Upper Verde River Watershed Protection Coalition

Safe Yield Workgroup

Final Report

Presented to the Coalition Board

March 24, 2010

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EXECUTIVE SUMMARY

In the spring of 2008, the Upper Verde River Watershed Protection Coalition Board appointed a Safe Yield Workgroup to develop a plan for the Prescott Active Management Area to reach safe yield by 2025. The Coalition Board instructed the Safe Yield Workgroup to prepare a report describing strategies for achieving safe yield in the Prescott Active Management Area – a goal that is compatible with protecting the upper Verde River base flow. Safe yield is a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area. The overdraft rate is calculated by subtracting groundwater outflows from groundwater inflows. For the purposes of this report, an overdraft of 11,000 acre-feet per year will be cited.

The communities in the Prescott Active Management Area and the Coalition have initiated programs to reduce groundwater consumption and promote water conservation. The Coalition recently initiated a regional water conservation education program. As a result of these program, as well as tiered water rate structures, there are signs that water use has reduced considerably.

Methods evaluated by the workgroup to achieve safe yield include water conservation, increasing groundwater recharge, and importing additional water supplies. No single method is sufficient to reach safe yield, and multiple strategies will need to be simultaneously employed. The workgroup also evaluated four organizational structure alternatives that could best implement these methods. Criteria to evaluate these alternatives included voluntary funding, revenue generation authority, binding membership, expanded membership, and the ability to operate projects. The table below summarizes the features of each organizational structure.

	Voluntary Funding	Revenue Generation Authority	Binding	Expanded Membership	Ability to Operate Projects	Comments
Current Coalition	X					Voluntary by member
Enhanced Coalition	X		X			Voluntary by member
Replenishment District		X	X	X	X	Develops revenue to built projects
Water Authority		X	X	X	X	Regulatory authority

Given limited funding and authority to manage projects, the Current Coalition will struggle to meet the objective of reaching safe yield. In order for the Current Coalition to succeed, it would need to develop the ability to implement and operate large projects.

The Enhanced Coalition would be similar in nature to the Current Coalition. However, the key feature of this alternative would include binding membership. A Replenishment District provides for revenue generation authority, binding membership, the possibility of expanded membership, and the ability to operate projects. A Water Authority would have similar characteristics to that of a Replenishment District. However, a Water Authority would also have regulatory authority. Examples of this authority could include the ability to require conservation efforts, exempt well monitoring, or regulations on groundwater withdrawal.

The Workgroup concludes that the best organizational vehicle to cause safe yield to occur in the Prescott Active Management Area is a Replenishment District because the Current Coalition structure will struggle to provide adequate funding or decision making unity in order to reach safe yield. In order to facilitate this, it is also recommended that the Coalition institute a public education program on the importance of reaching safe yield. The program should spell out the true challenges that the region faces in terms of the severity of not reaching safe yield.

1.0 INTRODUCTION

The Upper Verde River Watershed Protection Coalition (UVRWPC) is a coalition of members consisting of the City of Prescott, County of Yavapai, Town of Prescott Valley, Yavapai Prescott Indian Tribe, and the Town of Chino Valley.

In the spring of 2008, the UVRWPC Board appointed a Safe Yield Workgroup (SYW) to develop a plan for the Prescott Active Management Area (PrAMA) to reach safe yield by 2025. The SYW has met monthly since 2008 to study and discuss some of the issues and potential solutions.

UVRWPC Management Goal

The management goal for the UVRWPC covers a broad area. The purpose of the Coalition is to work together to protect the upper Verde River, the Coalition is committed to balancing the reasonable water needs of the residents of the Upper Verde River Watershed Area with protection of the base flow of the upper Verde River to the maximum possible extent, and achieving safe yield within the Prescott Active Management Area (AMA), by developing Best Management Practices that incorporate science-based planning, utilization and conservation of all water resources.

The UVRWPC Board instructed the Safe Yield Workgroup to prepare a report describing strategies for achieving safe yield in the PrAMA – a goal that is compatible with protecting the upper Verde River base flow. It is estimated that groundwater from the Little Chino Sub-basin contributes about 14% of the Verde River base flow (Wirt, 2005). Groundwater flow estimated at about 2,400 acre-feet per year (afy) moves from the vicinity of Del Rio Springs into the south end of the Big Chino Sub-basin (Blasch and others, 2006).

Definition and Interpretation of Safe Yield

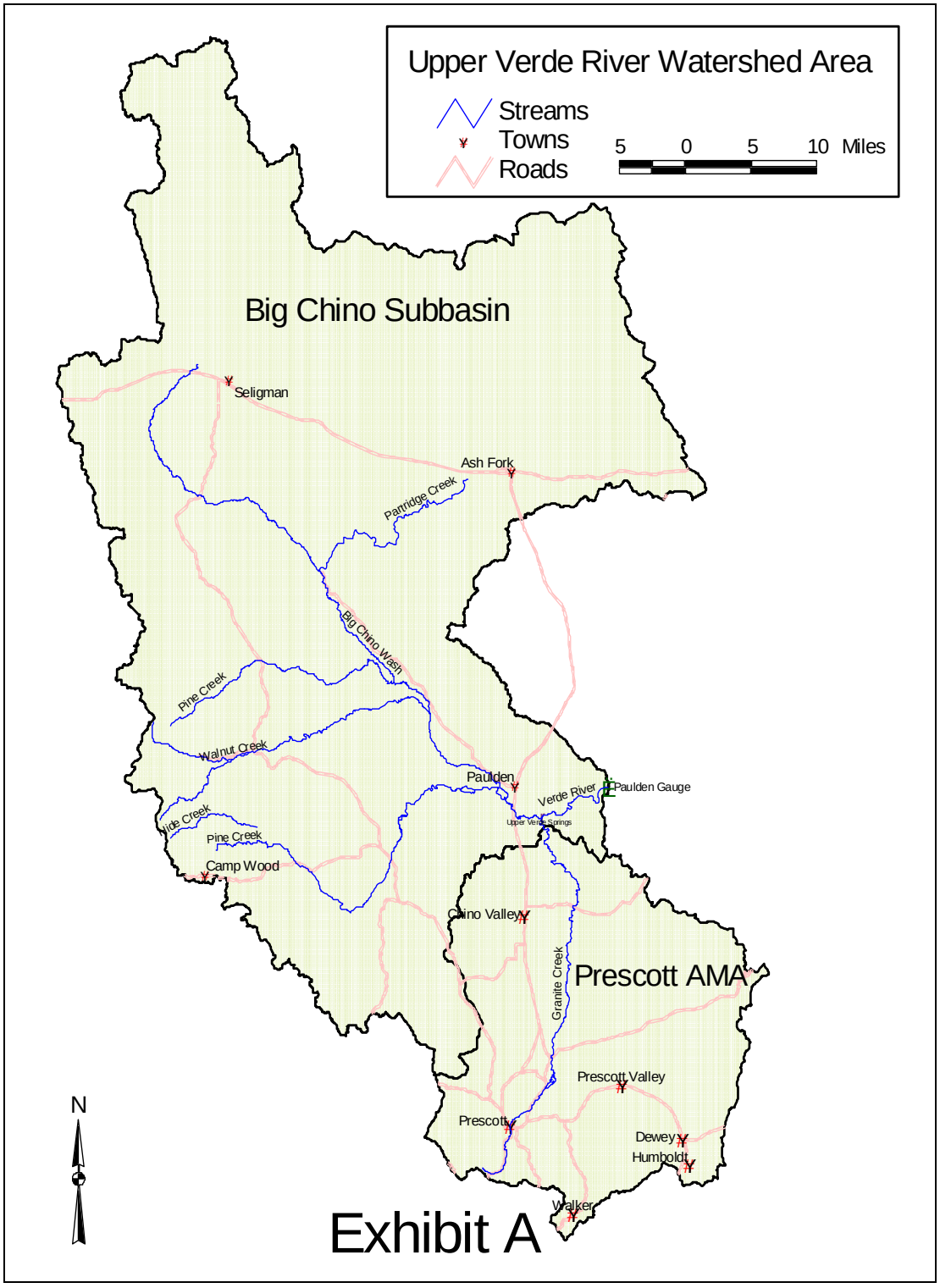
The Arizona Groundwater Management Act of 1980 (AGMA) established the Prescott Active Management Area (PrAMA), which consists of the Little Chino and upper Agua Fria sub-basins, approximately the area from Humboldt to Prescott and Walker to Chino Valley. The exhibit on Page 6 shows the UVRWPC area, as well as the PrAMA.

The AGMA states: “Safe yield is a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area”, (A.R.S. § 45-561 Section (12)).

The AGMA defines safe yield as a goal and not as a requirement. The ADWR (Arizona Department of Water Resources) has confirmed that there are no regulatory penalties for not meeting safe yield. As such, the residents of the PrAMA must voluntarily reach safe yield or suffer the eventual physical and economic penalties of a depleting aquifer.

The definition of safe yield refers to groundwater withdrawals from the AMA and the ADWR has interpreted “withdrawals” to include natural outflows. “The long-term balance between groundwater withdrawals and recharge, specified by A.R.S. § 45-561(12), cannot be obtained without considering the significant loss of groundwater from the aquifers caused by natural discharge.” (ADWR, 1999).

“The natural outflows from the Prescott AMA that the Department will include in the safe yield calculation are (1) groundwater discharge at Del Rio Springs and evapotranspiration at that location; (2) groundwater discharge to the Agua Fria River at Humboldt and evapotranspiration at that location: and (3) underflow to the Big Chino sub-basin north of Chino Valley.” (ADWR, 2007).



Upper Verde River Watershed Area, Including the PrAMA – Source, IGA for UVRWPC

PrAMA Overdraft

In 1999 the Arizona Department of Water Resources officially declared the PrAMA "out of safe yield," although studies estimate that by 1999 the area had already experienced overdrafts for decades. "From 1990 through 1997, groundwater storage was depleted by an average of 6,166 acre-feet (af) per year." (ADWR, 1999). More recent water budget calculations show average annual overdrafts are now about 11,300 afy. (ADWR, 2005). This overdraft rate is calculated by subtracting groundwater outflows (25,140 afy) from groundwater inflows (13,840 afy) (ADWR, 2005). For the purposes of this report, an overdraft of 11,000 afy will be cited.

The overdraft in the PrAMA will vary from year to year depending on precipitation and usage. Long term overdraft averages should be utilized for general analysis rather than annual values that include spikes and deficits. The long term overdraft average has the potential to increase in the future due to the addition of new AMA pumping to supply those who have rights to AMA groundwater, such as approved yet unbuilt subdivisions, homes on new exempt wells, and new commercial/industrial users.

Statistical data shows that 90 percent of a representative 105 wells within the PrAMA that were measured in 2003 and 2004 had a mean annual water level decline of 2.7 feet. A longer-term measurement of 55 sample wells from 1994 to 2004 showed a mean annual water level decline of about 1.4 feet. (ADWR, 2005). The exhibit on Page 8 from ADWR shows water level changes as of 2004.

A large number of properties in the Prescott AMA have the legal right to access groundwater but are currently undeveloped. Approximately 10,000 platted, yet vacant, subdivision lots in the Prescott AMA currently have rights to access groundwater. Although these new homes are likely to be the most efficient water users, the increase in groundwater demand is likely to be around 290 gallons per day per home (120 gallons per capita per day (gpcd) or 3,160 afy, including associated commercial usage), assuming adherence to water conservation guidelines. In addition to subdivision lots, the landowner of any property that meets zoning requirements can drill an exempt well to access groundwater. The Yavapai County Water Advisory Committee study by H3J Consulting, Inc. predicts that the number of exempt wells will increase by 3,100 by 2020. At 0.30 acre-feet per well per year, this use will potentially increase the aquifer overdraft by 930 afy. In total, future users that have full access to Prescott AMA groundwater supplies could increase the groundwater overdraft by as much as 4,090 afy. This is within the long term planning horizon for local governments.

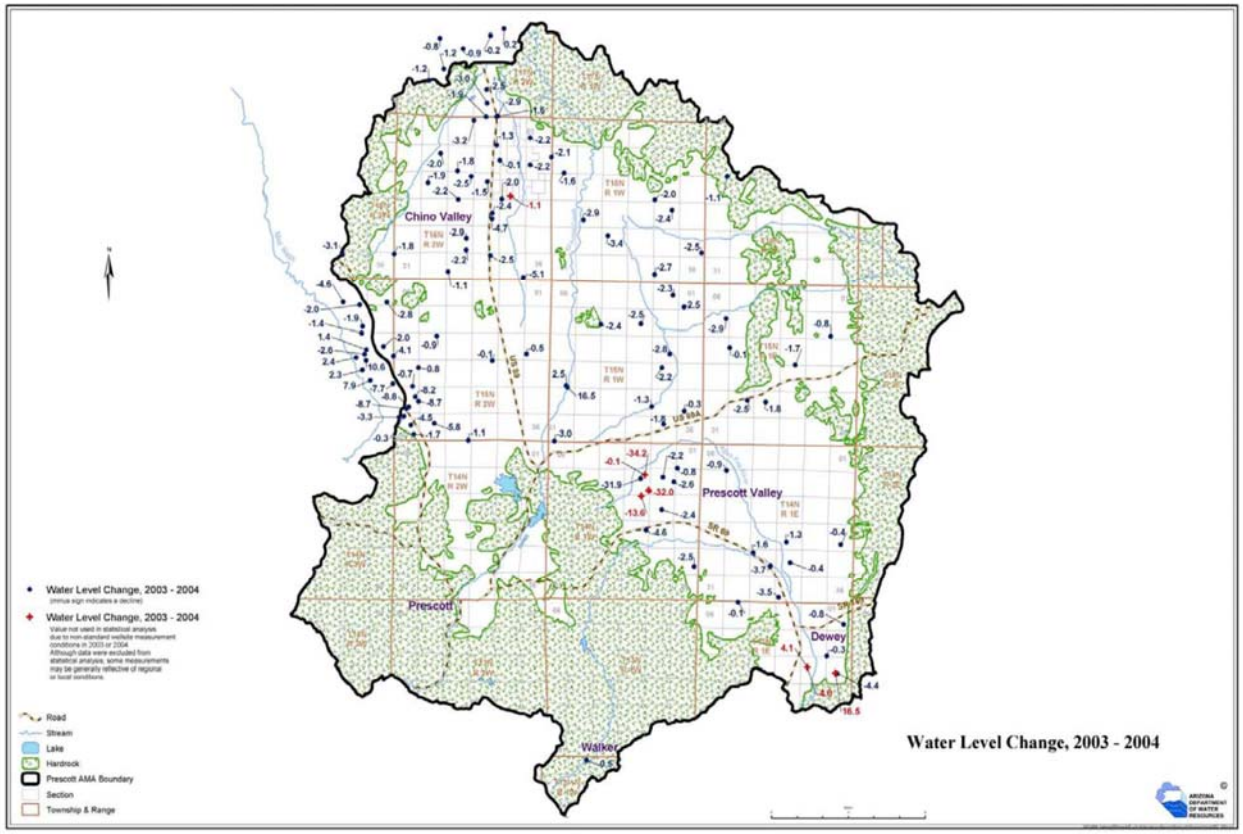


Figure 1 Water-level Change 2003 - 2004

Source: Prescott Active Management Area 2003-2004 Hydrologic Monitoring Report, ADWR, January 31, 2005

Conservation and Other Actions Already Taken

The UVRWPC report "Regional Water Conservation Program Development and Recommended Implementation Plan, Final Report September, 2008" prepared by Larson and Associates Water Resources Consulting contains a detailed analysis of conservation information in the region.

In general, the AMA communities and the UVRWPC have initiated programs to reduce groundwater consumption and promote water conservation. The UVRWPC recently has initiated a regional water conservation education program. There are clear signs that the public has taken the message to heart and reduced their water use considerably. While some savings are attributed to education, much of the water savings can be attributed to tiered water rate structures that cause users to pay more per gallon if they use more water. Such rate programs exist in Prescott, Prescott Valley, Chino Valley and with some private water companies. In addition to tiered rate

structures, water consumption varies throughout the region for various reasons, such as conservation levels, amount of commercial activity, and percentage of new housing stock.

Certain municipal and private providers in the PrAMA are required to adhere to mandatory conservation requirements established in the Third Management Plan or Modified Non Per Capita Municipal Conservation Requirements as defined in ARS 45-566.01.

The City of Prescott, in addition to its education program and tiered rate structure, has provided cash incentives to water users who install water-reducing fixtures and equipment or implement other water conservation measures. Also, for several years Prescott water users have been paying an Alternate Water Fee on their water bills. The annual total of these fees is around $800,000. Most of the funds are to be used to pay for existing users' 20% share of the Big Chino Project, which consists of a well field, and pipeline which imports water from outside of the PrAMA. Thus, water users of the City of Prescott have already contributed millions of dollars toward reaching safe yield.

In 2005, Prescott voters approved the Reasonable Growth Initiative, Proposition 400, which requires that all effluent from large annexations (over 250 acres) will be dedicated to permanent recharge in the AMA. It is likely that almost all of Prescott's future water supplies will go to such large annexation areas. There is a potential 4,000 afy of effluent that could go to safe yield by buildout, with a cost over $33 million.[1] However, much of this effluent will not be available for many decades so it can't be counted on to help reach safe yield by 2025. These costs do not include operations and maintenance costs.

Regardless of these efforts, if a comprehensive, regional safe yield plan is not implemented, water users in each community may question whether or not they are bearing a disproportionate share of the costs to reach safe yield.

[1] Assumes 19,000 acres of Fann, Cavan, James, and State Land with a density of 1 home per acre and 0.35 afy use per home. Assuming a 60% effluent recovery rate and $25,000 per af current water value, 20% of the costs borne by current users…19,000 x 0.35 x 0.20 x $25,000 = $33 million to apply 4,000 afy toward safe yield.

Public's Understanding of Safe Yield

Many citizens misunderstand the concept of safe yield, and believe that state regulations will lead to safe yield, or that safe yield is required. The SYW believes that existing policies and regulations will not achieve safe yield, and may allow the overdraft to grow. While assistance from the State or Federal governments may be available, groundwater overdrafts are the communities' problem. It is clear that to reach safe yield, local solutions are needed to establish appropriate water resource management.

The Southwest U.S. has traditionally counted on new water sources to supply population growth and to replenish water resources. Inexpensive supplies are typically developed first while the cost for new sources of water tends to be higher. Regional demand for water will continue to grow, while less expensive local groundwater supplies diminish.

The cost of reaching safe yield increases with each passing year as outlined in Section 4.0 of this report under the "Current Coalition" alternative. Waiting to address safe yield results in increasing depths to groundwater. This means wells going dry which requires increasing the depth of existing and future wells, as well as possible damage to natural resources, land subsidence, and reduced attraction for future economic growth. In fact, many believe that costs to obtain new water sources will increase faster than the rate of inflation. If safe yield is to be achieved, clearly sooner is better than later.

Why a Plan is Needed

Since there are no current regulatory requirements for safe yield, the motivation for each jurisdiction to achieve safe yield, especially if other jurisdictions decide not to attempt or fail to achieve safe yield, may be diminished. Without a sound water replenishment plan, current and future overdrafts may continue to increase. Land owners within the region will continue to see the water resources under their property depleted, causing them to deepen their wells, haul water, or construct water lines to their properties. All of which represent a financial burden for many small land owners. Depleted water supplies will lead to plummeting land value and affect assured water supply physical availability requirements, impacting any future development. The economic development within the area will decline as will renewable water supplies.

While the effects of overdraft are still subtle today, some property owners with exempt wells drilled in the past need to deepen their wells today. Also, some properties within the region no longer have any water resources and water quality at greater depths could diminish. Without action, these affects will continue in the future, even for large water providers.

The Cost of Not Reaching Safe Yield

If a small segment of the region is analyzed – homes that are on exempt wells – the magnitude of the problem becomes clearer. Exempt wells supply about 14% of the homes in the AMA, numbering approximately 10,000 wells. If these wells could no longer pump from the aquifer because of further lowering of the groundwater table, the value of the 10,000 homes would diminish drastically. It is reasonable to assume that the average drop in value would be in the $50,000 range, meaning the total loss of value would be $500 million. This would result in a direct loss of income to Yavapai County because of lower property values and lower property tax valuations. If these properties' annual taxes dropped by one-third from an average of around $800, the resultant loss of County taxes over a 20 year period would be $53 million. Assuming that the County must maintain its revenue levels, higher tax rates are likely to occur to make up for the lower valuation on lots without water.

These estimates do not include the costs that would be necessary to replace the groundwater that the exempt wells depend on, or costs to deliver the water to those homes, assuming delivery is feasible. Also, the remaining 86% of homes would need to find replacement sources of water for the thousands of acre-feet now being pumped from the aquifer.

Today many wells are already going dry. In some instances, after an aquifer is drained, geologic changes take place that inhibit future ability of the structure to hold water. If many more years pass until safe yield is reached, an irreparable situation could occur.

2.0 METHODS TO ACHIEVE SAFE YIELD

Methods to achieve safe yield within the PrAMA fall into three broad categories, 1) water conservation, 2) increasing the amount of recharge dedicated to the aquifer and, 3) importing additional water supplies to reduce groundwater pumping or increase aquifer recharge. No single method is sufficient to reach safe yield. Multiple strategies will need to be simultaneously employed.

Water Conservation

Water conservation is typically the least-expensive method to create additional water supplies. According to the Coalition report by Larson and Associates, September 2008, approximately 960 afy (approximately 5% of total use) could be conserved after a five year conservation education program. It is uncertain at what level the water savings will reach diminishing returns as all water users and water uses become as efficient as possible, but 10% after 10 years is estimated here. Additional measures that include incentives for removing irrigated turf, ordinances that require reduced outside watering, and significant limitations to other water use behaviors could result in an additional 15% reduction. Combined, these programs could reduce total overdraft by 25% from approximately 11,000 afy to 8,250 afy. (Larson, 2008).

The cost estimates from the Larson report indicate that conservation efforts at this level would be approximately $3,000 per acre-foot, or about $8 million. However, some of the program costs are on-going maintenance costs rather than a fixed capital expenditure. Education and code enforcement, for example, are costs that will be continuing expenses.

To demonstrate further, potable water used for exterior landscaping accounts for approximately 30 to 40% of consumptive use. This consumptive use returns virtually no water back to the aquifer for reuse. Between 2000 and 2006, Municipal demands averaged about 17,200 afy and industrial demands averaged about 1,500 afy in the PrAMA resulting in a total of 18,700 afy. (ADWR, 2008). For illustrative purposes, if groundwater use for exterior landscaping was reduced by 50-percent, this average demand would decrease by approximately 3,750 afy or one third of the current overdraft.

The 11,000 afy overdraft shared by a population of 125,000 citizens is equivalent to 78 gpcd. Even if consumptive water use was reduced from 120 to 42 gpcd today, it would eliminate the overdraft for that year only. To achieve and maintain safe yield long term, further conservation and/or new water supplies would be required for population growth.

Increasing Groundwater Recharge

Only about 2% of the total precipitation falling in the Prescott AMA actually recharges the groundwater system. The Prescott AMA receives a long-term average of around 450,000 afy of precipitation, yet the aquifer only receives about 9,200 afy due to incidental agricultural recharge and mountain front recharge. (ADWR, 2008).

The UVRWPC is currently examining several pilot-scale projects to increase recharge. If these methods prove cost-effective, they could lead to full scale recharge projects that will help reach safe yield. The two methods under investigation are (1) intercepting precipitation in the soil saturation zone before evaporation and/or transpiration has the opportunity to remove the water, and (2) increasing harvestable water from the surface. Another approach, returning watersheds to more healthy conditions, is currently on hold. A rough estimate of the impact and costs has been determined for comparison purposes. For instance, a 1% improvement in the total amount of precipitation that recharges the aquifer will result in a deficit reduction of about 4,500 afy. Planners do not yet know if this result is achievable, but a rough estimate of cost is between $25,000 and $30,000 per acre-foot and varies considerably. Resulting totals are between about $112 and $135 million.

Import Additional Water Supplies

Importing additional water supplies to supplement local water resources is a common practice in developing regions. Cities such as Las Vegas, Phoenix, Los Angeles, Payson, and many other cities have outgrown local water supplies and either have constructed or will construct a system to import water supplies. Currently, Prescott, Prescott Valley and Chino Valley are pursuing plans to import additional water supplies from the neighboring Big Chino Subbasin. The importation of water provides the opportunity for communities within the PrAMA to dedicate these water supplies (or effluent therefrom) to contribute towards safe yield. Both the City of Prescott and the Town of Prescott Valley have indicated a willingness to commit a portion of imported water towards safe yield.

New subdivisions that do not already have rights to use AMA groundwater must be supplied with water from other sources. The mere fact that new subdivisions will be supplied with imported water does not necessarily result in moving the PrAMA closer to safe yield. In order for new subdivisions to contribute to safe yield, effluent from these new subdivisions resulting from imported water supplies will need to be permanently committed to the aquifer.

Assuming that the groundwater overdraft after conservation programs is about 8,250 afy, and the unit cost of imported water is $25,000 per acre-foot, the cost to reach safe

yield with imported supplies would be approximately $206 million assuming no further population growth. In order to contribute to safe yield, this imported water would need to be committed to offsetting the groundwater deficit.

For the purpose of illustrating scale, with approximately 125,000 people in the AMA, a per-person share of the costs will be $1,650, or around $4,000 per household. These are capital costs, not including long term operation and maintenance (O&M) costs, and would be for continuous delivery over the normal useful lifetime of improvements such as pipelines, pump stations and reservoirs.

An appraisal level water resource assessment by the U.S. Bureau of Reclamation, ADWR, and the Yavapai County Water Advisory Committee is underway to examine unmet future demands and alternatives to meet these demands. This Central Yavapai Highlands Water Resource Management Study is examining various importation alternatives. While the outcome of this study is not yet determined, it could provide valuable insight into importation options available to the region.

Summary Table

Component	Amount	Unit Cost	Total Cost
Water Conservation*	2,750 afy	$3000	$8,250,000
Increasing Groundwater Recharge	8,250 afy	$25,000	$206,250,000
Import Additional Water Supplies			
Total	**11,000 afy**		**$214,500,000**

*Includes water saving measures associated with landscaping

3.0 POTENTIAL ALTERNATIVES

Over the past two years, alternative organizational mechanisms for reaching safe yield have been studied by the SYW. It has been determined that the best approach for a recommendation to the Board and the community for a mechanism to reach safe yield is to assign the task to a regional entity. Currently, the Coalition is set up as an entity with the safe yield goal embedded in its mission statement. In order to take conservation, harvesting, recharge, and importation needs to the next level, other types of organizational entities have been discussed and studied. The alternative entities studied are as follows:

- Current Coalition
- Enhanced Coalition
- Replenishment District
- Water Authority

Current Coalition

On June 8, 2006, the Upper Verde River Watershed Protection Coalition members executed an intergovernmental agreement. The members are the City of Prescott, Town of Prescott Valley, Town of Chino Valley, County of Yavapai, Town of Dewey-Humbolt, and the Yavapai-Prescott Indian Tribe. The agreement was recorded on May 23, 2007 in Book 4509, Page 87 of Official Records, in the office of the Recorder of Yavapai County.

The Coalition is comprised of an Executive Board which consists of one representative of each of the members, and a Technical Advisory Committee with members appointed by the Executive Board. The Coalition is not a separate legal entity, but rather is a forum for the members to act jointly and cooperatively as appropriate to further the goals of the Agreement. Individual members are required to go to their respective City or Town Councils or Board of Supervisors for certain decision and contractual issues.

Funding for the Coalition is subject to appropriation of such funds by the governing body of each member organization. In-kind services are accounted for in the Agreement.

The duration (term) of the Agreement is until June 30, 2011. It is to be deemed renewed for successive one-year terms unless any member notifies the other members no less than 60 days prior to that date, that the member intends to terminate. The Agreement may be terminated with or without cause, by any member upon providing 180 days notice to the other members. The remaining members may continue under the terms of the agreement, or such terms as they determine to be in their mutual interest.

Meetings of the Coalition are conducted in accordance with the Arizona Open Meeting Laws. Each respective Coalition member posts meeting notices and agendas in accordance with their respective notice and posting practices. Conclusions and recommendations of the Executive Board are by consensus, rather than voting. All records of the Coalition are public unless they are deemed confidential.

No provisions are in the current IGA for new members.

Project implementation or operations occurs through a fiscal agent for the Coalition. An agent can be a public or private entity. Currently, the Town of Prescott Valley is the fiscal agent for the Coalition.

Enhanced Coalition

The Enhanced Coalition Alternative is based upon similar principles of the Current Coalition. The structure of the Enhanced Coalition would be based on an intergovernmental agreement, with suggested modifications. Some modifications that would expand the abilities of the Coalition would be:

- Mechanism to cause commitment of generating substantially more funding
- Bind members into membership for a longer term or permanently
- Provide for majority rule

Substantial funding increases would require each member agency to determine how they will generate additional funding. Projects would be implemented and operated through a fiscal agent or the Coalition may consider another legal structure for ease of fiscal agency and contracting abilities.

Replenishment District

Under the Alternative of a Replenishment District, the Coalition would sunset and a Replenishment District would be formed by legislative means and by an election as an Arizona Public Improvement District.

The focus of the Replenishment District would be a managed groundwater recharge and replenishment program, as well as water conservation programs. Projects would be identified, planned, and constructed to further the goals of the Replenishment District. Revenues or fees would be authorized and defined. A governing board with majority rule would be established with required membership, not voluntary membership. The governance of the Replenishment District would be established, and equity of representation by members defined.

The Replenishment District would have bonding authority and the ability to implement and operate projects on its own. The Replenishment District would be a legal entity with the ability to enter into contracts on its own. It would have rights to acquire property, easements, rights of way, and the ability to purchase, own, operate, and construct facilities. The Replenishment District could receive loans and grants and charge user fees for services rendered.

As envisioned for this report, the Replenishment District would be prohibited from selling retail potable water, requiring well measuring devices, requiring mandatory conservation, regulating water use, regulating land divisions, exercising eminent domain, regulating zoning issues, and implementing other regulations as may be defined during its formation.

The Replenishment District Board would be made up of local representatives placed on the Board by an election. The State would not have any authority other than that associated with initial legislation that defines how board and district formation should occur.

Water Authority

A Water Authority would be similar to a Replenishment District, yet have additional authoritative roles.

The main focus of a Water Authority would be a managed groundwater recharge and replenishment program, as well as water conservation programs. Projects would be identified, planned, and constructed to further the goals of the Authority. Revenues or fees would be authorized and defined. A governing board with majority rule would be established with required membership, not voluntary membership. The governance of the Authority would be established, and equity of representation by members defined.

The Water Authority would have more regulatory control mechanisms available to it than a Replenishment District. Examples of such regulatory control mechanisms are the ability to require conservation efforts, exempt well monitoring, regulations on who can withdraw groundwater and how much, or what fees must be paid if parties exceed their allowable groundwater pumping.

Like a Replenishment District, the Authority would have bonding authority and the ability to implement and operate projects on its own. It would be a legal entity with the ability to enter into contracts on its own. It would have rights to acquire property, easements, rights of way, and the ability to purchase, own, operate, and construct facilities. It could receive loans and grants and charge user fees for services rendered.

Summary of Alternative Features Table

	Voluntary Funding	Revenue Generation Authority	Binding	Expanded Membership	Ability to Operate Projects	Comments
Current Coalition	X					Voluntary by member
Enhanced Coalition	X		X			Voluntary by member
Replenishment District		X	X	X	X	Develops revenue to built projects
Water Authority		X	X	X	X	Regulatory authority

4.0 EVALUATION AND DISCUSSION OF ALTERNATIVES

Current Coalition Alternative

When the UVRWPC was formed, its purpose was to protect the upper Verde River by balancing the reasonable water needs of the residents of the Upper Verde River Watershed Area with protection of the base flow of the upper Verde River by science based planning. Since the development of this initial goal, the Coalition has also included the goal of achieving safe yield in the Prescott Active Management Area.

The current Coalition's IGA defines its membership qualifications, membership dues or fiscal considerations, and the two primary objectives listed above. The geographic area defined within the Coalition's boundary, an area of critical importance for the two primary goals of the UVRWPC mission, includes both the Little Chino and the Big Chino Sub-Basins which provide the substantial base flow of the upper Verde River. Within this geographic area, considerable quantities of both groundwater and surface water resources are consumed by UVRWPC members and by other parties.

Because the Coalition has not established a legal or statutorily sanctioned authority within the geographic area of interest, it must seek approval for all Coalition activities via each member's council and/or board. The IGA requires consent for Coalition actions. This requirement creates additional layers of cumbersome government bureaucracy for every proposed action. Only if <u>all</u> participating Coalition boards or councils approve an action can the Coalition's specific activity go forward. Also, if any current member of the Coalition resigned from the Coalition, that jurisdictional area would be removed from the geographical area of the Coalition. Additionally, the Coalition is constrained by existing State, County, and local jurisdictional policies. The State of Arizona currently has regulatory authority over local water resources. The Coalition currently has no direct control and must follow the State's laws, rules, and policies and the Prescott Active Management Plans. From an organizational standpoint, the Coalition has not gained any local control, authority or powers by its formation but added additional layers of cumbersome government towards its current activities.

Given extremely limited funding and authority to manage projects, it is not likely that the two primary objectives of the UVRWPC can be accomplished. Half of the current funding is used for program management and the remaining funding opportunities provide for small scale pilot studies and or study projects, which at best will contribute only a small fraction to the safe yield solution.

While pilot or study projects will provide useful information and data, these projects are pilot level projects in nature and are not large enough to have a measurable effect on reaching safe yield. Full scale projects would be needed to reach the goal. The magnitude of the current and future projected over-draft conditions, the very limited

groundwater resources, and the dynamic water resource jurisdictional differences between the members of the Coalition are significant issues.

The PrAMA does not present a unique problem. In fact, groundwater replenishment and maintaining river flows are the most common identified water resource problems throughout the United States and the world – that is why many areas with water resource issues have eventually formed jurisdictional organizations with specific regulatory or funding characteristics to develop bona fide solutions to significant water resource problems.

The first examination of possible solutions toward reaching safe yield entails looking at the existing situation. This includes several cities in the Prescott AMA developing safe yield projects on their own and the Coalition working on supplemental projects. The Coalition may decide to exist as it currently does and not change its current organizational structure. It can keep the current membership funding with the current objectives within the IGA mission statement. At its current fiscal ability, there exists approximately $100,000 for annual projects that could also be used in conjunction with potential grant opportunities for matching funds. Therefore, if it were possible to successfully be awarded grants totaling $300,000 including the $100,000 match funds annually, there will be $4,500,000 over the time-frame of 15 years to accomplish the two primary objectives of the Coalition's mission. This represents a small fraction of the required amount of funds needed to reach safe yield.

The Coalition has had some significant successes. It created a regional water conservation education program based in part on a water conservation report authored by Keith Larson. In addition the Coalition has identified pilot studies or pilot projects and reports showing various replenishment conclusions and data.

Even with aggressive conservation and education, (which is only beginning within the Coalition's region), coupled with the pilot studies and projects, the two primary objectives cannot be accomplished.

Under the "Current Coalition" alternative, the size of the overdraft condition will most likely continue to increase and the amount of replenishment will most likely continue to decrease as water resources are required for new growth. The Coalition will continue to find itself lacking any real financial abilities to accomplish the two primary objectives of its mission. In order for the Current Coalition to succeed, it will need to develop the ability to carry out large projects.

Enhanced Coalition Alternative

The tasks of the Enhanced Coalition would be to meet any remaining safe yield goals that individual water users are not able to complete on their own or that have the best chance of success with regional association. Some examples of these tasks include regional water conservation programs, groundwater recharge projects and importing water for non-municipal water users.

The Enhanced Coalition would organize under an Intergovernmental Agreement. The key to success of the Enhanced Coalition will be developing a funding stream that is sufficient to pay for safe yield projects. Each of the Enhanced Coalition's members may decide on different funding sources for their part of the contribution, for example, one partner may chose to use a portion of its water use fees, while another may chose to use property taxes. Regardless of the funding methods used and type of contractual arrangements, the Enhanced Coalition would not be able to issue bonds without legislative authority and could only fund safe yield related projects on a pay-as-you-go basis. This would require that large-scale projects occur only when the funding account is large enough to pay for them.

The Enhanced Coalition alternative would need to make membership permanent, along with that member's contributions. However, it may not be legal to expand the Coalition into an entity in which its members are bound and required to stay involved through an IGA structure. The longevity of the increased funding that this alternative suggests is uncertain and would require further investigation.

The Enhanced Coalition alternative would still require that all members must take contractual arrangements, agreements, operations, project ownership, and other decisions to their respective boards or councils for independent approvals.

While there are other organizational structures such as a non-profit 501(c)(3) entity or a municipal planning organization (MPO), the challenges are similar to the current IGA arrangement. For example, the challenge associated with the creation of a non-profit corporation would be that it's governing board and officers would probably be elected officials that have a responsibility to their respective councils and boards. They would not be able to make decisions as Coalition board members and officers unless these decisions were sanctioned and approved by the public agencies that they represent.

Replenishment District Alternative

Water Districts have formed all over the United States, and internationally for that matter, with great frequency due to dramatic increased water demands and a lack of potable water supplies plaguing those areas. Many recognized water districts started out similar to the organizational structure of the Coalition. Quickly these organizations realized that the water related problems were beyond the capability of the organization and that two primary or essential components of the organization were missing. First, a single legal regional entity to act upon water related issues was absent. Second, the organizations realized they did not have the financial resources or a mechanism to generate financial resources to accomplish their goals and objectives.

Recognizing why other organizations within the Nation formed into a water district, the SYW has spent a considerable amount of time studying the issue. The State of Arizona has already created statutory provisions for various types of water districts that provide for the formation and dissolution of these entities, powers and duties, administration, financial provisions, and powers to levy taxes. These existing provisions of statute may or may not apply to the objectives of the Coalition, and new legislation may be required that would allow the formation of a Replenishment District more closely relating to the goals of the Coalition.

The Coalition currently has no statutory authority. Local jurisdictions have the primary legislative ability to act upon water related issues within their jurisdictions. It seems apparent that the necessary tools currently or previously identified to achieve safe yield and maintain the upper Verde River base flows to maximum extent possible cannot be implemented without a district type structure.

The Coalition Board, Staff, and Community should implement this larger step toward significant projects that will provide tangible results for the two primary objectives of the Coalition.

Water Authority Alternative

The SYW has discussed the viability of the creation of a regional Water Authority with expanded regulatory authority over water resource issues.

The main difference between a Water Authority and a Replenishment District is regulatory authority. If a Water Authority was created, it suggests inherent regulatory powers such as conservation mandates, ordinance development, private well monitoring and water use regulations, eminent domain rights, and other such authorities.

The Water Authority would be the main management authority and overseer of all water issues in the region. This would require legislative approval and re-definition of certain water rights that are currently enjoyed by individual cities and towns.

It has been concluded that this type of organization is not a good fit for the current regional needs. Prescott, Prescott Valley, and Chino Valley have their own individual water departments which sell retail water, are responsible for delivering clean, safe water to their respective populations for potable and emergency demands. The unincorporated County area has no water system infrastructure. Water users in this area are primarily served by private wells. Since these agencies have different supply issues, demand issues, and water rights, a “one size fits all” Water Authority is not a reasonable alternative for the region.

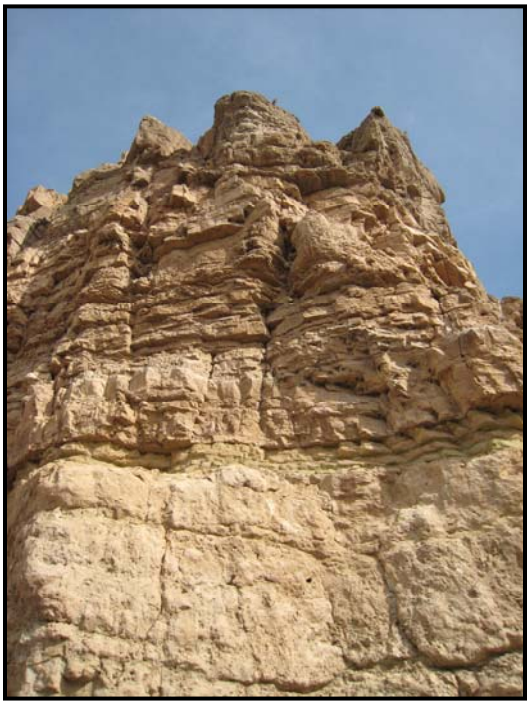
5.0 CONCLUSIONS AND RECOMMENDATIONS

In view of the Coalition's adoption of the policy to protect the base flow of the upper Verde River, any plan to reach safe yield in the PrAMA must preserve all current natural base flows to the upper Verde River.

The Coalition should institute a public education program on the importance of reaching safe yield. The program should spell out the true challenges that the region faces in terms of the severity of not reaching safe yield.

The best organizational vehicle to cause safe yield to occur in the Prescott Active Management Area is a Replenishment District. This entity will be able to collect revenues necessary to implement a safe yield plan with its associated conservation, harvesting, recharge, and importation projects without stripping the relevant authorities of the current cities and towns. The existing coalition structure will not be able to provide adequate funding or decision making unity in order to reach safe yield.

The SYW recommends that the Coalition move forward with the next step toward creation of a regional Replenishment District. This next step should consist of assigning the TAC the task of outlining explicit details of how to successfully create one.



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