date.

Recovery Agreements

CAP is working to find interested CAP contractors and subcontractors to enter into long-term recovery agreements to meet potential projected recovery demands. To identify interested parties, CAP will periodically send out recovery partner surveys (see example Survey in **Appendix C**). Because the planning horizon spans over thirty years, there may be varying levels of interest and commitment between recovery partners and CAP through the planning periods (**Figure 23**). Agreements must have the flexibility required to accommodate customer's changing operations through time, yet provide enough certainty that recovery can be met when needed.

Figure 23 Varying Levels of Commitment between CAP and Recovery Partners



CAP will annually assess and compare its existing and planned recovery capacity (by method and location) with projected needs within the short-term, mid-term and long-term planning horizon. Possible actions by CAP to increase recovery capacity if needed include:

-entering into new recovery partner agreements, increasing specificity of agreements through time (Figure above)

-increasing capacity (both committed and potential) on existing agreements,

-developing new direct recovery facilities if necessary (sufficient lead time necessary)

Technical Studies and Future Project Feasibility

New direct recovery projects may also be necessary, depending on the number and volume of recovery agreements secured versus the potential projected recovery capacity needed. There have been a number of technical studies already conducted (see Section 6) and the findings of these studies will be used to guide next steps. In the short-term, CAP will focus its technical efforts in the Pinal AMA to evaluate increasing recovery capacity with the irrigation districts during non-shortage and shortage years, with special attention to water quality issues. CAP will also continue to evaluate potential recovery well field locations in the Pinal, Tucson, and Phoenix AMA and obtain input from stakeholders.

Monitoring & Updating

CAP, ADWR and AWBA will regularly monitor factors influencing Colorado River supplies available to Arizona, as well as Arizona demands and requests from Nevada, in order to ensure that the modeling assumptions used in any future recovery projections remain reasonable. If anything substantial has changed or is expected to change that could significantly alter the recovery projections, the three entities will update the model and analyze the new results. These results will then be shared with stakeholders with opportunity for input.

Colorado River Status

CAP, ADWR and the AWBA will regularly monitor shortage probability and available supplies to Arizona using the USBR's 24 month water forecast and CRSS modeling. The organizations will use the latest versions of the official CRSS model when available. This includes the version due out soon by the Bureau of Reclamation that incorporates alternative hydrologies (paleo resampled and downscaled climate) in order to conduct a sensitivity analysis with the hydrology (observed record resampled) used in this Plan. CRSS runs will be periodically updated and input into the model in order to stay as current as possible.

CAP & On-River Utilization and how potential shortages might impact firmed supplies

CAP and ADWR will regularly monitor on-River and CAP system demand and update future demand projections in the Recovery Modeling Tool when appropriate. Each October, CAP receives customers' water orders for the following year as well as estimates of water orders for the next two years. Using this data, as well as analyzing historical trends, CAP will update modeling demand assumption inputs when necessary.

Discussions with Nevada

As part of a cooperative planning effort, SNWA, AWBA, CAP and the Colorado River Commission of Nevada (CRCN) have agreed to meet annually beginning in 2015, or sooner, if elevations in Lake Mead are expected to be at or below the1075 ft. elevation, to discuss Nevada's plans for requesting ICUA and the associated recovery costs. Because the timing and magnitude of Nevada's request for ICUA will play a significant

role in Mid-Term and Long-Term planning period volumes, AWBA and CAP will encourage these discussions to occur earlier and include efforts to better understand SNWA's long-term plans beyond the 10 year planning horizon currently required and work collaboratively with them on ways to best meet both intrastate and interstate recovery needs.

AWBA Activities

Because recovery and water storage are not mutually exclusive, continued planning for both is essential for meeting AWBA responsibilities moving forward. This recovery plan can assist the AWBA in its future planning efforts by providing both a projection of credits remaining available after the current planning period and insight for making operational decisions.

Credit Balances

Although this Plan's primary focus is the recovery of AWBA credits through 2045, the need to recover will continue well beyond the current planning period. For this reason, it is important to have an understanding of the credits that will be used during the planning period, and the volume and types of credits that are anticipated to remain available for future use. This Plan shows that even with the maximum projected recovery for the planning period, three-fourths of the AWBA's currently accrued intrastate credits will still be available after 2045 (**Figure 24**). However, based on the credit distribution assumptions listed in **Table 11** of Section 6 of the Plan, the balances vary considerably by fund type. These credit balances are particularly useful for the AWBA as it re-evaluates its the 100-year firming targets.

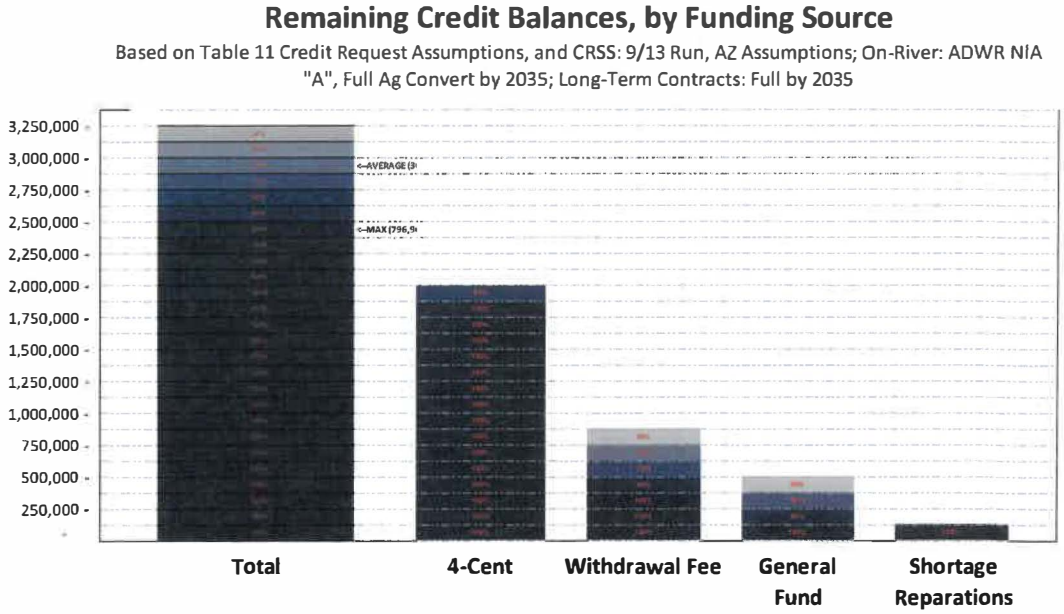


Figure 24 The remaining intrastate credits after 2045 based on maximum instate recovery scenario and the credit distribution assumptions in Section 6 of the Plan

On-River P-4 M&I Firming

As indicated earlier in Section 6, the majority of the AWBA's general fund credits available for firming on-River P-4 M&I supplies are located in the Pinal AMA (76%). Additionally, the general fund credits currently reserved for use by MCWA are also in the Pinal AMA. While shortage reparation credits can also be used for this purpose, the majority of these credits (73%) are also in the Pinal AMA. Although limited in volume, it may be beneficial to utilize credits accrued in the Phoenix and Tucson AMAs to provide broader recovery options and to balance costs for On-River P-4 M&I users, particularly in the near and mid-term timeframes. For these reasons, the AWBA may also want to identify entities interested in exchanging Tucson or Phoenix AMA credits for General Fund or shortage reparation credits accrued by the AWBA in the Pinal AMA.

Future Storage Activities

Each year, the AWBA develops a plan of operation that documents how progress will be made on its goals and obligations for the following year. There are several factors that must be considered when developing the plan of operation. These include the availability of Excess CAP water, storage capacity, and funding sources. These factors have historically limited the amount and type of credits accrued by AMA, and the specific locations where credits were accrued within the AMA.

CAP's recently adopted policy on storage priorities at its facilities[56] eases the AWBA's limitations on storage capacity, but challenges still exist at other USFs and GSFs. As CAP begins to enter into agreements with recovery partners, those agreements will also assist the AWBA in making future storage decisions. By defining where recovery opportunities exist, the AWBA can seek storage opportunities in those areas. This is consistent with long-standing views that storage and recovery should be more closely connected, including many of the concepts that are currently under consideration as part of ADWR's Enhanced Aquifer Management stakeholder process.[57] In addition, diminished Excess CAP supplies are highlighting the need to stretch available resources while making further progress on firming goals.

The AWBA has already made efforts to emphasize recovery as part of storage decisions. Recognizing that CAP M&I subcontractors in the Tucson AMA receive their entitlement primarily through annual storage and recovery, the AWBA, working with Tucson AMA stakeholders, developed a priority system that focuses AWBA storage first at facilities with existing or planned recovery wells (eg. Clearwater, AVRP, and Pima Mine Road), leaving storage at GSFs and Lower Santa Cruz Recharge Project for last. Because of the potential for recovery partnerships at these AS&R facilities, the AWBA may want to pursue opportunities to increase storage at these facilities.

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[56] "CAWCD Underground Storage Facility Capacity Priority Policy", 5/2/2013. http://www.cap-az.com/index.php/board/policies?view=download&fileId=2

[57] Proposals for differing cuts-to-the-aquifer being considered in ADWR's EAM process would not affect AWBA's current credits, but could affect future storage. http://www.azwater.gov/azdwr/WaterManagement/AMAs/EnhancedAquiferManagementStakeholderGroup.htm

Although not available at this time, the AWBA may also want to consider storage opportunities at possible USFs in the Pinal AMA in the future, particularly those where AS&R will be possible. Doing so, would not only expand recovery opportunities, but offer reductions in recovery costs.

Appendix A

Assumptions for 'Full CAP Build-Out by 2045' Scenario

1. **Ag Settlement Pool**: Assumes full usage of the tiered Ag Settlement Pool allocation (400,000 AFY through 2016, 300,000 AFY from 2017 through 2023, and 225,000 AFY from 2024 through 2030).
2. **P3 Priority**: Assumes continued full utilization of P3 contracts by Indian and M&I users across the entire period (68,400 AFY).
3. **Indian Priority, used by M&I**: Any existing (as of 2013) long-term leases or exchanges of Indian water will be fully utilized by 2045. Assumes an additional 55,000 AF of Indian Priority water is leased and fully utilized by 2045. The White Mountain Apache Tribe's Indian priority allocation (1,218 AF) is assumed to be leased and fully utilized by 2045.
4. **Indian Priority, used by Indians**: Assumes full usage of all remaining Indian Priority water by Indian users, after leases and exchanges have been subtracted, by 2045.
5. **M&I Priority, used by M&I**: By 2045, assumes full utilization of M&I subcontracts (620,678 AF) as well as full utilization by Scottsdale of their 12,500 AF San Carlos Apache lease (which is M&I priority water allocated to the San Carlos Apache Tribe). It also assumes full utilization of former Hohokam assignment water in 2044 and 2045 after it converts from NIA priority.
    a. **M&I Priority, used by Indians**: Assumes full utilization of the remaining M&I priority water allocated to the San Carlos Apache Tribe that is not used by Scottsdale (18,145 – 12,500 = 5,645 AF) by 2045. This volume is included in the "M&I" pool, not differentiated by User.
6. **NIA Priority, used by M&I**: Assumes White Mountain Apache Tribe has been allocated 23,782 AF of NIA water, and that it is leased by 2016 and fully utilized by M&I lessees by 2045. Also assumes continued full use of former Hohokam assignment water through 2043 until it converts to M&I Priority (47,303 AF), and continued full use of former RWCD water (5,000 AF) through 2045. The first round (55,255 AF) of currently unallocated NIA water (totaling 96,295 AF) is assumed to be allocated to M&I users by 2015 and fully utilized by 2020. The second round up for reallocation (41,040 AF) is assumed to be allocated to M&I users by 2023 and fully utilized by 2028.
7. **NIA Priority, used by Indians**: Assumes full usage of all remaining NIA pool water by Indian users (including GRIC and Tohono O'odham), after leases and exchanges have been subtracted, by 2045. Also assumes the remaining pool volume (43,518 AF) reserved for future Indian Settlements is allocated by 2036 and fully utilized by 2045.

Assumptions for 'Full CAP Build-Out by 2035' Scenario

1. **Ag Settlement Pool**: Assumes full usage of the tiered Ag Settlement Pool allocation (400,000 AFY through 2016, 300,000 AFY from 2017 through 2023, and 225,000 AFY from 2024 through 2030).
2. **P3 Priority**: Assumes continued full utilization of P3 contracts by Indian and M&I users across the entire period (68,400 AFY).
3. **Indian Priority, used by M&I**: Any existing (as of 2013) long-term leases or exchanges of Indian water will be fully utilized by 2035. Assumes an additional 55,000 AF of Indian Priority water is leased and fully utilized by 2035. The White Mountain Apache Tribe's Indian priority allocation (1,218 AF) is assumed to be leased and fully utilized by 2035.
4. **Indian Priority, used by Indians**: Assumes full usage of all remaining Indian Priority water by Indian users, after leases and exchanges have been subtracted, by 2035.
5. **M&I Priority, used by M&I**: By 2035, assumes full utilization of M&I subcontracts (620,678 AF) as well as full utilization by Scottsdale of their 12,500 AF San Carlos Apache lease (which is M&I priority water allocated to the San Carlos Apache Tribe). It also assumes full utilization of former Hohokam assignment water in 2044 and 2045 after it converts from NIA priority.
    a. **M&I Priority, used by Indians**: Assumes full utilization of the remaining M&I priority water allocated to the San Carlos Apache Tribe that is not used by Scottsdale (18,145 – 12,500 = 5,645 AF) by 2035. This volume is included in the "M&I" pool, not differentiated by User.
6. **NIA Priority, used by M&I**: Assumes White Mountain Apache Tribe has been allocated 23,782 AF of NIA water, and that it is leased by 2016 and fully utilized by M&I lessees by 2035. Also assumes continued full use of former Hohokam assignment water through 2043 until it converts to M&I Priority (47,303 AF), and continued full use of former RWCD water (5,000 AF). The first round (55,255 AF) of currently unallocated NIA water (totaling 96,295 AF) is assumed to be allocated to M&I users within the CAP service area by 2015 and fully utilized by 2020. The second NIA reallocation round (41,040 AF) is assumed to be allocated to M&I users within the CAP service area by 2023 and fully utilized by 2028.
7. **NIA Priority, used by Indians**: Assumes full usage of all remaining NIA pool water by Indian users (including GRIC and Tohono O'odham), after leases and exchanges have been subtracted, by 2035. Also assumes the remaining pool volume (43,518 AF) reserved for future Indian Settlements is allocated by 2026 and fully utilized by 2035.

Appendix B

On-River P-4 M&I Modeling Results

Modeling results for on-River P-4 users (see **Appendix B-1**) show that the magnitude and likelihood of recovery gradually increases through the planning horizon as the use of P4 contracts increases. The rate of increase is more pronounced in Scenario B, which assumes that P4 contracts currently used for agriculture are converted to M&I use, thus qualifying for AWBA firming.

In both Scenario A & B, the earliest recovery occurs in 2017, though the volume and probability is low. The CRSS modeling (done September, 2013) does show shortages occurring before 2017, but based on the projected on-River P-4 M&I use, and the formula developed by the Director's Storage Sharing Recommendation, no shortage would be taken by the on-River P-4 M&I users. During the entire Near-term planning period, the probability of recovery in a given year is ≤36% and the maximum volume is approximately 6,800 acre-feet per year (12-17% probability).

During the Mid-term period the maximum annual probability of recovery is 55% for both A & B and the maximum volume per year is approximately 6,800 acre-feet per year in Scenario A and just over 15,500 acre-feet per year in Scenario B. The probability of needing to recover these maximum volumes in any given year is 15-18%.

In the Long-term period, the maximum annual probability that recovery will be necessary is 47% for both A & B and the maximum volume per year is approximately 8,400 acre-feet in Scenario A and 19,900 acre-feet in Scenario B. The probability of needing to recovery these maximum volumes is between 11-15%. Scenario B shows higher recovery volumes due to the conversion of P-4 agricultural uses to M&I users which have a firming obligation.

Indian NIA Modeling Results

Modeling results for Indian NIA users (see **Appendix B-2**) show that the magnitude and likelihood of recovery gradually increases through the planning horizon as the use of CAP long-term entitlements increases. The rate of increase is more pronounced in Scenario B.

Modeling results for Indian NIA users show that recovery is not likely before 2017. The probability of needing any recovery in a given year is ≤36% through the Near-term planning period. The maximum annual volume is approximately 7,900 acre-feet per year in Scenario A and 10,200 acre-feet in Scenario B. The CRSS modeling does show that there is a high probability of shortages occurring before 2017, but up until 2017 the potential shortages do not intersect with the NIA priority pool.

The maximum annual probability that any recovery will be necessary during the Mid-term period is 55% for both A & B and the maximum volume per year is approximately 14,300 acre-feet in Scenario A and 22,700 acre-feet in Scenario B. The probability of needing to recover these maximum volumes in any given year is 15-18%.

In the Long-term period, the maximum annual probability of any Indian NIA recovery is 47% (in both A & B) and a maximum volume per year of 22,300 acre-feet in Scenario A and 23,700 acre-feet in Scenario B, which is close to the maximum firming obligation under the Settlements Act. Scenario B shows higher recovery volumes due to the faster utilization rate of Long-term entitlements.

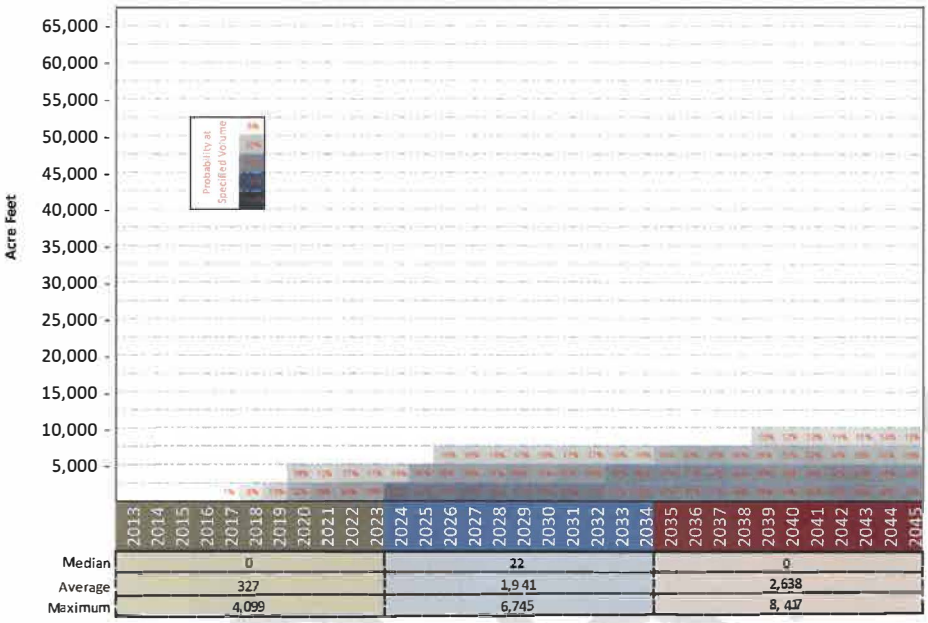
CAP M&I Recovery Results

Modeling results for CAP M&I users (see **Appendix B-3**) show that recovery is not likely before the Long-term planning period in both Scenario A & B. The maximum probability of needing any recovery in a year is ≤16% for the entire period in both Scenarios. In Scenario A, recovery for M&I is first possible in 2044. In Scenario B, it is possible sooner (in 2035) due to a more rapid utilization rate than in Scenario A. In Scenario B, the maximum recovery volume is less than 5,000 acre-feet per year until 2044. In 2044, the maximum recovery volume jumps to approximately 42,100 acre-feet per year at 13-14% probability for both Scenario A & B due to the conversion of 47,303 acre-feet of NIA water to the M&I priority pool in that same year.

Appendix B-1 Modeling Results – On-River P-4 M&I Recovery

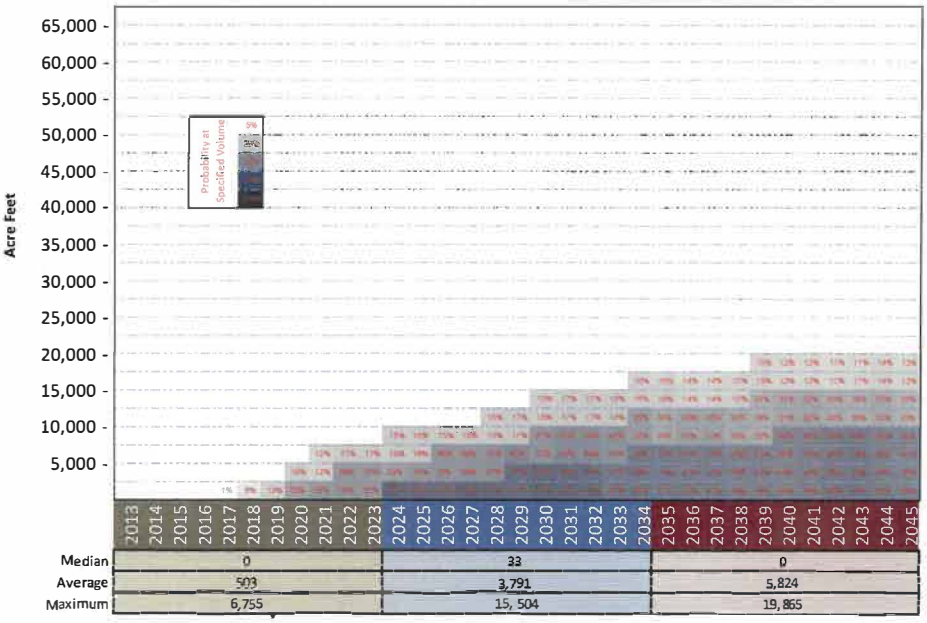
On-River P-4 M&I Component of Scenario A

CRSS: 9/13 Run, AZ Assumptions; On-River: ADWR NIA "A", No Ag Convert



On-River P-4 M&I Component of Scenario B

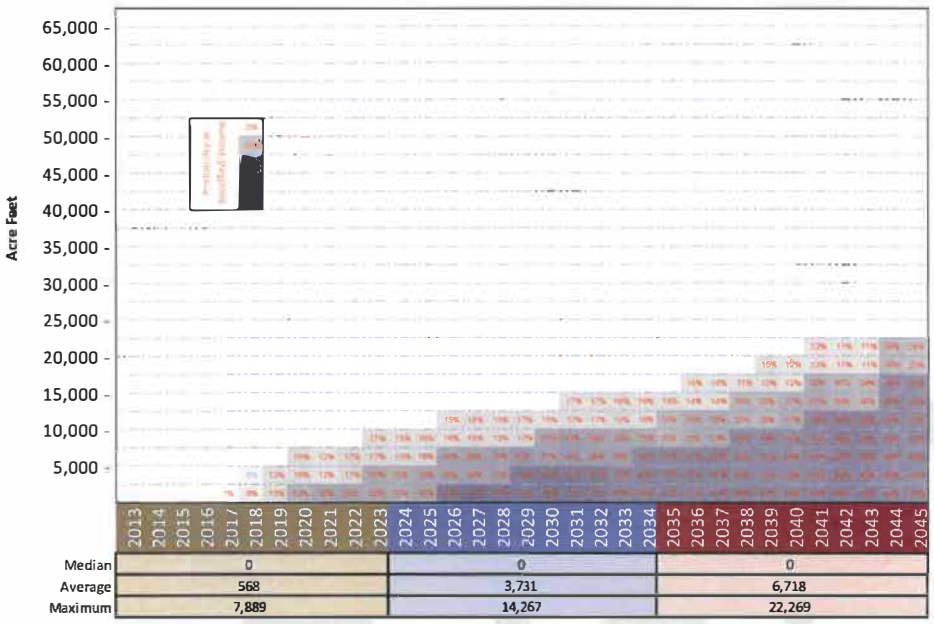
CRSS: 9/13 Run, AZ Assumptions; On-River: ADWR NIA "A", Full Ag Convert by 2035



Appendix B-2 Modeling Results – Indian NIA Recovery

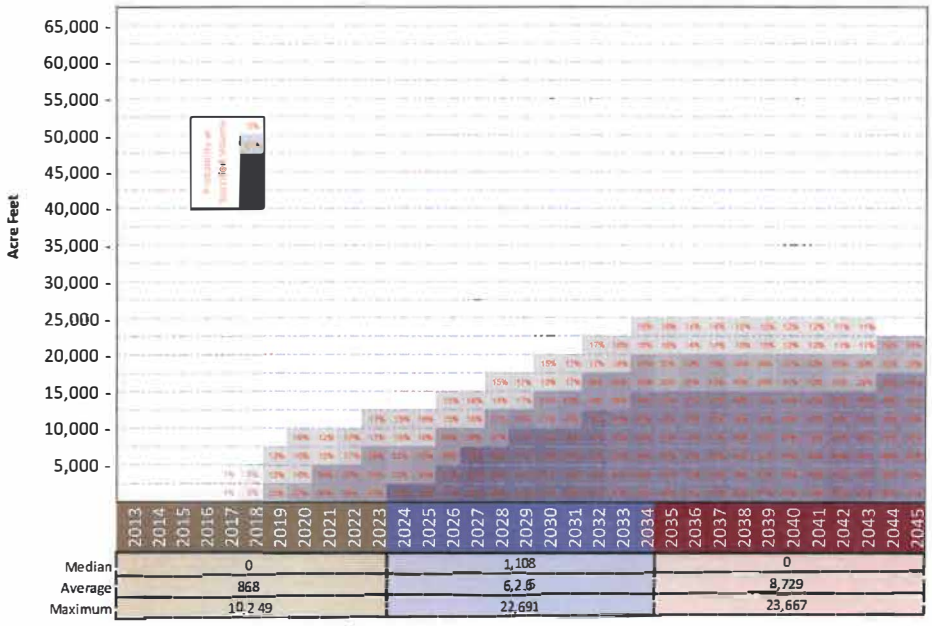
Indian NIA Component of Scenario A

CRSS: 9/13 Run, AZ Assumptions; On-River: ADWR NIA "A"; Long-Term Contracts: Full by 2045



Indian NIA Component of Scenario B

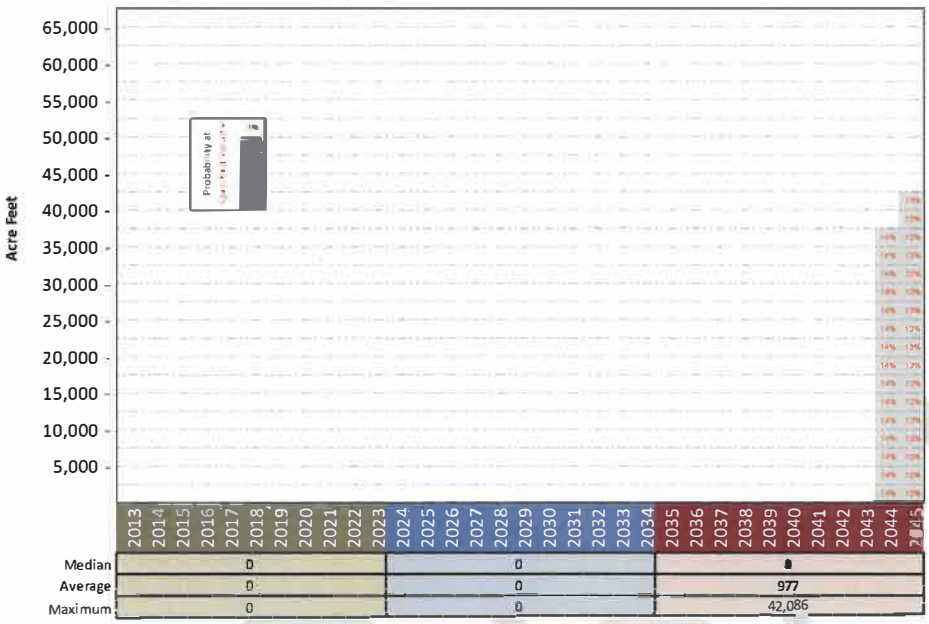
CRSS: 9/13 Run, AZ Assumptions; On-River: ADWR NIA "A"; Long-Term Contracts: Full by 2035



Appendix B-3 Modeling Results – CAP M&I Recovery

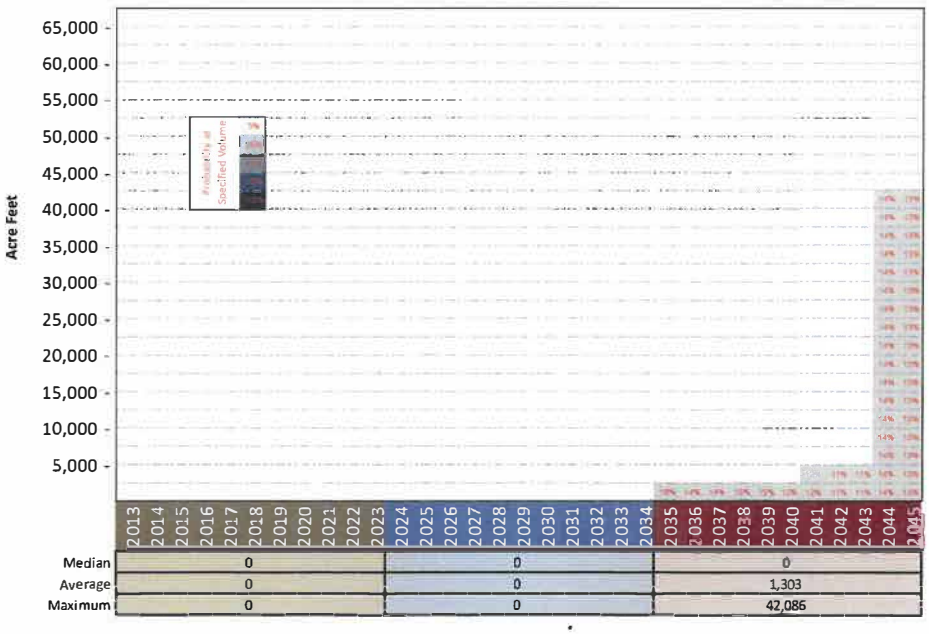
CAP M&I Component of Scenario A

CRSS: 9/13 Run, AZ Assumptions; On-River: ADWR NIA "A"; Long-Term Contracts: Full by 2045



CAP M&I Component of Scenario B

CRSS: 9/13 Run, AZ Assumptions; On-River: ADWR NIA "A"; Long-Term Contracts: Full by 2035



Appendix C – Example Recovery Partner Survey

Please take a few minutes to complete this annual survey and help CAP in its recovery planning efforts:

1. **Do you currently recharge some or all of your CAP entitlement at an Underground Storage Facility (USF)?**
   a) Yes
   b) No

2. **Are you anticipating recharging some or all of your CAP entitlement at a USF in the next 10 to 20 years?**
   a) Yes
   b) No
   c) Maybe

3. **If you answered "Yes" or "Maybe" to questions 1 or 2, under what circumstances would you consider accepting previously earned credits in exchange for a reduced delivery to the USF?**

   A. **During <u>SHORTAGE</u> conditions on the Colorado River:**
      a) Under no circumstances
      b) For compensation, and credits stored at the same facility
      c) For compensation, and credits stored in the same sub-basin
      d) For compensation, and credits stored in the same AMA
      e) Unsure
      f) Other_____

   B. **During <u>NORMAL</u> conditions on the Colorado River:**
      a) Under no circumstances
      b) For compensation, and credits stored at the same facility
      c) For compensation, and credits stored in the same sub-basin
      d) For compensation, and credits stored in the same AMA
      e) Unsure
      f) Other_____

4. **Are you currently treating and directly delivering CAP water?**
   a) Yes
   b) No

5. **Are you anticipating treating and directly delivering CAP water in the next 10 to 20 years?**
   c) Yes
   a) No
   b) Maybe

6. **Do you have potentially underutilized well capacity?**
   a) Yes
   b) No

7. **If you answered "Yes" or "Maybe" to questions 4, 5 & 6, under what circumstances would you consider accepting previously earned credits in exchange for a reduced delivery to your treatment plant?**

   A. **During SHORTAGE conditions on the Colorado River:**
      a) Under no circumstances
      b) For compensation, and credits stored at specific recharge facilities
      c) For compensation, and credits stored in the same sub-basin
      d) For compensation, and credits stored in the same AMA
      e) Unsure
      f) Other_____

   B. **During NORMAL conditions on the Colorado River:**
      a) Under no circumstances
      b) For compensation, and credits stored at specific recharge facilities
      c) For compensation, and credits stored in the same sub-basin
      d) For compensation, and credits stored in the same AMA
      e) Unsure
      f) Other_____

8. **Do you currently receive some or all of your CAP water through a regional provider other than CAP (e.g., through an exchange with SRP)?**
   a) Yes
   b) No

9. **If you answered "Yes" to question 8, and the regional provider was considering becoming a recovery partner with CAP, what level of involvement would you expect?**
   c) None; as long as my full order is received and the quality is acceptable
   d) Some; to ensure my operations are unaffected
   e) Substantial; to help decide how specific aspects were implemented
   f) Unsure; would depend on the particular proposal
   g) Other_____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WATER RESOURCES


CAP
CENTRAL ARIZONA PROJECT

Preface

On behalf of the Arizona Water Banking Authority, the Arizona Department of Water Resources and the Central Arizona Project, we are pleased to present *Recovery of Water Stored by the Arizona Water Banking Authority: A Joint Plan by AWBA, ADWR and CAP*. Water Banking is one of Arizona's most important water management strategies, and its success depends on effective planning. This Joint Plan helps advance the objective, articulated in the Intergovernmental Agreement among CAP, ADWR and AWBA, to "develop a coordinated and cooperative planning process" that includes distribution and recovery of water stored by the AWBA. Recovery planning has also been identified as a strategic priority by each of the organizations, as well as numerous stakeholders, and we believe this *Joint Plan* makes a substantial contribution to that ongoing goal.

Pamela Pickard
President, Central Arizona Water Conservation District
Board of Directors

Date

Michael J. Lacey
Director, Arizona Department of Water Resources;
Chair, Arizona Water Banking Authority

Date

V. Updated AWBA Firming Goals

NOTES: Staff was asked to re-evaluate the AWBA's firming goals due to updates to Colorado River operations and concerns over future hydrologic conditions

Call on **Tim Henley** to provide an overview of the modeling analysis and results (powerpoint presentation)

ACTION: No action

AWBA Firming Goals and Obligations

Modeling

Inputs

- CRSS
  - Initial Reservoir Elevation
  - Operating Criteria
  - Demand Schedule
- ADWR Spreadsheet
  - Water Available for P4 Users from CRSS
  - AZ Shortage Sharing Formula
  - AZ Demand Schedules

- CRSS
  - Initial Reservoir Elevation – 1/1/2014
  - Operation Criteria
    - Interim Guidelines Extended
    - Interim Guidelines followed by 80P1050
  - Demand Schedule
    - Upper Basin
      - Arizona Schedule
      - UCRC Schedule
    - Indian
      - Arizona Schedule
      - 10 Tribes Schedule
    - CAP and On-River Schedule

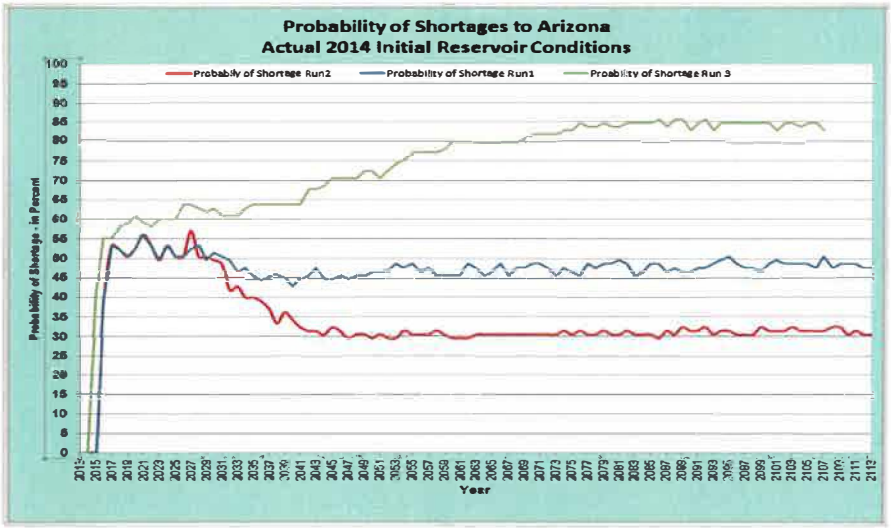
- ADWR Spreadsheet
  - Shortage Sharing Formula
    - Recommended (Based on Entitlement)
    - Pro-rata (Based on Use)
  - On-River Schedules
  - CAP Demand
    - 2045 Schedule
    - 2035 Schedule
  - AWSA Indian Firming Formulas
  - 20% Limitation for CAP M&I Subcontract Firming

Modeling Scenarios

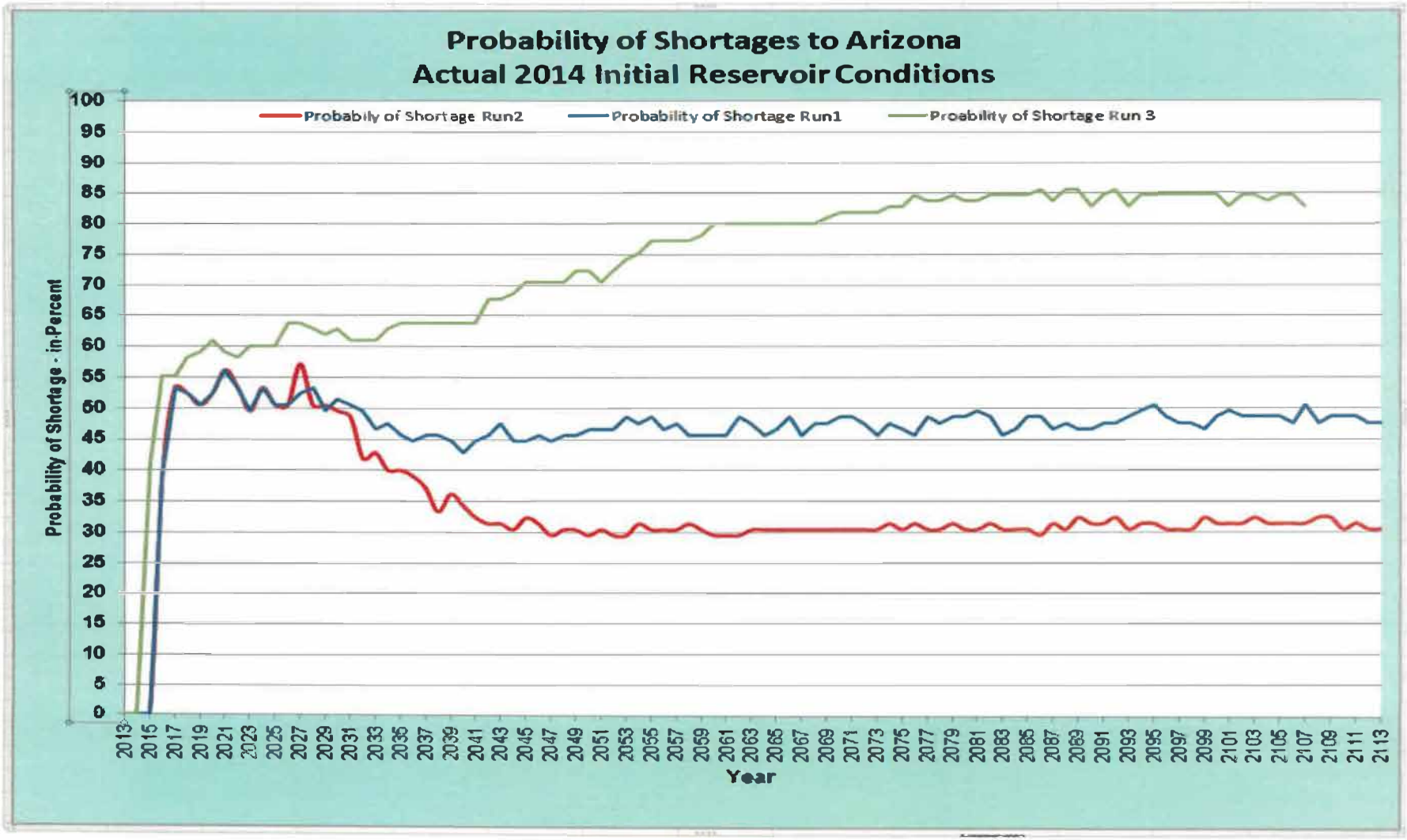
- Case1
  - AZ Demand Schedules (CAP 2045)
  - Interim Guidelines Extended
  - Recommended Shortage Sharing Formula
- Case 2
  - AZ Demand Schedules (CAP 2045)
  - Interim Guidelines Followed by 80P1050
  - Pro-rata Shortage Sharing Formula after 2026
- Case 3
  - UCRC and Ten Tribes Demand Schedules
  - Interim Guidelines Followed by 80P1050
  - Pro-rata AZ Shortage Sharing after 2026
  - CAP 2035 Demand Schedule

Results

Operations



Operations


Probability of Shortages to Arizona
Actual 2014 Initial Reservoir Conditions
Probabily of Shortage Run2
Probability of Shortage Run1
Proability of Shortage Run 3
Probability of Shortage - in Percent
Year

Comparison of Runs

Case	OnRiver Firming Goal (kAF)	CAP M&I Priority Firming Goal Limited to 20% of 639 or 686 kaf (kAF)	CAP NIA Priority Indian Firming Obligation (kAF)	(kAF)
1997 [1]	420	2,673	550	3,643
1	134	385	778	1,297
2	468	2,540	544	3,552
3	948	6,911	1,298	9,157
Trace 95 [2]	196	853	926	1,975

1) Does not include Hohokam transfer to cities
2) Trace 95 for Run 1 starts in with Water Year 2000

CAP M&I Firming Goals

CAP M&I Priority
Firming Goal
Limited to 20% of 639 or 686 kaf
(kAF)

	1997	Case 1	Case 2	Case 3	Trace 95
TOTAL	2,673	385	2,504	6,911	853
Maricopa	1,566	247	1,608	4,437	548
Pinal	243	23	147	406	50
Pima	864	113	738	2,036	251
Other		2	11	32	4

Questions?

VI. Call to the Public

Future Meeting Dates:

Wednesday, June 18, 2014
Wednesday, September 17, 2014
Wednesday, December 3, 2014