PROJECTED FUTURE UNMET DEMAND ANALYSIS

The **future water demand** (projected for 2035, 2060 and 2110) was compiled for each groundwater basin by adding the individual projected demands from the following sectors:

- Agriculture
- Municipal
- Tribal Agriculture in AMAs only (per Central Arizona Water Demand Model – WRDC Scenarios)
- Tribal Industrial in AMAs only (per Central Arizona Water Demand Model - WRDC Scenarios)
- Industrial – hard rock mining (low and high demand)
- Industrial - rock products (low and high demand)
- Industrial - power plants (low and high demand)
- Industrial – turf (low and high demand)
- Industrial – dairy
- Industrial – feedlots
- Industrial – other

The future water supply (projected for 2035, 2060 and 2110) was compiled for each groundwater basin by adding the individual **currently developed and adjusted supplies** from the following sources:

- Groundwater
- Instate surface water
- Upper Basin Colorado River apportionment
- Lower Basin Colorado River apportionment
- Central Arizona Project
- Effluent

The projected future unmet water demand for each basin was calculated as the difference between the **future water demand** and the **currently available and adjusted supply** (Equation 1).

Unmet Demand = Future Water Demand – Currently Available and Adjusted Supply (Equation 1)

Multiple projected unmet demand scenarios were developed to account for the high and low range of industrial demand projections, normal supply and shortage conditions on the Colorado River and instate river systems due to potential drought and/or climate change and the two potential future population distributions (census split, and area split) for the year 2110.

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Results of Projected Unmet Demand Analysis

The projected future unmet demand analyses for each basin for the years 2035, 2060 and 2110 are shown in Figures 1-12, also see (spreadsheet ? with tabular data). The results show that the total statewide unmet demand (which included positive differences for some basins) is projected to range from a potential low of -608,000 AF/Yr in 2035 to a potential high of -3,216,000 AF/Yr. in 2110. The analysis indicates that approximately 87 % and 79% of the projected unmet demand for 2035 and 2110 would occur in AMAs with the remaining 13 % and 21 % of the projected unmet demand for those years occurring in non-AMA areas.

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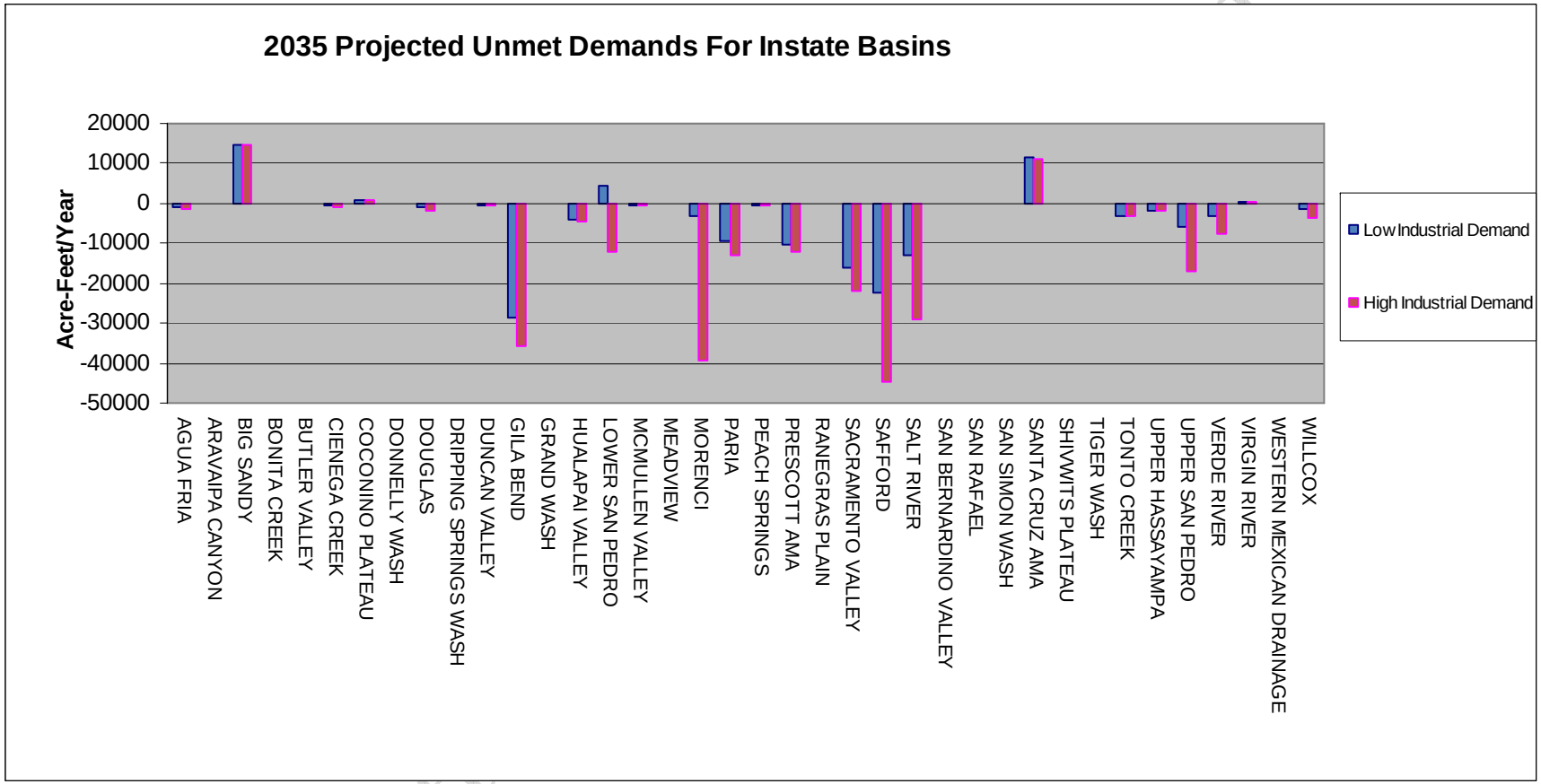

Figure 1. 2035 Projected Unmet Demand For Instate Basins

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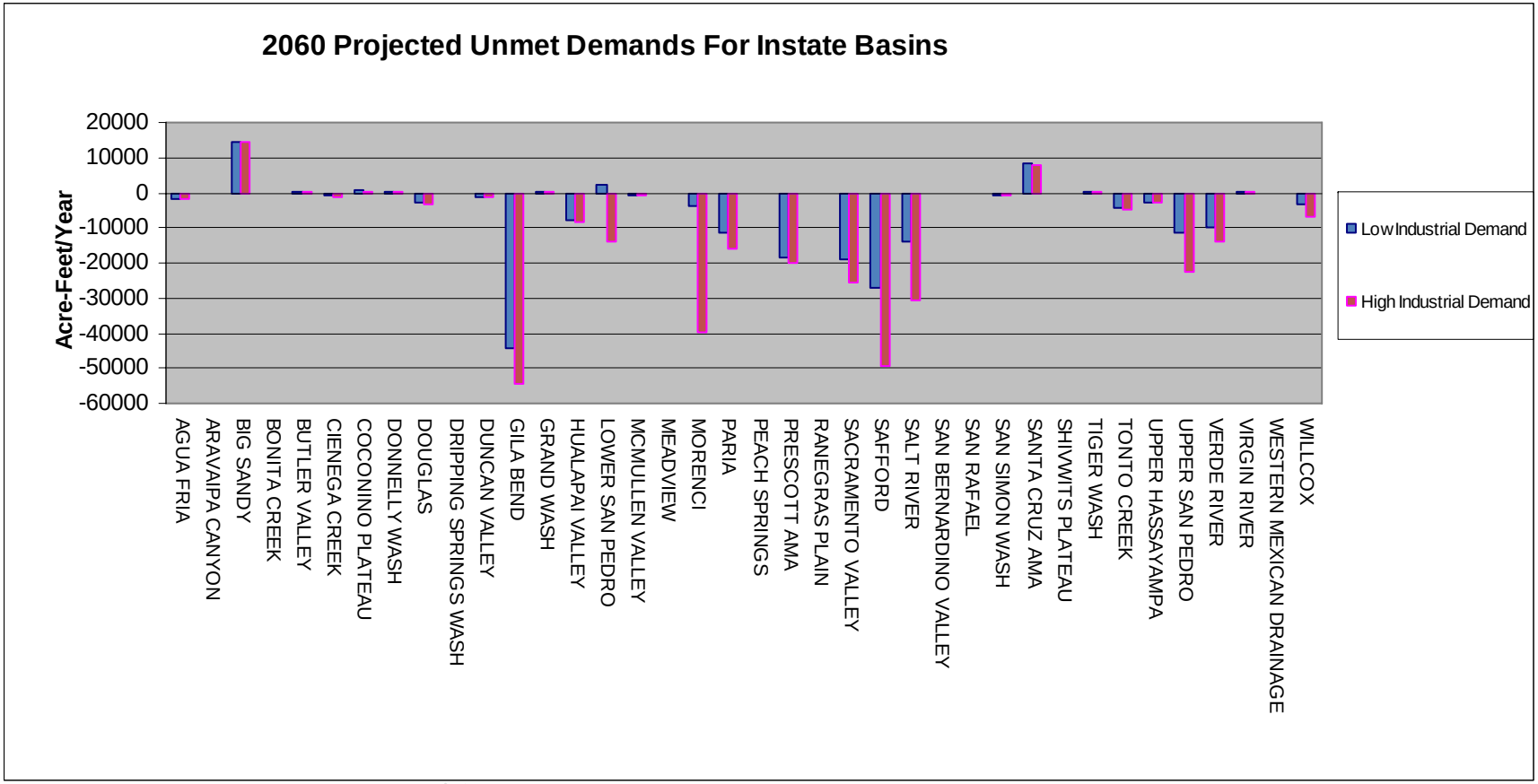

Figure 2. 2060 Projected Unmet Demand For Instate Basins

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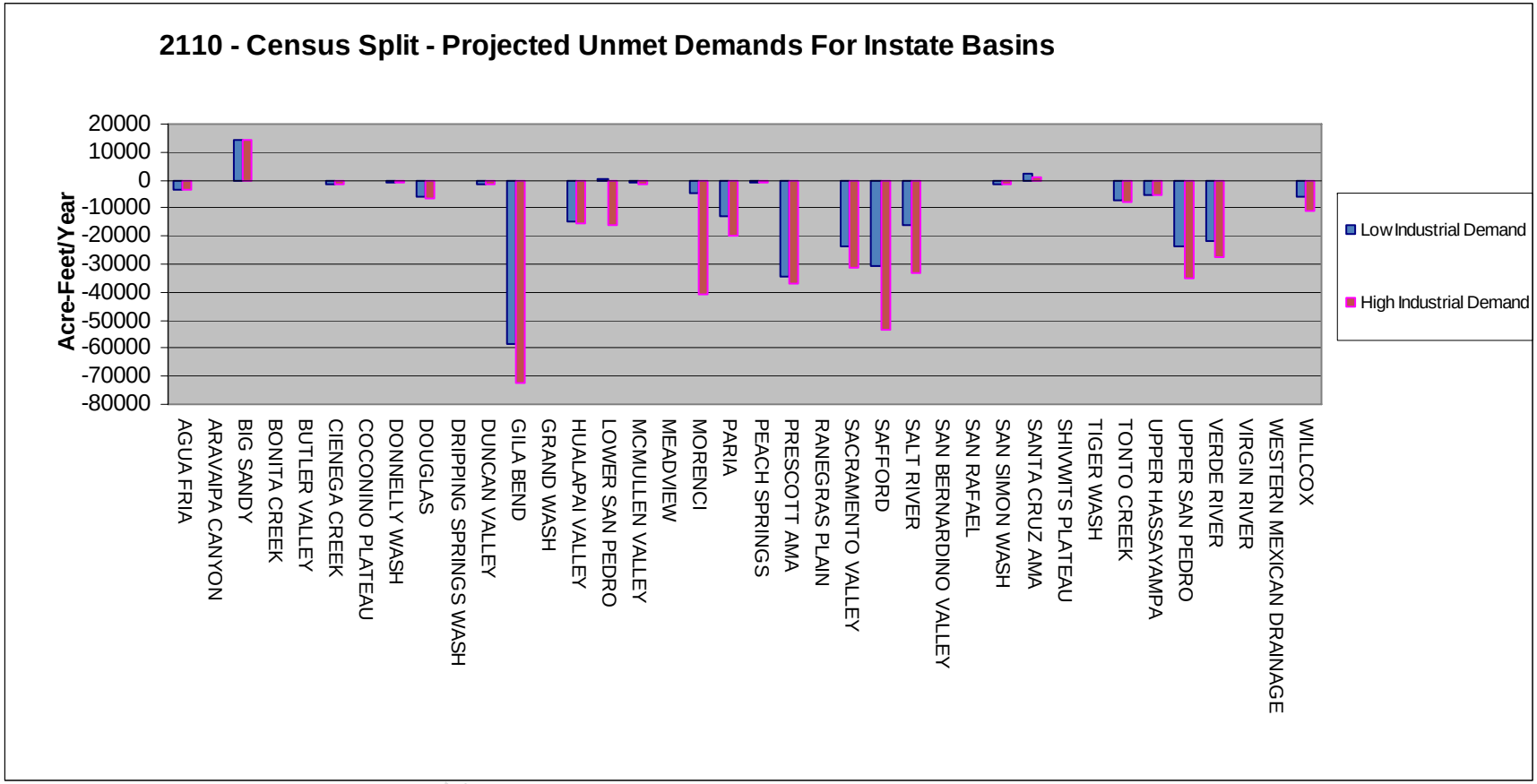

Figure 3. 2110 - Census Split - Projected Unmet Demand For Instate Basins

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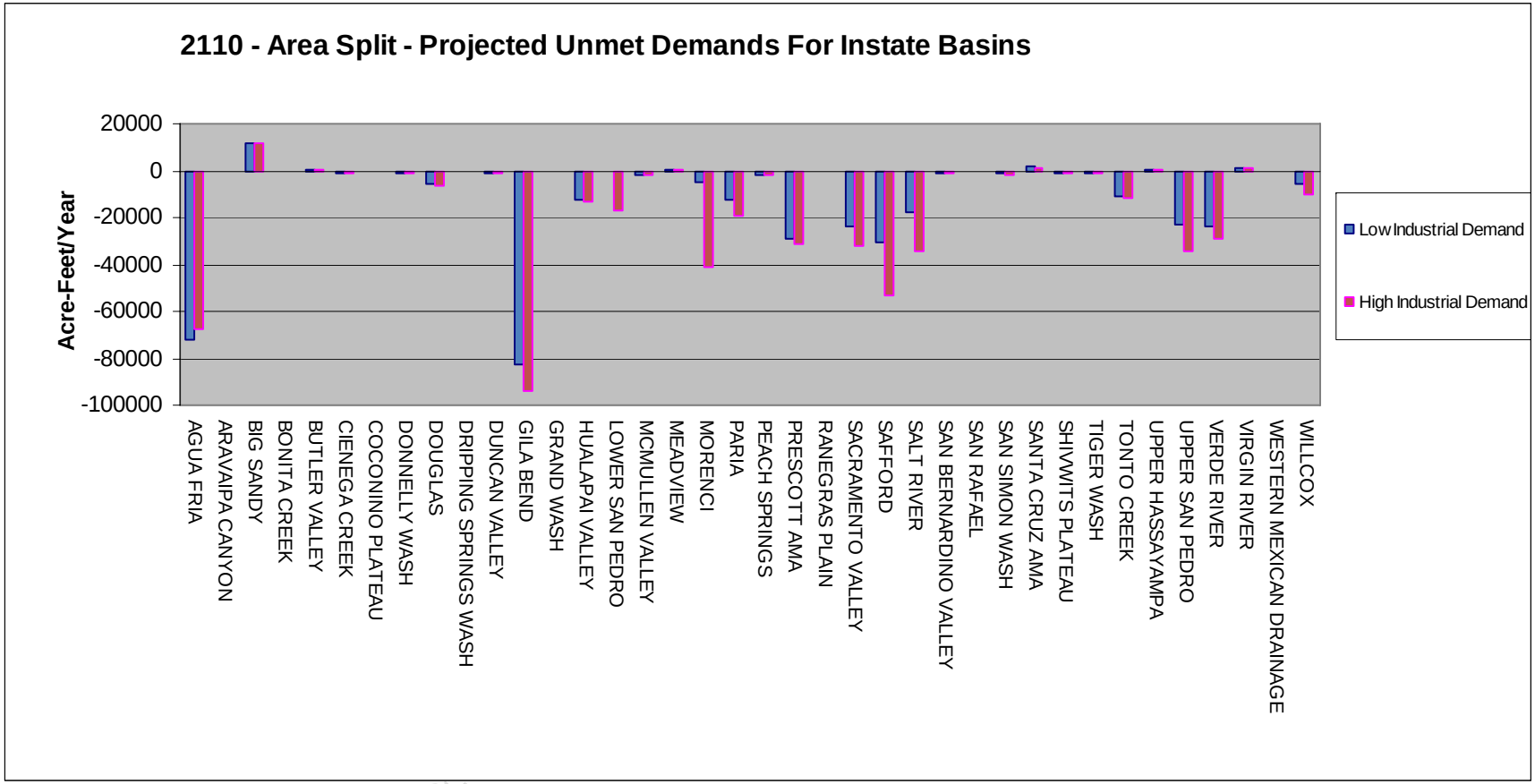

Figure 4. 2110 - Area Split - Projected Unmet Demand For Instate Basins

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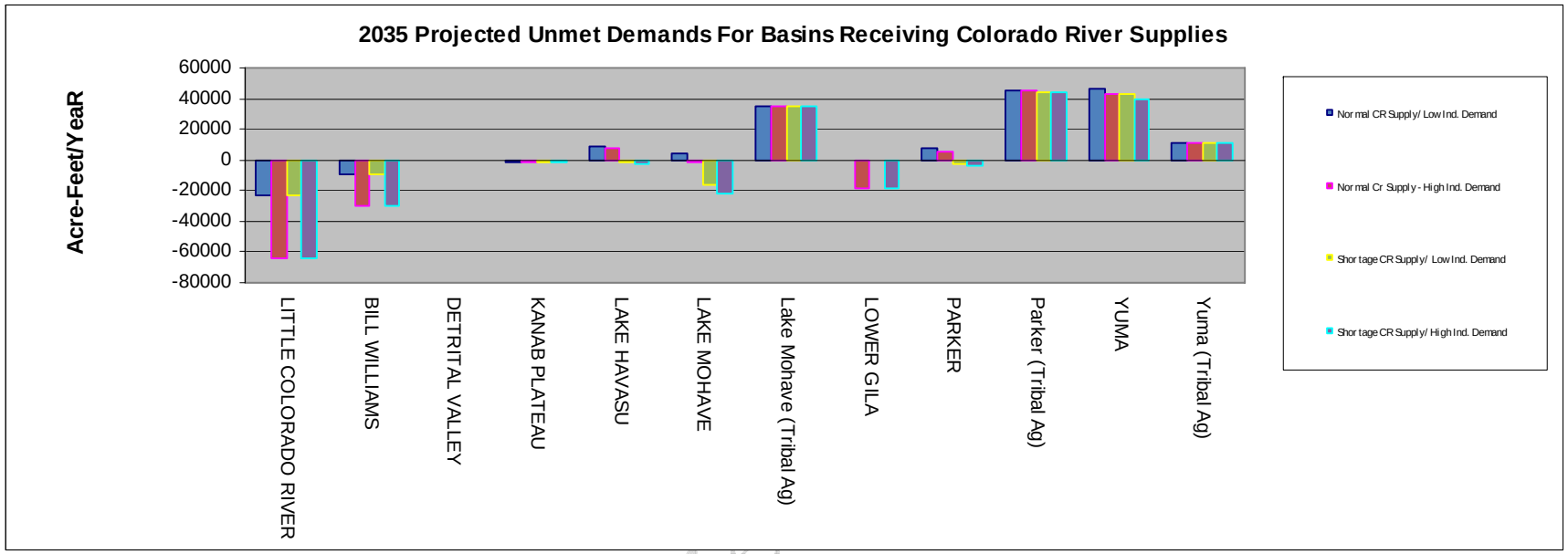

Figure 5. 2035 Projected Unmet Demand For Basins Receiving Colorado River Water

Note! Any Projected Surplus Supply Indicated By a Positive "Unmet Demand" for Colorado River Basins Would Be Available To CAP or Other Arizona CR Water Users. Projected Tribal Sector Surpluses Are Reserved For Tribal Uses.

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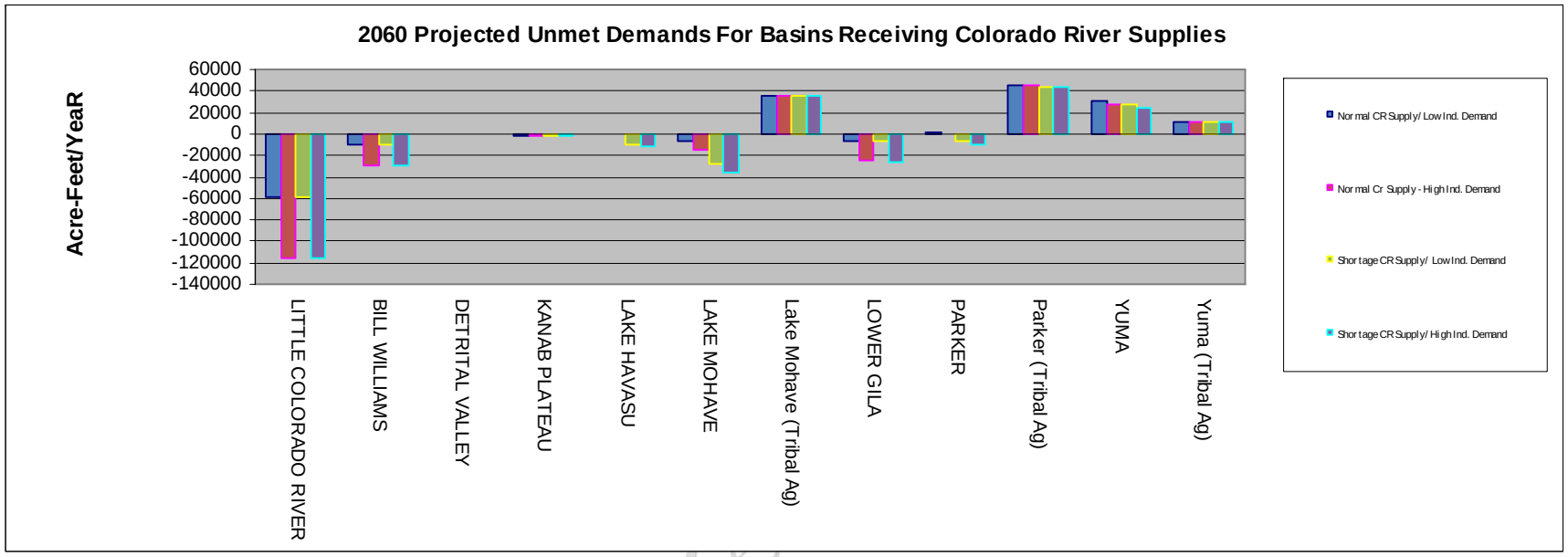

Figure 6. 2060 Projected Unmet Demand For Basins Receiving Colorado River Water

Note! Any Projected Surplus Supply Indicated By a Positive "Unmet Demand" for Colorado River Basins Would Be Available To CAP or Other Arizona CR Water Users. Projected Tribal Sector Surpluses Are Reserved For Tribal Uses.

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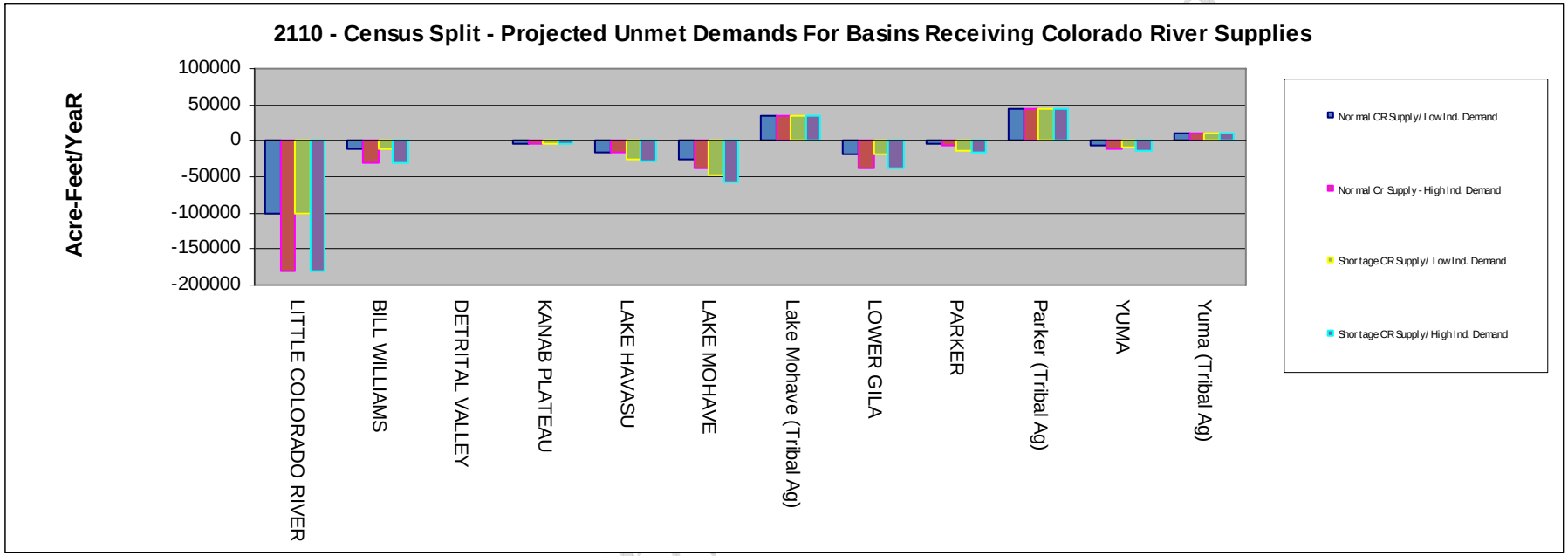

Figure 7. 2110 – Census Split - Projected Unmet Demand For Basins Receiving Colorado River Water

Note! Any Projected Surplus Supply Indicated By a Positive "Unmet Demand" for Colorado River Basins Would Be Available To CAP or Other Arizona CR Water Users. Projected Tribal Sector Surpluses Are Reserved For Tribal Uses.

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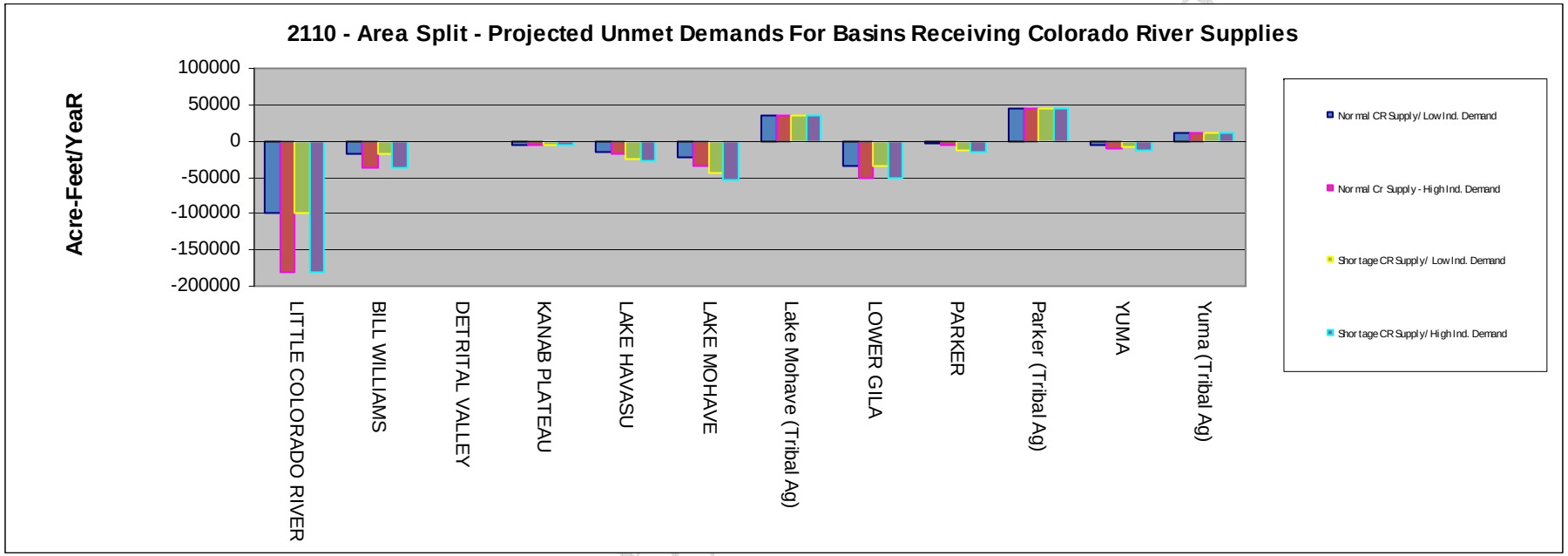

Figure 8. 2110 – Area Split - Projected Unmet Demand For Basins Receiving Colorado River Water

Note! Any Projected Surplus Supply Indicated By a Positive "Unmet Demand" for Colorado River Basins Would Be Available To CAP or Other Arizona CR Water Users. Projected Tribal Sector Surpluses Are Reserved For Tribal Uses

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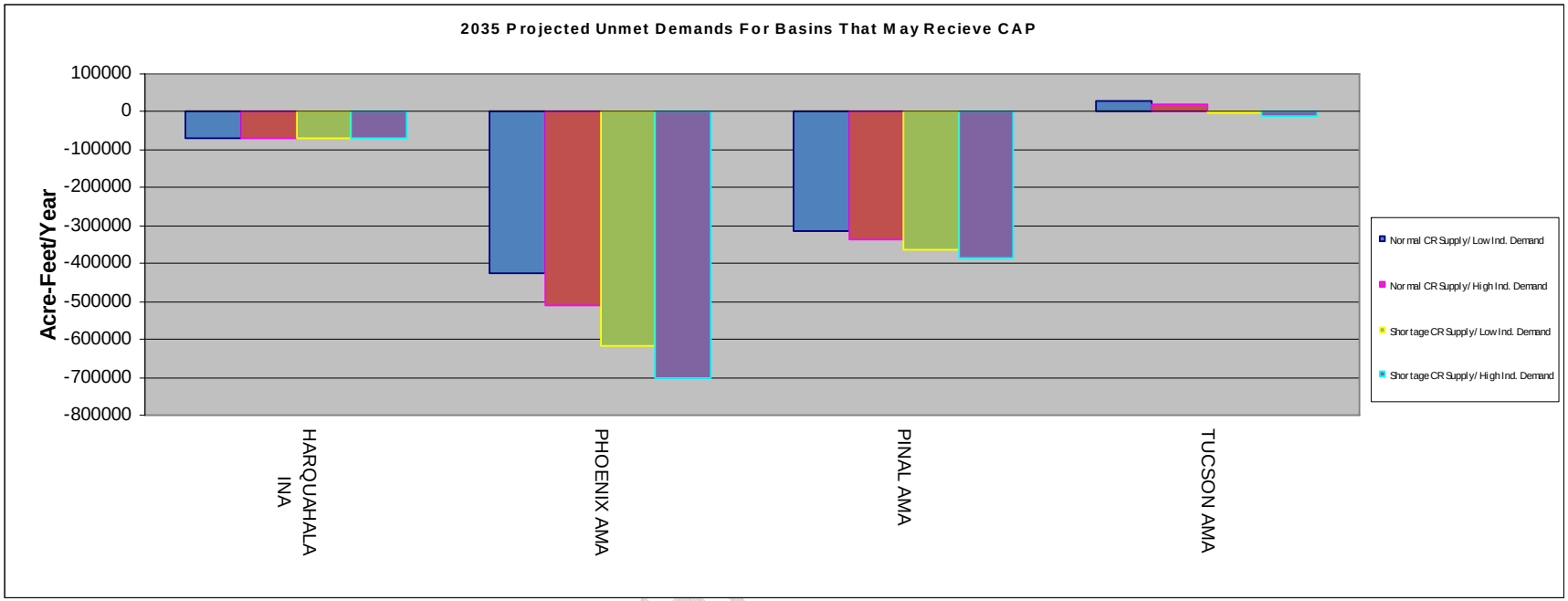

Figure 9. 2035 Projected Unmet Demand For AMAs or INAs That May Receive CAP Water

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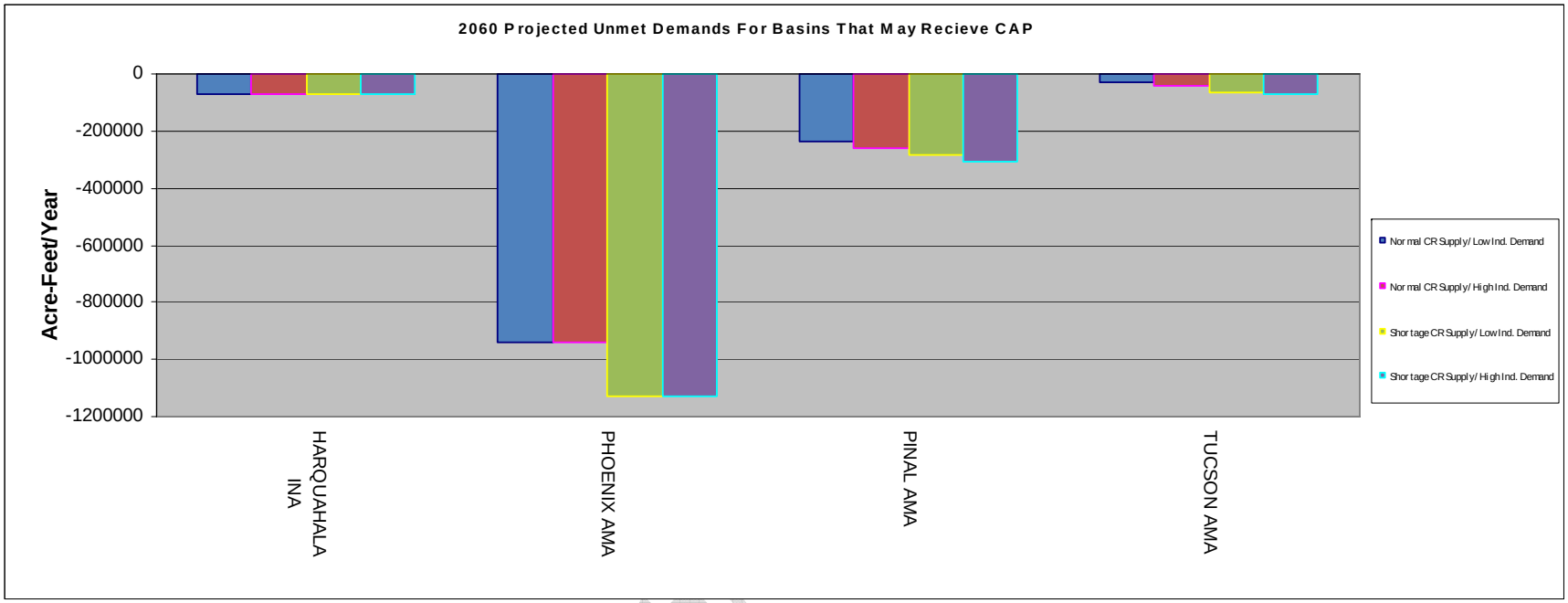

Figure 10. 2060 Projected Unmet Demand For AMAs or INAs That May Receive CAP Water

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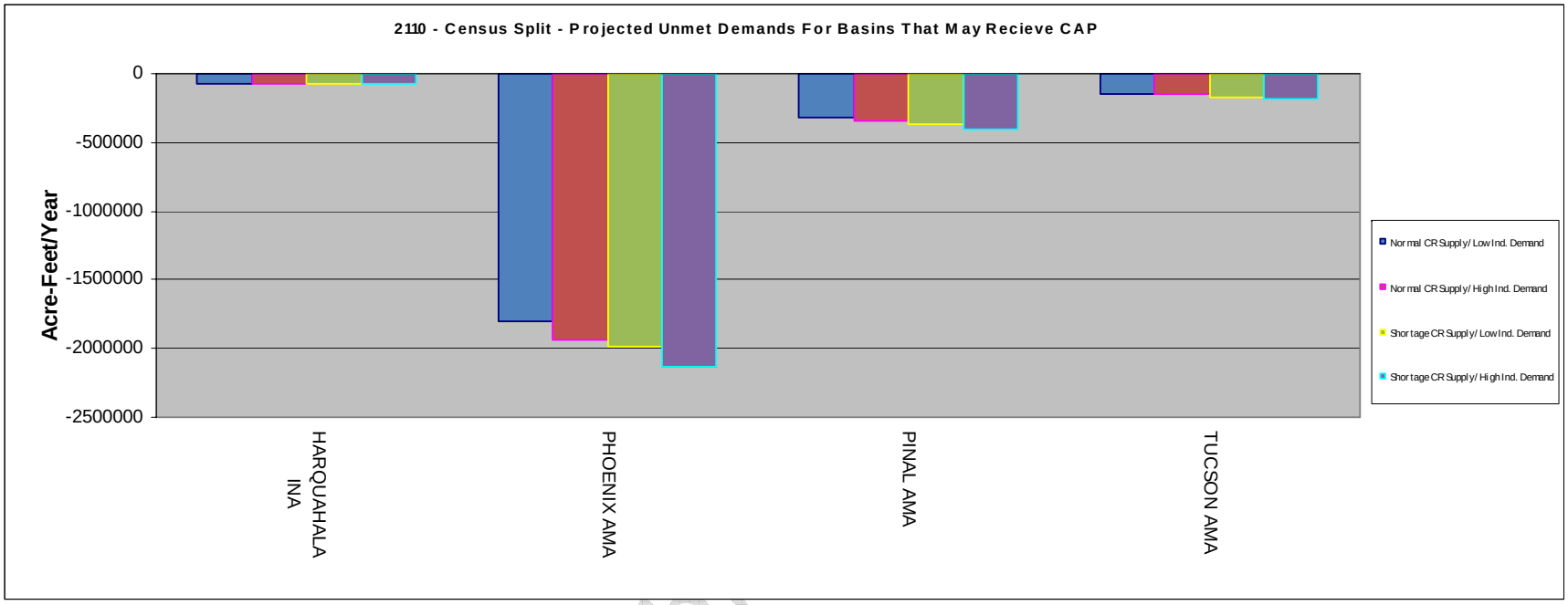

Figure 11. 2110 – Census Split - Projected Unmet Demand For AMAs or INAs That May Receive CAP Water

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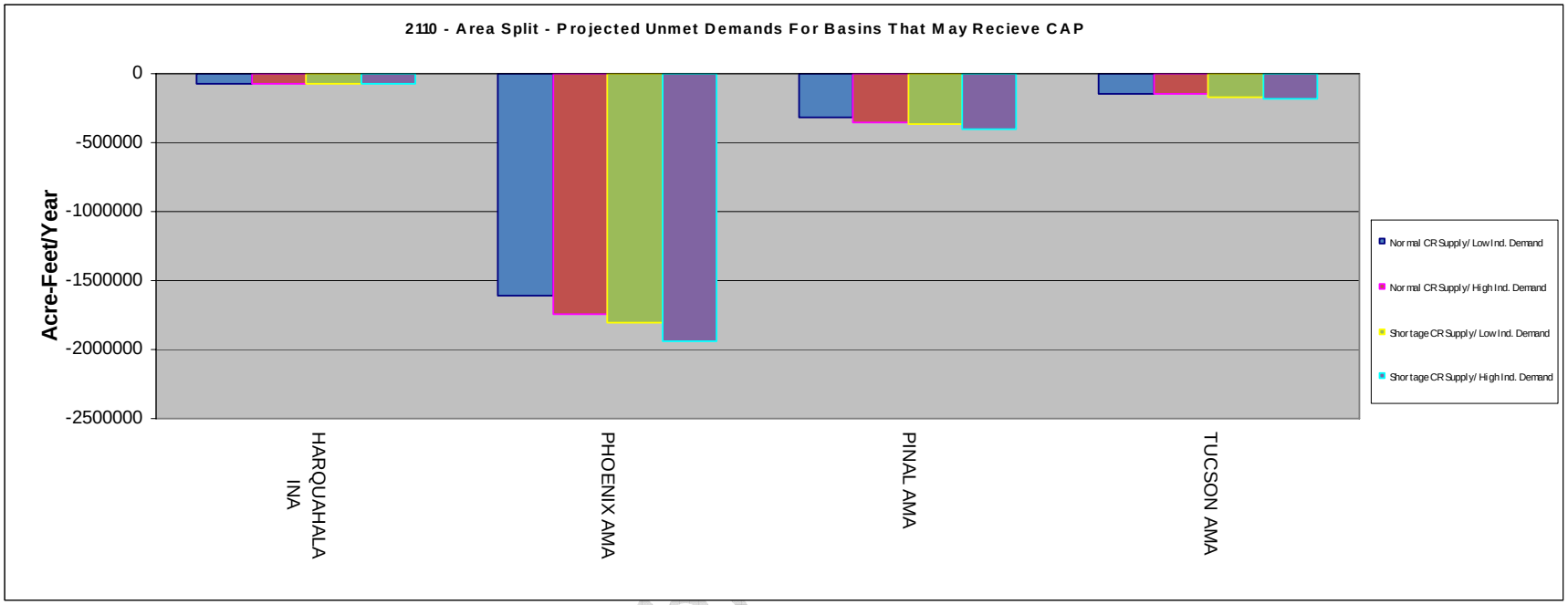

Figure 12. 2110 – Area Split - Projected Unmet Demand For AMAs or INAs That May Receive CAP Water

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WATER CONSERVATION AND THE IDENTIFICATION OF POTENTIAL ADDITIONAL WATER SUPPLIES THAT MAY BE DEVELOPED TO OFFSET PROJECTED UNMET DEMANDS

Water Conservation

Conservation of water supplies is perhaps one of the most simple, yet potentially effective methods to help offset future unmet water demands. In AMAs conservation methods and goals exist for all major water use sectors, including the municipal, industrial and agricultural sectors. Outside AMAs many water providers and agricultural and industrial users practice conservation methods, both to conserve the available water supply and to gain the cost benefits that may be achieved by reducing water consumption. It is assumed that conservation in all water use sectors will be an ever-increasing practice in future years, and one capable of generating significant reductions in future water use for all groundwater basins in the state.

Renewable and Non-Renewable Supplies

Whenever possible, it is important to promote the use and development of renewable water supplies, such as surface water or effluent. Following this goal will help sustain existing groundwater uses and reserves for longer periods of time and better preserve this limited, non-renewable resource for times of drought or other water shortage and provide a more reliable water supply for future generations.

Supporting the use and development of renewable supplies is an important goal. However, as a practical matter it maybe be found that the development of sufficient additional renewable water supplies in any given basin may be difficult or unlikely due to limited physical availability of renewable supplies, or due to other practical, legal, environmental or economic factors.

Since future decisions on developing additional water supplies will involve many complex issues and considerations, it was beyond the scope of this study to specifically recommend the development of one potential source of additional supply over another. However, it is believed that the analysis will help identify those basins where the development of renewable resources is a potentially viable option.

Potential Additional Water Supplies

The projections of future unmet demand were used to identify groundwater basins that will eventually require the development of additional water supplies to meet projected future water demands. Water supplies that were evaluated as potential sources of additional water to meet future unmet demands included: groundwater, surface water (instate rivers, Colorado River), CAP, effluent and other miscellaneous supplies.

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Potential Hydrologic, Technical, Legal and Other Issues Related to Developing Additional Water Supplies

Although additional sources of water supply are potentially available for any given groundwater basin, there are various hydrologic, technical, legal, environmental and economic issues related to developing such supplies that may limit their practical feasibility or actual development.

Groundwater

Water in aquifer storage is generally referred to as groundwater. However, under Arizona law, water in aquifer storage that is closely associated with certain surface water features may be legally classified as surface water, subflow, Colorado River water, etc. Based on the available data and estimates, no attempt was made to sub-divide the total estimated volume of water in aquifer storage into separate legally defined classes of water. With the possible exception of the Colorado River mainstem basins, most water in aquifer storage in the state is generally and legally classified as groundwater.

Based on available estimates of groundwater in storage, natural recharge and current rates of groundwater consumption it appears that pumping additional groundwater to supply part, or all of the projected unmet demand for many basins would be a potential option. However, estimates of groundwater storage and natural recharge vary significantly in reliability due to existing data limitations, methods of analysis and underlying assumptions. It should not be assumed that these estimates are alone sufficient to project the future long-term sustainability of groundwater supplies in any basin, or portion of a basin. The cost to develop additional groundwater supplies may also be prohibitive when determining if future long-term groundwater supplies are feasible.

During its review of currently available water supplies the WRDC Supply committee reviewed recent groundwater level change trends (from the late 1980s/mid 1990's to the mid/late 2000's) to assist in making qualitative assessments of each basin's current overdraft status. Basins with sparse, or no water level data available could not be evaluated for this qualitative indicator of overdraft.

Most basins showed predominant trends of either rising or falling water levels. For example, many of the predominantly agricultural basins of west-central and southeastern Arizona showed extensive water level declines over the last 15 to 20 years (see Spreadsheet and MAP). The observed water level declines in these basins are clear indicators that current levels of groundwater pumping are causing aquifer overdraft. In many parts of the Phoenix, Pinal and Tucson AMAs water levels have been rising over the last 15 to 20 years (see MAP). Water level rises in these areas are mainly attributed to overall reductions in groundwater pumping, and the introduction and use of large volumes of CAP water for direct use and recharge.

The evaluation of currently available groundwater supplies also included a comparison of the current rate of groundwater consumption in each basin to the basin's estimated

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natural recharge and aquifer storage. The estimates of water in aquifer storage and natural recharge were taken from data compiled in the Arizona Water Atlas that were originally presented in various hydrologic reports prepared by United States Geological Survey (USGS), the Arizona Department of Water Resources (ADWR) and other researchers. Low-end estimates were used for analysis when more than one storage or recharge estimate was available for a given basin. Original aquifer storage estimates for each basin were reduced (adjusted) by 20 percent to reflect hydrologic, practical and other limitations on the actual volume of water that may be produced from a basin. For the most part, the estimates of water in aquifer storage were available only to depths of 1,000 to 1,200 feet below land surface.

The results of the analysis indicated that, for most basins, the current rates of groundwater consumption are probably sustainable for at least 100 years (for the purposes of this report, 100 years is regarded as "long-term"). However, it should be noted that basins where groundwater use was estimated to be sustainable for 100 years may still be in overdraft (withdrawals exceed recharge over time), and therefore the depth to water and the total volume of aquifer storage may still decrease over those 100 years. The analysis also revealed that some basins that are currently experiencing significant overdraft have relatively large groundwater consumption rates compared to estimated groundwater storage and natural recharge. The long-term sustainability of the groundwater supply for these basins is uncertain.

The qualitative analysis of the long-term sustainability of current groundwater consumption was based on the underlying assumption that current water supply and demand conditions would remain unchanged into the future (thus assuming all currently available instate surface, CAP and Colorado River water supplies would remain available and undiminished for potential future direct use or recharge). Since this assumption may be unrealistic in the future for some basins that currently rely heavily on such renewable resources, the analysis may significantly overestimate the long-term sustainability of current rates of groundwater consumption.

Basins that have uncertain long-term groundwater sustainability, based on current rates of consumption, are listed in Table 1. A complete listing for all basins is provided in Appendix X. It should be noted that the available water level change data for some sub-basins or local areas within basins, such as the San Simon sub-basin of the Safford basin clearly indicate overdraft conditions. However, sub-basin specific groundwater storage and groundwater withdrawal data are unavailable. Therefore, it was not possible to evaluate the long-term sustainability of the baseline groundwater demand for such sub-basins or local areas. Based on the analysis it seems that plans to develop additional groundwater supplies in basins that already face long-term groundwater sustainability issues may be comparatively short-term solutions that will eventually fail to meet projected long-term water needs.

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Basin	Sub-basin	2006 GW Demand (AF/Yr)	Estimated Natural Recharge (AF/Yr)	Adjusted GW Storage (AF)	Recent WL Neg. WL Change Rate (FT/Yr)
Butler Valley	none	14,500	1,000	2,000,000	-1.0
Douglas	Douglas	53,500	15,500	16,640,000	-1.2
	Douglas INA				-1.3
Gila Bend	none	295,300	10,000	13,600,000	-4.3
Harquahala	none	66,000	1,000	10,400,000	-1.1
Hualapai	none	8,800	2,000	2,400,000	-0.9
McMullen Valley	none	71,500	1,000	11,200,000	-2.2
Prescott AMA	Little Chino	20,300	8,200	2,400,000	-1.4
	Upper Agua Fria				-1.4
Ranegras Plain	none	29,350	1,000	7,200,000	-0.9
Willcox	none	175,000	15,000	33,600,000	-2.0

Table 1. Basins currently in overdraft that have long-term groundwater sustainability issues at baseline rates of groundwater consumption

Aquifer Productivity

Basins with a currently sustainable long-term groundwater supply still face other hydrologic and technical issues that may ultimately limit the actual volume of additional groundwater that can be produced. For example, in any basin groundwater production is directly related to aquifer transmissivity and storage properties. In many basins these properties vary substantially from location to location. Therefore, it isn't always possible to develop groundwater resources in the area where they may be needed to supply the current or projected water demand. Additionally, it is unrealistic to assume that sufficient wells could be drilled within a basin over any reasonable time-frame that would be capable of completely "draining" an aquifer, as some planned groundwater depletion scenarios might propose.

Groundwater Quality

Other hydrologic and technical issues related to the development of groundwater resources include degradation of water quality at increasing pumping depths. In many groundwater basins it is a well known fact that the quality of groundwater decreases with increasing depth in the aquifer. For most basins it is likely that increased treatment costs, particularly for municipal supplies, will be experienced as groundwater supplies are pumped from deeper depths in the aquifer system

Land Subsidence

Land subsidence and earth fissures are potential problems that often accompany groundwater development and aquifer overdraft. Wide-spread, damaging land subsidence and earth fissuring has occurred in many groundwater basins of central and southern Arizona where historic groundwater pumping has caused the water table to

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decline by several hundred feet and irreversible aquifer compaction has occurred. Land subsidence has caused significant damage to land, structures, wells, flood control and water/wastewater infrastructure and permanent reductions in aquifer storage capacity.

Although land subsidence is generally regarded as a regional problem that is caused by the collective impacts of many wells, ADWR is charged with evaluating the potential for new, non-exempt wells that are proposed to pump in AMAs to cause unreasonable increasing damage to surrounding land and other water users due to projected water level decline and projected regional land subsidence. The potential for land subsidence or earth fissuring to endanger property or potential groundwater storage capacity is one of the three fundamental water management concerns that may be evaluated to determine if subsequent (new) active management areas are formed in the state. It is clear that land subsidence continues to be a major concern that could eventually impact groundwater development in certain areas of the state.

Groundwater/Surface Water Interaction

The development of additional groundwater supplies may also be limited in areas where pumping may impact perennial or intermittent surface water features such as: rivers, streams, springs or lakes. In such areas groundwater in the aquifer may be in direct hydraulic connection with the surface water system, and additional pumping may cause reduction in surface water flows that could be legally limited or prohibited due to their detrimental impact to surface water right holders. Depletion of surface water resources may also damage the state and local economies (especially because of impacts to tourism, recreation, and property values) and/or may be otherwise culturally undesirable or unacceptable.

Along the main stem of the Colorado River any pumping that occurs within the area known as the Colorado River accounting surface may be regulated under Federal law or rules. For instate basins that have perennial or intermittent rivers, streams or springs; the existence of numerous surface water rights may practically limit the actual locations and volumes of any additional groundwater supplies that may be developed.

Environment

Since additional groundwater pumping may impact surface water resources and because such impacts to surface water often result in collateral impacts to environmental resources it is also possible that potential environmental impacts and concerns would be raised that could limit the development of additional groundwater supplies in environmentally sensitive and/or protected areas.

Tribal Rights and Claims

Many Indian Tribes have currently quantified their water rights through decrees, settlements or other processes. Some settlements specifically quantify rights to groundwater. Other tribes have yet to quantify their water rights through settlements or litigation. All Tribes have a legal right to groundwater under their tribal lands. The use

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of groundwater from aquifers underlying tribal lands by non-Tribal users is restricted by these legal rights.

Legal Limits

The development of additional groundwater resources and location of new wells in Active Management Areas (AMAs) and within some areas covered by various legal agreements or settlements also carries varying levels of regulation and potential restriction. In AMAs, applicable groundwater withdrawal permits or groundwater rights must be obtained to withdraw groundwater. Additionally, well spacing and impact rules must be followed to receive authority to drill non-exempt wells in specific locations in AMAs. Outside AMAs, restrictions on well drilling (other than well construction) are few, but prospective well owners are advised that the location and pumping of their wells may eventually be evaluated as part of future adjudications proceedings that could ultimately impact the future use of their well.

Inter-Basin Transfer

Legal restrictions prohibiting the transportation of groundwater from one groundwater basin to another, exist for most basins in the state. Except for a few limited situations, groundwater supplies that are developed in one basin cannot be transported to another basin.

Costs

The economic costs to drill and test wells and to pump, transport and potentially treat groundwater are significant considerations that may ultimately limit the uses and volume of additional groundwater that is produced in many groundwater basins. In 2008, the estimated cost to drill domestic wells in the Payson area was about $25,000 to $30,000 (ADWR, 2008). Recent costs to drill high capacity municipal wells in alluvial basins of central and southern Arizona were estimated at $600,000 to $800,000 (ADWR, 2008). Recent costs to drill four, 12-inch diameter municipal wells into deep, hard rock aquifers in the Flagstaff area were estimated to range from about $1.2 to $1.5 million per well (ADWR, 2008). Costs to drill 700-foot deep wells in the Showlow area that are capable of producing 300-500 gallons per minute (gpm) from the Coconino sandstone run from about $250,000 to $300,000 per well (ADWR, 2008). Costs to drill, case, develop and install pumping equipment in a 3,000 to 4,000 foot water production well for the City of Williams are reported to have run in the $2 to $3 million range. The reported costs to pump this well which has a depth to water that exceeds 3,000 feet below land surface (BLS) along with other City of Williams wells at peak rates that produce a combined volume of several hundred gallons per minute is in the $100,000 per month range (ADWR, 2008).

Pumping costs increase as the depth to water increases. Estimated pumping costs of groundwater are shown in Figure 1 for various pump (Ep) and pump motor (Em) efficiencies, and power rates currently available to groundwater pumpers in various areas

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throughout the state. For reference purposes, the current average statewide depth to water was about 200 feet BLS for the over 4,000 wells that are shown on Map A. Based on the current average depth to water for those wells, and assuming electrical costs will still be in the 4 to 10 cent per kilowatt-hour range (not necessarily a likely assumption), there would be about a 5-fold increase in pumping costs over today's costs when pumping depths approach 1,000 BLS.

Based on the high costs to drill wells and to pump, transport and potentially treat groundwater it seems probable that economic considerations will have an increasing influence on the ultimate development of additional groundwater supplies in any basin, and potentially make groundwater too expensive for certain uses.

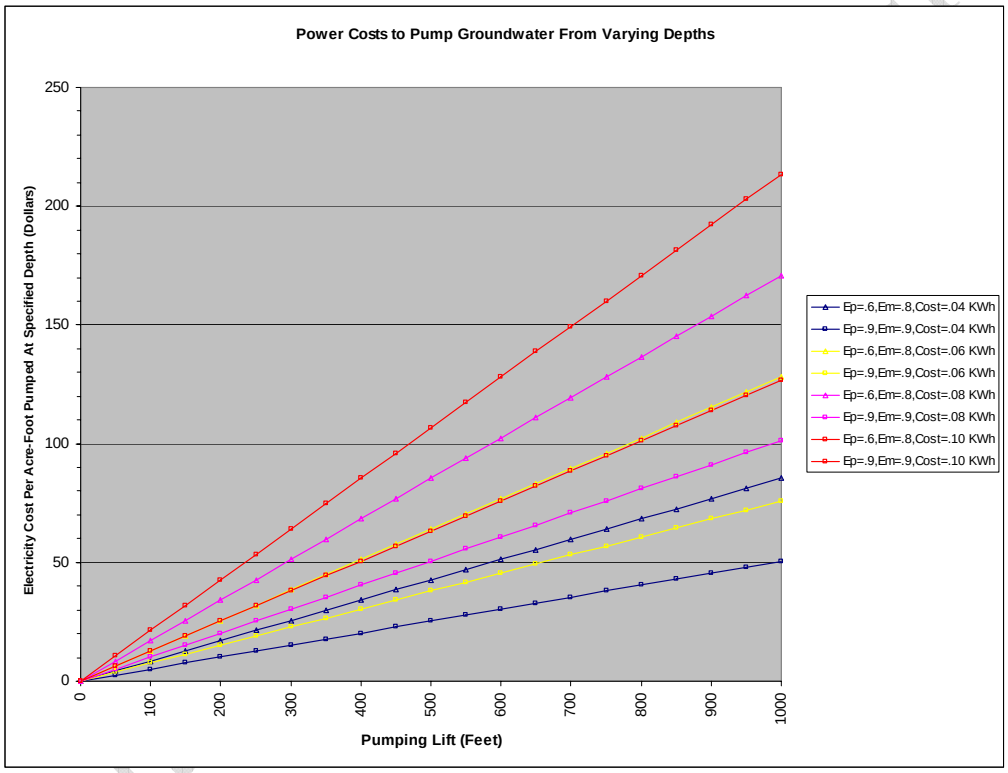

Figure 1. Estimated Cost to Pump Groundwater From Varying Depths

Surface Water

Climate Change

Current scientific research generally indicates that climate change may significantly reduce and/or change the future magnitude and timing of annual precipitation, surface water runoff and stream flow. There seems to be little doubt that such changes will eventually impact and diminish instate surface water, Colorado River, and CAP water supplies.

Physical Availability and Water Rights

Instate Rivers and Streams

The development of additional surface water supplies from the state's in-state river and stream systems is physically possible, but legally unlikely without the purchase and transfer of existing surface water rights. There are existing surface water rights or claims to many of these flows, and it would generally be necessary to acquire existing rights in order to tap this potential source of supply. However, the acquisition of existing surface water rights may be difficult to justify due to uncertainties in the eventual outcomes of ongoing and/or potential future adjudications proceedings in the state. Perennial reaches of rivers and streams have been identified in many instate groundwater basins. The physical availability of instate surface water could also be impacted by future groundwater pumping that may diminish surface flows.

Proposals to construct additional storage (new dams and/or reservoirs) have also been made. However, it is doubtful that many new dams could be built in the state, due to the lack of suitable dam sites, or due to environmental concerns and regulations or because the flow they might capture and divert would already be claimed by existing surface water right-holders.

Colorado River

The development of additional Colorado River surface water supplies is physically possible, but would require the acquisition of existing Colorado River entitlements. A significant amount of the water in these settlements, particularly Priority 1 entitlements, is water to which Indian Tribes have rights. Such entitlements are not subject to purchase by or transfer to other users. The physical delivery of Colorado River surface water would currently be limited to potential users who are located along the main-stem of the Colorado River, and perhaps to potential in-state users who could acquire entitlements, and receive deliveries from the CAP canal. Although Federal regulations restrict new pumping along the Colorado River mainstem basins, any new uses along the river or in tributary groundwater basins could eventually diminish Colorado River flows.

CAP

The development of additional CAP supplies to supply projected unmet demands would be restricted to basins that currently receive CAP water, to basins that sometime in the future may be directly served by CAP canal extensions and to basins where water exchanges could be negotiated that would allow water users to use local in-state surface water in exchange for providing equal or greater volumes of CAP water to water users with actual physical access to the CAP canal. The likelihood of developing any additional CAP water is currently uncertain.

Tribal Rights and Claims

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Many Indian Tribes have currently quantified their water rights through decrees, settlements or other processes. These currently quantified rights frequently involve in-state surface water. Other Tribes have yet to quantify their water rights through settlements or litigation. All tribes have a legal right to surface water flowing across or adjacent to their lands. The use of such surface water by non-Tribal users is restricted by these legal rights.

Surface Water Quality

Water quality is an important factor that must be considered when evaluating instate surface water, Colorado River or CAP water as potential additional water supplies. Any water supplies that may be potentially developed for municipal use would require treatment to existing Federal Safe Drinking Water Act (SDWA) and state standards. Increasingly stringent SDWA standards may affect the ability to treat water and raise treatment costs beyond the means of water users in some basins.

Environment

Since impacts to surface water resources often result in collateral impacts to environmental resources it is possible that potential environmental impacts and concerns would be raised that could also limit the diversion of additional surface water supplies, or the sever and transfer existing surface water flows that may help maintain or support environmentally sensitive and/or protected areas.

Costs

The costs to acquire surface water rights, and to build infrastructure such as dams, diversion works, canals, pipelines and water treatment plants are very high. Some of these costs will be detailed in the WRDC Finance committee report

Effluent

The use of effluent to offset projected unmet demands is a very important option for many basins. Based on data developed from the Arizona Water Atlas and other sources there was about 503 KAF/yr of effluent generated in the state during the 2006 baseline period and about 212 KAF/yr of effluent that was directly used during that same time. Much of the difference between the volume of effluent generated and that which was directly used went to aquifer recharge, either in managed or constructed facilities. A substantial volume of effluent that is discharged into rivers and streams also helps support wildlife and riparian habitat and some may also be diverted by downstream users.

In the future more effluent will be used directly to meet projected unmet demands Additionally, in areas served by sewage systems, the volume of effluent generated will increase as populations grow. Therefore, basins with significant populations and sufficient sewage and wastewater treatment facilities will have significant additional "new" effluent supplies available to help offset projected unmet demands. In these areas

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"new " effluent will probably be much more useful to meet new demands than "old" effluent because many existing waste water treatment facilities are regional facilities, and do not have infrastructure that connects them to areas where effluent may be used directly. New treatment facilities would not have this constraint, because they could be sited locally, closer to the end users.

Costs

The costs to build and operate infrastructure such as sewers, pumping stations, pipelines and wastewater treatment plants are very high. Some of these costs will be detailed in the WRDC Finance committee report

Other Water Supplies

In the future the potential development of other sources of water may help meet projected unmet demands. Statewide, other potential sources of additional supply may be unavailable or insufficient in volume to significantly offset projected unmet demands. However, on the local and basin scale the development of other potential supplies will be important.

Potential sources of additional water supply include, but are not limited to:

- Currently Undevelopable or Under-utilized Sources of Groundwater
    - Brackish and/or Poor Quality Groundwater
    - Mine drainage
    - Agricultural drainage
- Water harvesting
- Desalination of ocean water
- Weather modification

Currently Undevelopable or Under-utilized Sources of Groundwater

Although groundwater has been identified as a generally available potential source of additional water in many basins there are some areas in the state where poor groundwater water quality makes it an essentially undevelopable resource to supply current uses. Likewise there are certain areas in the state where mining or agricultural activities require the pumping of water for drainage purposes, and the resource may be currently under-utilized. The following sections provide information on these currently undevelopable or under-utilized sources of water

<u>Brackish and/or Poor Quality Groundwater</u>

There are large volumes of brackish and poor quality groundwater located in certain parts of the state (Little Colorado River basin, Gila basin) that may eventually be developed. While this volume of water is included in the estimates of aquifer storage, it is generally

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not regarded as a currently practical resource to develop because of its comparatively high treatment costs. Although this resource has limited current uses it may be tapped sometime in the future as supplies diminish and/or treatment costs become a less significant component of the overall price of providing water.

Mine Drainage

This potential source of supply could provide additional water in areas where hard rock mining operations, and possibly sand and gravel mining operations exist and require dewatering. This potential source of supply would likely be limited to the known copper mining areas of central and southern Arizona. And to areas along stream channels where sand and gravel operations exist and pit flooding occurs. Water quality issues and potential groundwater/surface water impact issues could also limit the volume and suitable uses of this potential source of supply.

Agricultural Drainage

Significant agricultural drainage water is currently generated in the Lower Gila River and Yuma basins. In these areas much of the water is sent in drainage canals to Mexico and eventually reaches the wildlife habitat at the Cienega Santa Clara (in Mexico). Some agricultural drainage pumpage from the Lower Gila and Yuma basins has been identified to supply the Yuma Desalting plant, however the plant has only been operated for comparatively short periods since its construction. Significant drainage pumpage also occurs in the Buckeye Irrigation District in the Phoenix AMA, that water eventually reaches the channel of the Gila River and is diverted downstream at Gillespie Dam to farmers in the Gila Bend area. For those areas, and potentially other areas in the state, it is possible that agricultural drainage water could be used to supply some types of potential unmet demands.

Water Harvesting

Water harvesting is generally considered to have two potential scales of implementation. On the local level, rainwater may be harvested from roof tops and impermeable surfaces at homes and buildings and used to help supply the outdoor water needs of the properties. In some areas, rainwater harvesting may be capable of providing a significant percentage of these outdoor water needs.

Large scale water harvesting projects are sometimes referred to as macro-scale rainwater harvesting or storm water harvesting projects. These types of projects involve the routing of runoff to collection or recharge areas and the potential treatment of land surfaces to render them semi-impermeable to infiltration. In Arizona, some proposed storm water harvesting projects and proposals have been met with opposition from surface water right holders and other parties who are concerned about potential impacts to existing surface water rights, potential impacts to land and wildlife habitat, potential impacts to aquifer water quality, etc.

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At this time it is unclear to what extent storm water harvesting projects may eventually be implemented.

Desalination of Ocean Water

Desalination of ocean water is a possible method that may eventually bring additional water supplies to some Arizona basins. Possible locations for desalination plants include the Gulf of California and Pacific coast of California. In either situation it is unlikely that desalinated ocean water would actually be transported to instate Arizona groundwater basins. Instead, the desalinated water would be exchanged for Colorado River water that would have been used in California or Mexico. Suffice it to say, the costs of such activities would be high, the details complex and ultimate implementation may be far into the future. However, it is a potential long-term option to supplement water supplies that may eventually be available to some basins.

Weather Modification

Cloud seeding projects have occurred in various areas of Arizona in the past. However, no comprehensive assessment of the results of such studies was made in the preparation of this report. Therefore, the potential for cloud seeding to appreciably increase precipitation and to ultimately increase available water supplies in any groundwater basin is uncertain.

Summary

The unmet demand analysis for 2035, 2060 and 2010 indicated that unmet demands may potentially range from -608,000 AF/Yr in 2035 to -3,216,000 AF/Yr. in 2110. The analysis indicated that approximately 87 % and 79% of the projected unmet demand for 2035 and 2110 would occur in AMAs with the remaining 13 % and 21 % of the projected unmet demand for those years occurring in non-AMA areas.

Water conservation is seen as an extremely important activity that will help reduce projected future unmet demands. Likewise, whenever possible, the development and use of renewable supplies will help sustain existing groundwater uses and reserves for longer periods of time and better preserve this limited, non-renewable resource for times of drought or other water shortage and provide a more reliable future water supply. However, since future decisions on developing additional water supplies will involve many complex issues and considerations, it was beyond the scope of this study to specifically recommend the development of one potential source of additional supply over another.

The projections of future unmet demand were used to identify groundwater basins that will eventually require the development of additional water supplies to meet projected future water demands. Water supplies that were evaluated as potential sources of additional water to meet future unmet demands included: groundwater, surface water (instate rivers, Colorado River), CAP, effluent and other miscellaneous supplies.

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Additional sources of water supply are potentially available for any given groundwater basin, however there are various hydrologic, technical, legal, environmental and economic issues related to developing such supplies that may limit their practical feasibility or actual development. Table 2 provides a summary of potential additional supplies, issues that may limit their development and use, and general infrastructure requirements associated with developing additional water supplies.

The analysis of Arizona's current and future water supplies and demands has revealed several areas of data deficiency and/or analytical uncertainty that may impact the potential accuracy of the unmet demand analysis. Some major areas of data deficiency and/or analytical uncertainty include:

- Future population growth (magnitude and distribution) and associated water use
- Future levels of agricultural activity and associated water use
- Future levels of industrial activity and associated water use
- Limited hydrogeologic data (recharge estimates, basin storage, water level data)
- Limited water consumption data for some areas and some sectors
- Future impacts of climate change on water supplies and water demand
- Future outcomes of various on-going settlements and legal proceedings related to Tribal water rights and stream adjudications
- Future impacts of various state, Federal and international water negotiations and settlements
- Other?

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Potential Source of Supply	Potential Issues	Potential Infrastructure Requirements
Groundwater (Within Basin)	Available GW in Storage Current GW Basin Overdraft Aquifer heterogeneity/productivity Water Quality Land Subsidence and Earth Fissures GW/SW Impacts Colorado River Accounting Surface Impacts Environmental Tribal Rights and Claims Groundwater Right and Well Drilling Rules Costs to Drill Wells and to Pump, Treat and Transport Groundwater	Wells Pipelines Storage Facilities Treatment Facilities
Groundwater (Import)	Same as Above Plus Inter-basin GW Transfer Restrictions	Same as Above
Surface water (In-state)	Physical Availability of SW Physical Availability of New Dam and Reservoir Sites Costs to Construct and Operate New SW Diversion and Transport Infrastructure Water Quality Environmental Costs to Treat SW SW Rights (Acquisition) Tribal Rights and Claims	Dams Diversion Works Pipelines Canals Treatment Facilities
Surface water (Colorado River)	Physical Availability of CR Water Water Quality Costs to Treat CR Water Environmental Tribal Rights and Claims Colorado River Entitlements (Acquisition)	Diversion Works Pipelines Canals Treatment Facilities
CAP	Physical Availability of CAP Water Proximity to CAP Canal Tribal Rights and Claims Costs to Treat CAP Water Priorities in Times of Shortage	Diversion Works Pipelines Canals Treatment Facilities
Effluent	Water Quality Treatment and transport costs	Sewer systems Lift stations Pipelines WWTPs
Other Supplies:		
Mine Drainage	GW/SW Impacts Water Quality Treatment and transport costs	Same as for GW
Agricultural Drainage	GW/SW Impacts Water Quality Treatment and transport costs	Same as for GW
Water Harvesting	Technical Feasibility SW-Right Impacts and Other Legal Restrictions Construction, Operation and Maintenance Costs	Pipelines Recharge Facilities WQ Treatment
Desalination of Ocean Water	Technical Feasibility International and Interstate Water Transfer Issues Infrastructure and Treatment Costs	Desalination Plants Pipelines Brine Disposal Systems
Weather Modification	Technical Feasibility Cost	?

Table 2. Additional Water Supplies That May Potentially Be Developed

Recommendations

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The compilation and projection of water supply and demand data is only one part of the overall task of assessing and preparing for Arizona's future water needs. It will be important to continue to improve and refine estimates and plans on a more detailed local or sub-regional basis before significant decisions regarding the development of future additional water supplies occurs.

The following recommendations are provided to support and promote sound water management policies and the analysis of the state's future water needs:

- Continue to support and promote water conservation at all levels and in all areas of the state.

- Continue to support the use and development of renewable water supplies when available and practical

- Continue to collect and analyze water consumption data, throughout the state, added efforts in rural areas and on Tribal lands are needed.

- Continue to collect and analyze hydrogeologic data to better estimate basin and local area recharge, groundwater storage, water level change trends and other basin characteristics and water budget components.

- Using GIS and other methods, begin a process to disaggregate basin-level supply and demand data, and hydrogeologic data to county-level or other planning area levels of analysis.

- Continue to support research on potential impacts of climate change on future water supplies and demands.

- Integrate the most recent census data into future population projections and water demand analyses.

- Evaluate and integrate recommendations of stakeholders who have provided comments and feedback to ADWR staff concerning potential metrics and criteria to include in an ongoing basin "vulnerabilty analysis" that will be presented in Volume 9 of the Arizona Water Atlas which will be published toward the end of 2011

- Compile and evaluate weather modification data for the state and for the Colorado River basin area in general. Potentially support efforts, even if conducted out of state, that may significantly enhance Colorado River Basin precipitation and runoff.

- Others?

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Instate Water Supplies Only	Basin	Sub-basin	Basin Area (Square Miles)	Recent Water Level Change Trends and Depth-to-Water in Wells Measured in Basin[2,3]: Total Number of Wells Measured	Number of Wells Measured In Basin Showing Rising Water Levels	Number of Wells Measured In Basin Showing Declining Water Levels	Number of Wells Measured In Basin Showing No Change In Water Level or Flowing Conditions	Mean Annual Positive Change Rate for Wells Showing Rises (Ft/Yr)	Mean Annual Negative Change Rate for Wells Showing Declines (Ft/Yr)	Overall Mean Water Level Change In Basin Over Measuremment Period (Feet)	Minimum Measured DTW For Ending Year (Feet - BLS)	Maximum Measured DTW for Ending Year (Feet -BLS)	Mean DTW for Ending Year (Feet - BLS)	Aquifer: Estimated Natural Recharge [4] (AF/Yr)	2006 Baseline Groundwater Demand [5] (AF/Yr)	Estimated Natural Recharge - 2006 Baseline GW Demand[6] (AF/Yr)	WL Data Indicate A Predominant Current/Recent Basinwide Trend of Declining Waterlevels?[7]	Are There Pumping Centers or Areas Within Basin That Show Locally Significant Current/Recent WL Decline?	Adjusted Estimated Volume of Water in Aquifer Storage [8,9] (AF)	Assuming Baseline Supply/Demand Conditions Continue Is Baseline GW Demand Estimated to Be Sustainable For at Least 100 Years[10]?	Has There Been Documented Land Subsidence In Basin [11]?
	AGUA FRIA	none	1,263	6	3	3	0	0.1	-0.1	0.2	21	120	55	9,000	3,602	5,398	NA	N	480,000	Y	
	ARAVAIPA CANYON	none	517	2	0	2	0	NA	-0.1	-2.5	38	54	46	7,000	514	6,486	NA	?	4,000,000	Y	
	BIG SANDY	Fort Rock	1,988	6	2	4	0	0.2	-0.4	-2.5	7	686	214	22,000	15,028	6,972	NA	?	7,600,000	Y	
		Wikiup		37	21	16	0	0.4	-0.4	0.5	4	523	70				N	N			
	BONITA CREEK	none	457	0	0	0	0	NA	NA	NA	NA	NA	NA	9,000	0	9,000	NA	NA	800,000	Y	
	BUTLER VALLEY	none	288	20	0	20	0	NA	-1.0	-18.5	88	515	247	1,000	14,503	-13,503	Y	Y	1,600,000	?	
	CIENEGA CREEK	none	606	54	19	33	2	0.2	-0.3	-1.7	2	405	113	8,500	1,101	7,399	Y	?	4,080,000	Y	
	COCONINO PLATEAU	none	5,812	2	0	2	0	NA	-0.5	-8.7	95	274	185	NA	500	NA	NA	?	2,400,000	Y	
	DONNELLY WASH	none	293	0	0	0	0	NA	NA	NA	NA	NA	NA	3,000	19	2,981	NA	NA	112,000	Y	
	DOUGLAS	Douglas	949	272	31	240	1	0.4	-1.2	-16.4	17	347	162	15,500	53,300	-37,800	Y	Y	16,640,000	?	Y
		Douglas INA		13	2	11	0	0.4	-1.3	-20.0	67	358	165				Y	Y			
	DRIPPING SPRINGS WASH	none	378	2	0	2	0	NA	-0.4	-7.5	90	100	95	3,000	11	2,989	NA	?	120,000	Y	
	DUNCAN VALLEY	none	550	7	2	5	0	0.1	-0.2	-1.8	23	194	76	6,000	8,054	-2,054	N	N	7,200,000	Y	
	GILA BEND	none	1,284	124	8	116	0	2.1	-4.3	-58.8	3	645	221	10,000	295,323	-285,323	Y	Y	13,600,000	N	Y
	GRAND WASH	none	959	2	2	0	0	1.2	NA	23.1	10	508	259	NA	2	NA	NA	N	NA	Y	
	HUALAPAI VALLEY	none	1,212	46	26	20	0	0.4	-0.9	-2.9	24	925	459	2,000	9,109	-7,109	Y	Y	2,400,000	?	
	LOWER SAN PEDRO	Camp Grant Wash	1,624	17	3	14	0	0.2	-0.9	-9.5	9	319	72	24,000	23,677	323	Y	Y	8,800,000	Y	
		Mammoth		112	57	55	0	0.6	-0.6	0.2	5	606	94				N	Y			
	MCMULLEN VALLEY	none	649	84	4	80	0	0.3	-2.2	-34.2	122	700	474	1,000	71,500	-70,500	Y	Y	11,200,000	?	Y
	MEADVIEW	none	190	8	1	7	0	<0.1	-1.1	-11.0	397	494	439	4,000	145	3,855	Y	Y	800,000	Y	
	MORENCI	none	1,599	1	0	1	0	NA	-0.1	-10.0	16	16	16	15,000	9,126	5,874	NA	N	2,400,000	Y	
	PARIA	none	408	5	0	5	0	NA	-1.2	-19.9	111	519	322	NA	120	NA	?	Y	12,000,000	Y	
	PEACH SPRINGS	none	1,409	2	1	1	0	0.4	-0.1	2.1	146	825	486	NA	351	NA	N	N	800,000	Y	
Instate Water Supplies Only	PRESCOTT AMA	Little Chino Valley	485	35	4	31	0	0.1	-1.4	-19.2	15	435	214	8,200	17,679	-9,479	Y	Y	2,400,000	?	
		Upper Agua Fria		20	6	14	0	0.2	-1.4	-16.1	44	652	245				Y	Y			
	RANEGRAS PLAIN	none	912	89	20	69	0	0.3	-0.9	-11.7	44	482	231	1,000	29,350	-28,350	Y	Y	7,200,000	?	Y
	SACRAMENTO VALLEY	none	1,587	82	60	20	2	0.8	-0.1	8.3	<1	1229	241	1,000	3,765	-2,765	?	Y	2,880,000	Y	
	SAFFORD	Gila Valley	4,747	14	6	7	1	0.4	-0.2	1.3	24	631	105	105,000	87,958	17,042	N	N	21,600,000	Y,?	Y
		San Carlos Valley		1	0	0	1	NA	NA	NA	722	722	722				NA	N			
		San Simon Valley		286	85	201	0	0.4	-1.2	-15.7	2	537	178				Y	Y			
	SALT RIVER	Black River	5,232	0	0	0	0	NA	NA	NA	NA	NA	NA	178,000	12,611	165,389	NA	NA	6,960,000	Y,?	
		Salt River Canyon		1	0	1	0	NA	-0.3	-4.3	20	20	20				NA	NA			
		Salt River Lakes		15	0	15	0	NA	-2.2	-30.2	46	82	68				?	Y			
		White River		0	0	0	0	NA	NA	NA	NA	NA	NA				NA	NA			
	SAN BERNARDINO VALLEY	none	387	24	6	17	1	0.1	-0.4	-4.2	<1	464	74	9,000	19	8,981	Y	N	1,280,000	Y	
	SAN RAFAEL	none	229	6	2	4	0	0.1	-0.4	-5.2	7	209	75	5,000	22	4,978	Y	Y	3,200,000	Y	
	SAN SIMON WASH	none	2,284	1	1	0	0	0.3	NA	4.9	6	6	6	11,000	1,500	9,500	NA	NA	5,360,000	Y	
	SANTA CRUZ AMA	none	716	48	6	42	0	0.0	-0.5	-9.6	6	255	78	50,800	20,980	29,820	Y	Y	128,000	Y	
	SHIVWITS PLATEAU	none	1,821	1	0	0	1	NA	NA	NA	959	959	959	NA	2	NA	NA	NA	NA	Y	
	TIGER WASH	none	74	3	3	0	0	0.3	NA	4.1	21	217	94	1,000	2	998	N	N	560,000	Y	
	TONTO CREEK	none	955	9	5	3	1	0.4	-0.4	1.2	4	82	38	17,000	3,000	14,000	N	N	1,600,000	Y	
	UPPER HASSAYAMPA	none	787	5	4	1	0	0.1	-0.4	0.1	15	817	356	8,000	3,286	4,714	N	N	800,000	Y	
	UPPER SAN PEDRO	Allen Flat	1,825	7	1	6	0	0.5	-0.4	-4.7	7	373	141	35,800	23,957	11,843	Y	Y	15,840,000	Y	
		Sierra Vista		379	111	244	24	0.3	-0.5	-4.1	<1	611	116				Y	Y			
	VERDE RIVER	Big Chino	5,661	60	43	16	1	0.4	-0.2	3.8	<1	694	132	107,000	28,549	78,452	N	Y	10,400,000	Y	
		Verde Valley		174	33	138	3	0.6	-1.2	-13.1	<1	883	183				Y	Y			
		Verde Canyon		7	1	6	0	0.8	-2.4	-41.1	85	318	173				?	Y			
	VIRGIN RIVER	none	434	3	2	1	0	0.3	-0.1	3.4	46	313	168	30,000	1,585	28,415	N	N	1,360,000	Y	
	WESTERN MEXICAN DRAINAGE	none	610	5	1	4	0	0.4	-0.5	-4.2	28	99	74	1,000	6	994	N	Y	2,400,000	Y	
	WILLCOX	none	1,911	587	27	560	0	0.7	-2.0	-32.1	3	730	211	15,000	175,714	-160,714	Y	Y	33,600,000	?	Y
		Instate Subtotals	53,092	2,684	609	2,037	38							723,800	915,970				214,600,000		

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Basins Which Receive Part of their Supply from the Colorado River or CAP	Basin	Sub-basin	Basin Area (Square Miles)	Recent Water Level Change Trends and Depth-to-Water in Wells Measured in Basin[2,3]: Total Number of Wells Measured	Number of Wells Measured In Basin Showing Rising Water Levels	Number of Wells Measured In Basin Showing Declining Water Levels	Number of Wells Measured In Basin Showing No Change In Water Level or Flowing	Mean Annual Positive Change Rate for Wells Showing Rises (Ft/Yr)	Mean Annual Negative Change Rate for Wells Showing Declines (Ft/Yr)	Overall Mean Water Level Change In Basin Over Measuremment Period (Feet)	Minimum Measured DTW For Ending Year (Feet - BLS)	Maximum Measured DTW for Ending Year (Feet -BLS)	Mean DTW for Ending Year (Feet - BLS)	Aquifer: Estimated Natural Recharge [4] (AF/Yr)	2006 Baseline Groundwater Demand [5] (AF/Yr)	Estimated Natural Recharge - 2006 Baseline GW Demand[6] (AF/Yr)	WL Data Indicate A Predominant Current/Recent Basinwide Trend of Declining Waterlevels?[7]	Are There Pumping Centers or Areas Within Basin That Show Locally Significant Current/Recent WL Decline?	Adjusted Estimated Volume of Water in Aquifer Storage [8,9] (AF)	Assuming Baseline Supply/Demand Conditions Continue Is Baseline GW Demand Estimated to Be Sustainable For at Least 100 Years[10]?	Has There Been Documented Land Subsidence In Basin [11]?
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	none	26,700	64	12	51	1	0.8	-1.4	-14.5	12	1241	230	344,600	95,813	248,787	Y	Y	763,200,000	Y	
Instate + CR Lower Mainstem	BILL WILLIAMS	Burro Creek	3,350	0	0	0	0	NA	NA	NA	NA	NA	NA	32,000	3,251	28,749	NA	NA	8,000,000	Y	
		Alamo Reservoir		3	2	1	0	0.1	-0.2	0.2	51	640	276				NA	NA			
		Clara Peak		1	1	0	0	0.3	NA	5.4	22	22	22				NA	NA			
		Skull Valley		7	3	4	0	0.3	-1.3	-11.1	37	248	150				?	Y			
		Santa Maria		5	2	3	0	0.2	-0.1	0.2	19	91	55				N	N			
	DETRITAL VALLEY	none	892	15	10	5	0	0.2	-0.8	-1.4	7	773	354	1,000	159	841	N	N	800,000	Y	
	KANAB PLATEAU	none	4,247	2	1	1	0	<0.1	<-0.1	0.4	484	611	548	NA	2,799	NA	NA	NA	NA	?	
	LAKE HAVASU	none	252	1	1	0	0	1.3	NA	25.3	28	28	28	35,000	47	34,953	NA	NA	800,000	Y	
	LAKE MOHAVE	none	980	2	1	1	0	1.2	-0.1	10.0	346	427	387	183,000	2,007	180,993	NA	NA	960,000	Y	
	LOWER GILA	Childs Valley	7,309	1	1	0	0	0.9	NA	14.2	676	676	676	9,000	110,296	-101,296	NA	NA	80,000,000	?	
		Dendora Valley		1	0	1	0	NA	-1.7	-30.4	96	96	96				NA	NA			
		Wellton - Mohawk		20	9	11	0	0.3	-0.4	-1.1	12	383	141				N	N			
	PARKER	Cibola Valley	2,229	0	0	0	0	NA	NA	NA	NA	NA	NA	241,000	1,787	239,213	NA	NA	11,200,000	Y	
		olorado River Indian Reservatior		1	0	1	0	NA	>-0.1	-0.1	78	78	78				NA	NA			
		La Posa Plains		3	0	3	0	NA	-0.9	-17.1	66	510	238				N	Y			
	YUMA	none	792	4	0	4	0	NA	-0.4	-7.0	16	121	56	213,000	108,570	104,430	NA	Y	27,200,000	Y	
Instate + CAP	HARQUAHALA INA	none	766	27	18	9	0	1.4	-1.1	9.9	28	607	342	1,000	66,178	-65,178	N	Y	10,400,000	?	Y
	PHOENIX AMA	Carefree	5,646	1	1	0	0	2.7	NA	50.6	94	94	94	172,300	673,754	-501,454	NA	NA	64,320,000	Y	Y
		East Salt River		172	149	23	0	4.6	-1.1	69.6	13	855	217				N	Y			
		Fountain Hills		7	4	3	0	0.4	-2.1	-12.7	13	663	194				N	Y			
		Hassayampa		35	18	17	0	0.9	-0.2	6.8	24	658	234				N	N			
		Lake Pleasant		3	2	1	0	0.6	-0.4	4.9	27	275	169				NA	NA			
		Rainbow Valley		22	8	14	0	0.7	-0.6	-1.4	256	582	370				Y	Y			
		West Salt River		273	111	162	0	1.7	-1.0	1.9	16	525	182				?	Y			
	PINAL AMA	Aguirre Valley	4,000	1	0	1	0	NA	-0.8	-11.9	273	273	273	96,300	431,290	-334,990	NA	NA	28,160,000	Y	Y
		Eloy		490	314	175	1	1.3	-1.8	3.5	32	619	195				N	Y			
		Maricopa-Stanfield		174	140	33	1	3.4	-1.0	38.9	52	674	314				N	Y			
		Santa Rosa		0	0	0	0	NA	NA	NA	NA	NA	NA				N	N			
		Vekol Valley		12	3	9	0	0.1	-0.1	-0.8	213	529	351				Y	N			
	TUCSON AMA	Avra Valley	3,866	131	98	33	0	1.9	-1.0	18.0	5	745	300	99,100	216,997	-117,897	?	Y	48,800,000	Y	Y
		Upper Santa Cruz		529	78	450	1	1.2	-1.7	-19.8	7	620	215				Y	Y			
Colorado River + CAP Basin Subtotals			61,029	2,007	987	1,016	4							1,427,300	1,712,948				1,043,840,000		
Statewide Totals			114,121	4,691	1,596	3,053	42							2,151,100	2,628,918				1,258,440,000		

Footnotes:

[1] Major aquifer classifications from Arizona Water Atlas, Vol. 1, ADWR, 2010.

[2] Waterlevel data from ADWR-GWSI database

[3] Water Level Data for Some Basins With Few Measurements May Be Insufficent to Accurately Characterize Basin-wide or Local Water Level Change or Depth to Water Conditions

[4] Estimated Natural Recharge From Arizona Water Atlas Vols. 2-8. ADWR, 2007- 2010.

[5] 2006 Baseline GW Demand From ADWR Az Water Atlas and AMA Assessment Data and USGS data

[6] Negative Differences Between Estimated Natural Recharge and Baseline GW Withdrawals Are Not Necessarily Indicators of Groundwater Overdraft. Assessment of Overdraft for Any Basin Requires A Complete Evaluation of All GW Inflows and All GW Outflows.

[7] Basins with insufficient water level data to support basinwide water level trend analysis identified as NA.

[8] Estimated water in aquifer storage from compilations of independent estimates listed in the Arizona Water Atlas Vols. 2-8. ADWR, 2007- 2010. Original studies by USGS and/or ADWR usually estimate volume of water in aquifer storage to depths of 1,000 to 1,200 feet below land surface. Original estimates were reduced (adjusted) by 20 percent to reflect hydrologic, technical and practical limitations on theoretical withdrawals of all water from aquifer storage in a basin.

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[10] Estimates of potential 100 year gw sustainability assume that current water supply and demand conditions will continue unchanged into the future (assumes no reduction instate surface water, Colorado River water or CAP water supplies that may be directly used, or recharged by artifical or incidental processes). This assumption may be very unrealistic for some basins that directly use of recharge large volumes of surface water. Groundwater sustainability assessment was a qualitative assessment of current baseline GW withdrawals, estimated natural recharge, estimated adjusted gw in storage and current water level change trends.

[11] Land subsidence analysis from historic and current surveying data and INSAR data collected and analyzed by USGS and ADWR.

[12] Effluent data from Arizona Water Atlas Vols. 2-8. ADWR, 2007-2010.

[13] Perennial stream miles from WRDC Environmental Committee data.

[14] Environmental and Recreation Data From WRDC Environmental Committee.

[15] Spring data from WRDC Environmental Committee data.

[16] Tribal data from ADWR Arizona Water Atlas data, ITCA information and GIS analysis.

DRAFT 6/13/11 SELECTED HYDROGEOLOGIC, ENVIRONMENTAL AND CULTURAL CHARACTERISTICS OF ARIZONA GROUNDWATER BASINS

Page 1

Instate Water Supplies Only	Basin	Sub-basin	Basin Area (Square Miles)	Effluent [12]			River & Streams [13]					Environmental / Recreation [14]						Springs [15]				Tribal [16]			
				2006 Baseline Effluent Directly Used (AF/Yr)	2006 Baseline Effluent Generated (AF/Yr)	Basin Includes Effluent Dependant Stream Reach?	Perennial Stream (Miles)	Current GW/SW Connection ? (h=historic connection; may not currently exist)	Basin Includes Colorado River ?	Waters in Fed/State Conservation Lands?	Basin Includes Instream Flow Certificate(s)?	ESA Critical Habitat Designation?	ESA Species Observed?	Audubon Important Bird Area?	Water Based Recreational Opportunity?	ADEQ Outstanding Arizona Water?	Federal Wild and Scenic Designation?	Number of Major (>10GPM)	Estimated Annual Discharge (AF/YR)	Number of Minor (<10GPM)	Estimated Annual Discharge (AF/YR)	Tribal Lands In Basin	Estimated % of Tribe(s) Total Water Use That Occurs in This Basin	Area of Tribal Lands in Basin (Sq. Miles)	Ratio Tribal Land / Total Basin Area
Instate Water Supplies Only	AGUA FRIA	none	1,263	0	30		107	Y		Y	Y	Y	Y	Y	Y			5	22	14	2				
	ARAVAIPA CANYON	none	517	0	0		50	Y		Y	Y	Y	Y	Y	Y	Y		7	16	18	10	San Carlos Apache	0%	6	0.01
	BIG SANDY	Fort Rock	1,988	0	0		49	Y				Y	Y		Y			6	16	11	8	Hualapai	0%	4	<.01
		Wikiup						Y																	
	BONITA CREEK	none	457	0	0		14	Y		Y			Y		Y	Y		1	32	4	13	San Carlos Apache	0%	404	0.88
	BUTLER VALLEY	none	288	0	0		0	N																	
	CIENEGA CREEK	none	606	0	100	Y	46	Y		Y	Y	Y	Y	Y	Y	Y		8	694	2	6				
	COCONINO PLATEAU	none	5,812	273	1700	Y	197	Y	Y	Y		Y	Y	Y	Y			29	163,882	28	13	Havasupai Hualapai Navajo	100% 0% 7%	275 739 1,177	.05 .13 .20
	DONNELLY WASH	none	293	0	0		3	Y(h)				Y	Y		Y										
	DOUGLAS	Douglas	949	0	1400		2	***		Y	Y		Y		Y					6	6				
		Douglas INA						N (h)																	
	DRIPPING SPRINGS WASH	none	378	0	0		7	Y (?)		Y	Y	Y	Y		Y			2	323			San Carlos Apache	0%	224	0.59
	DUNCAN VALLEY	none	550	0	50		26	Y		Y		Y	Y		Y			2	48	1	10				
	GILA BEND	none	1,284	0	800	Y	0	N (h)				Y			Y							Gila Bend Tohono O'odham	100% 0%	16 36	.01 .03
	GRAND WASH	none	959	0	0		4	N	Y	Y								6	121	9	2				
	HUALAPAI VALLEY	none	1,212	0	1800		21	N	Y	Y		Y	Y		Y			3	40	19	11	Hualapai	0%	12	0.01
	LOWER SAN PEDRO	Camp Grant Wash	1,624	145	700	Y	77	Y		Y	Y	Y	Y	Y	Y	Y		12	3,115	30	142	San Carlos Apache	0%	23	0.01
		Mammoth						Y																	
	MCMULLEN VALLEY	none	649	0	7		0	N																	
	MEADVIEW	none	190	0	0		7	N	Y	Y		Y	Y		Y			6	450	2	12	Hualapai	0%	3	0.01
	MORENCI	none	1,599	0	200		355	Y		Y		Y	Y	Y	Y	Y		9	968	8	32	San Carlos Apache	0%	357	0.22
	PARIA	none	408	0	0		27	Y	Y	Y				Y	Y										
	PEACH SPRINGS	none	1,409	0	100		14	Y	Y	Y		Y	Y		Y			14	9,409	5	29	Hualapai	100%	845	0.60
	PRESCOTT AMA	Little Chino Valley	485	2534	6900	Y	0	Y		Y		Y	Y	Y	Y			1	1,410	9	46	Yavapai-Prescott	100%	2	<.01
		Upper Agua Fria						Y																	
	RANEGRAS PLAIN	none	912	0	0		0	N																	
	SACRAMENTO VALLEY	none	1,587	0	300		5	N	Y	Y		Y	Y		Y			12	418	45	210				
	SAFFORD	Gila Valley	4,747	500	2600	Y	157	Y		Y		Y	Y	Y	Y	Y		23	7,966	31	108	San Carlos Apache	100%	1,408	0.30
		San Carlos Valley						Y																	
		San Simon Valley						N																	
	SALT RIVER	Black River	5,232	0	2600	Y	1,187	?		Y	Y	Y	Y	Y	Y	Y		26	28,555	2	11	White Mtn. Apache San Carlos Apache	100% 0%	2,627 484	.50 .09
		Salt River Canyon						Y																	
		Salt River Lakes						?																	
		White River						?																	
	SAN BERNARDINO VALLEY	none	387	0	0		2	Y		Y		Y	Y		Y					1	5				
	SAN RAFAEL	none	229	0	0		14	Y		Y		Y	Y	Y	Y					1	2				
	SAN SIMON WASH	none	2,284	0	400		0	N					Y		Y							Tohono O'odham	0%	2,270	0.99
	SANTA CRUZ AMA	none	716	0	16311	Y	0	Y		Y		Y	Y		Y			2	673	1	6				
	SHIVWITS PLATEAU	none	1,821	0	0		61	N	Y	Y		Y	Y		Y			1	534	5	13	Hualapai	0%	2	<.01
	TIGER WASH	none	74	0	0		0	N																	
	TONTO CREEK	none	955	200	7		129	Y		Y	Y	Y	Y	Y	Y	Y		10	4,543	7	50	Tonto Apache	20%	<1	<.01
	UPPER HASSAYAMPA	none	787	0	600		52	Y			Y	Y	Y		Y										
	UPPER SAN PEDRO	Allen Flat	1,825	830	5300	Y	101	Y		Y	Y	Y	Y	Y	Y	Y		12	1,075	4	29				
		Sierra Vista						Y																	
	VERDE RIVER	Big Chino	5,661	784	6200	Y	475	Y		Y	Y	Y	Y	Y	Y	Y	Y	90	97,214	95	1,585	Yavapai-Apache Tonto Apache	100% 80%	<1 <1	<.01 .01
		Verde Valley						Y																	
		Verde Canyon						Y																	
	VIRGIN RIVER	none	434	0	10		47	Y		Y		Y	Y		Y			2	37,938						
	WESTERN MEXICAN DRAINAGE	none	610	0	0		0	N		Y		Y	Y					1	45	2	8	Tohono O'odham	0%	1	<.01
	WILLCOX	none	1,911	211	500		32	N		Y		Y	Y	Y	Y										
		Instate Subtotals	53,092	5,477	48,615		3,268											290	359,507	360	2,369			10,917	

DRAFT 6/13/11 SELECTED HYDROGEOLOGIC, ENVIRONMENTAL AND CULTURAL CHARACTERISTICS OF ARIZONA GROUNDWATER BASINS

Page 2

Basins Which Receive Part of their Supply from the Colorado River or CAP	Basin	Sub-basin	Basin Area (Square Miles)	Effluent [12]			River & Streams [13]					Environmental / Recreation [14]						Springs [15]				Tribal [16]			
				2006 Baseline Effluent Directly Used (AF/Yr)	2006 Baseline Effluent Generated (AF/Yr)	Basin Includes Effluent Dependant Stream Reach?	Perennial Stream (Miles)	Current GW/SW Connection ? (h=historic connection; may not currently exist)	Basin Includes Colorado River ?	Waters in Fed/State Conservation Lands?	Basin Includes Instream Flow Certificate(s)?	ESA Critical Habitat Designation?	ESA Species Observed?	Audubon Important Bird Area?	Water Based Recreational Opportunity?	ADEQ Outstanding Arizona Water?	Federal Wild and Scenic Designation?	Number of Major (>10GPM)	Estimated Annual Discharge (AF/YR)	Number of Minor (<10GPM)	Estimated Annual Discharge (AF/YR)	Tribal Lands In Basin	Estimated % of Tribe(s) Total Water Use That Occurs in This Basin	Area of Tribal Lands in Basin (Sq. Miles)	Ratio Tribal Land / Total Basin Area
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	none	26,700	14900	36100	Y	884	Y		Y		Y	Y	Y	Y	Y		67	20,320	161	678	White Mtn. Apache Hopi Navajo San Juan S. Paiute Zuni	0% 100% 93% 100% 100%	5 2,536 14,681 <1 18	<.01 .09 .55 <.01 <.01
Instate + CR Lower Mainstem	BILL WILLIAMS	Burro Creek	3,350	200	200		152	Y		Y		Y	Y	Y	Y	Y		6	29	13	15				
		Alamo Reservoir						Y																	
		Clara Peak						Y(h)																	
		Skull Valley						Y																	
		Santa Maria						Y																	
	DETRITAL VALLEY	none	892	0	7		27	N		Y		Y						1	1,936	4	10				
	KANAB PLATEAU	none	4,247	0	500	Y	139	Y		Y		Y	Y	Y	Y			38	30,265	23	15	Hualapai Kaibab Navajo	0% 100% 0%	<1 189 <1	<.01 .04 <.01
	LAKE HAVASU	none	252	2433	3400		38	Y	Y	Y		Y	Y		Y										
	LAKE MOHAVE	none	980	715	3100		122	Y	Y	Y		Y	Y		Y			10	1,344	2	10	Fort Mojave	100%	37	0.04
	LOWER GILA	Childs Valley	7,309	0	300		11	N (h)	Y	Y		Y	Y	Y	Y							Tohono O'odham	0%	164	0.02
		Dendora Valley						N (h)																	
		Wellton - Mohawk						N (h)																	
	PARKER	Cibola Valley	2,229	1116	2100		147	N	Y	Y		Y	Y		Y							Colorado River	100%	391	0.18
		olorado River Indian Reservatior						N																	
		La Posa Plains						N																	
	YUMA	none	792	460	13500		53	Y					Y	Y	Y							Cocopah Fort Yuma	100% 100%	11 3	.01 <.01
Instate + CAP	HARQUAHALA INA	none	766	0	0		0	N																	
	PHOENIX AMA	Carefree	5,646	168331	315000		0	Y		Y			Y	Y	Y			2	242	4	16	Gila River	Fort McDowell Salt River Pima-Maricopa	100% 70% 100%	39 311 81	<.01 .06 .01
		East Salt River						Y(h)																	
		Fountain Hills						Y																	
		Hassayampa						Y																	
		Lake Pleasant						Y																	
		Rainbow Valley						N																	
		West Salt River						Y																	
	PINAL AMA	Aguirre Valley	4,000	4614	6900		0	Y					Y		Y							Gila River Maricopa (Ak-Chin) Tohono O'odham	30% 100% 31%	277 33 1,802	.07 <.01 .45
		Eloy						N(h)																	
		Maricopa-Stanfield						Y(h)																	
		Santa Rosa						N																	
		Vekol Valley						N																	
	TUCSON AMA	Avra Valley	3,866	14336	74235		52	Y		Y								8	774	2	6	Tohono O'odham	Pasqua Yaqui San Xavier	100% 69% 100%	1 111 59	<.01 .03 .02
		Upper Santa Cruz						Y																	
Colorado River + CAP Basin Subtotals			61,029	207,105	455,342		1,625											132	54,910	209	750			20,747	
Statewide Totals			114,121	212,582	503,957		4,893											422	414,417	569	3,119			31,664	

Footnotes:

[1] Major aquifer classifications from Arizona Water Atlas, Vol. 1, ADWR, 2010.

[2] Waterlevel data from ADWR-GWSI database

[3] Water Level Data for Some Basins With Few Measurements May Be Insufficent to Accurately Characterize Basin-wide or Local Water Level Change or Depth to Water Conditions

[4] Estimated Natural Recharge From Arizona Water Atlas Vols. 2-8. ADWR, 2007- 2010.

[5] 2006 Baseline GW Demand From ADWR Az Water Atlas and AMA Assessment Data and USGS data

[6] Negative Differences Between Estimated Natural Recharge and Baseline GW Withdrawals Are Not Necessarily Indicators of Groundwater Overdraft. Assessment of Overdraft for Any Basin Requires A Complete Evaluation of All GW Inflows and All GW Outflows.

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Draft Subject to Revision 6/13/11

Draft -- Potential Additional Water Supplies, Technical and Legal Issues and Potential Infrastructure Needs Necessary to Develop and Deliver Additional Supplies to Fully or Partially Offset Projected Unment Demands in 2035

Note! Basins Highlighted in Light Blue had Insignificant or No Projected Unmet Demand in 2035

		2035 Supply - Demand (Projected Unmet Demand)		Potential Sources of Additional Water Supplies Sufficient to Offset a Portion of Projected Unmet Demand								Potential Physical, Technical and Legal Issues Related to Acquiring, Developing and Delivering Additional Water Supplies to Offset Projected Unmet Demand[1]																Potential Infrastructure Needs to Develop and Deliver Additional Water Supplies (For New Construction or Expansion, Upgrade, or Replacement of Existing Infrastructure)					
				Groundwater		Surface Water						Groundwater								Surface Water					Effluent	Other	Groundwater		Surface Water		Effluent	Other
	Basin	Instate Supply - Low Demand	Instate Supply - High Demand	Within Basin or AMA	Basin or AMA Currently Allowed Some GW Imports From Other Legally Specified Basins	Instate	CR	CAP	Effluent	Conservation	Other	Decreasing Aquifer Storage or Aquifer Heterogeneity May Limit Actual Well Production In Some Areas	Current or Near-Term GW-WQ Issues May Limit Some Uses in Some Areas	Current or Near-Term Land Subsidence Concerns In Some Areas	Current GW/SW Connection (h=historic connection, may not currently exist)	Environmental Issues	Tribal Rights / Claims	Some Legal Limits or Restrictions on Well Locations and/or GW Withdrawals Exist	Complete or Partial Restrictions On Import/Export Of Groundwater Exist	Physical Availability/Extra SW Storage	SW- WQ Issues	Water Rights (Acquire or Transfer)	Environmental Issues	Tribal Rights / Claims	Environmental Issues	?	Wells & Pipelines	Water Treatment Plants or Disinfection Systems	Dams, Diversion Works, Canals, Wells & Pipelines	Water Treatment Plants	WWTPs & Lift Stations	?
Instate Water Supplies Only	AGUA FRIA	-1,140	-1,256	√		√			√	√	√	√	√		√	√			√	√	√	√	√		√	?	√	√	√	√	√	
	ARAVAIPA CANYON	-24	-25	√		√				√	?	√	√		√	√			√	√	√	√	√			?	√	√	√	√		
	BIG SANDY	14,519	14,500	√		√				√	?	√	√		√	√			√	√	√	√	√			?	√	√	√	√		
	BONITA CREEK	-5	-5	√		√				√	?	√	√		√	√			√	√	√	√	√			?	√	√	√	√		
	BUTLER VALLEY	3	3	?						√	?	√	√						√			√	√			?	?	?				
	CIENEGA CREEK	-554	-806	√		√			√	√	√	√	√		√	√			√	√	√	√	√		√	?	√	√	√	√	√	
	COCONINO PLATEAU	936	832	√	√	√	?		√	√	?	√	√		√	√			√	√	√	√	√		√	?	√	√	√	√	√	
	DONNELLY WASH	19	19	√		?				√	?	√	√		√(h)	√			√	√	√	√	√			?	√	√	?	?		
	DOUGLAS	-1,141	-1,644	?	√				√	√	√	√	√	Y	(h)				√						√	?	?	?			√	
	DRIPPING SPRINGS WASH	-5	-6	√		√				√	?	√	√		√(h)	√			√	√	√	√	√			?	√	√	√	√		
	DUNCAN VALLEY	9,440	9,414	√		√			√	√	?	√	√		√	√			√	√	√	√	√		√	?	√	√	√	√	√	
	GILA BEND	-29,849	-36,973	?					√	√	√	√	√	√	(h)	√	√		√	√	√	√	√	√	√	?	?	?	√	√	√	
	GRAND WASH	2	2	√		?	?			√	?	√	√						√	√	√	√	√			?	√	√	?	?		
	HUALAPAI VALLEY	-4,010	-4,675	?		?	?		√	√	√	√	√			√	√		√	√	√	√	√	√	√	?	?	?	?	?	√	
	LOWER SAN PEDRO	4,228	-11,912	√		√			√	√	√	√	√		√	√	√		√	√	√	√	√	√	√	?	√	√	√	√	√	
	MCMULLEN VALLEY	-501	-555	?						√	?	√	√	√				√	√	√	√	√	√			?	?	?				
	MEADVIEW	-106	-118	√		?	?			√	?	√	√			√			√	√	√	√	√			?	√	√	?	?		
	MORENCI	-3,209	-39,242	√		√			√	√	?	√	√		√	√	√		√	√	√	√	√	√	√	?	√	√	√	√	√	
	PARIA	-9,363	-12,868	√		?	?			√	?	√	√		√	√			√	√	√	√	√			?	√	√	?	?		
	PEACH SPRINGS	-359	-381	√		?	?		√	√	?	√	√		√	√	√		√	√	√	√	√	√	√	?	√	√	?	?	√	
	PRESCOTT AMA	-10,247	-11,861	?	√	?			√	√	?	√	√		√	√	√	√	√	√	√	√	√	√	√	?	?	?	?	?	√	
	RANEGRAS PLAIN	-48	-55	?						√	?	√	√						√							?	?	?				
	SACRAMENTO VALLEY	-15,940	-22,001	√		?	?		√	√	?	√	√						√			√	√		√	?	√	√	?	?	√	
	SAFFORD	-34,883	-57,224	?		√			√	√	?	√	√	√	√	√	√	√	√	√	√	√	√	√	√	?	?	?	√	√	√	
	SALT RIVER	-13,329	-29,719	?		√			√	√	?	√	√		√	√	√		√	√	√	√	√	√	√	?	?	?	√	√	√	
	SAN BERNARDINO VALLEY	-6	-7	√		?				√	?	√	√		√	√			√	√	√	√	√			?	√	√	?	?		
	SAN RAFAEL	-4	-6	√		√				√	?	√	√		√	√			√	√	√	√	√			?	√	√	√	√		
	SAN SIMON WASH	-142	-216	√					√	√	?	√	√						√						√	?	√	√			√	
	SANTA CRUZ AMA	11,750	10,956	√		?			√	√	?	√	√		√	√			√	√	√	√	√		√	?	√	√	?	?	√	
	SHIVWITS PLATEAU	0	0	√		√	?			√	?	√	√			√		√	√	√	√	√	√			?	√	√	√	√		
	TIGER WASH	2	2	√						√	?	√	√						√			√	√			?	√	√				
	TONTO CREEK	-3,461	-3,808	√		√			√	√	?	√	√		√	√	√		√	√	√	√	√	√	√	?	√	√	√	√	√	
	UPPER HASSAYAMPA	-1,664	-1,813	√		√			√	√	?	√	√		√	√			√	√	√	√	√		√	?	√	√	√	√	√	
	UPPER SAN PEDRO	-6,044	-17,036	√	√	√			√	√	?	√	√		√	√			√	√	√	√	√		√	?	√	√	√	√	√	
	VERDE RIVER	-3,085	-7,610	√		√			√	√	?	√	√		√	√	√	√	√	√	√	√	√	√	√	?	√	√	√	√	√	
	VIRGIN RIVER	598	563	√		√				√	?	√	√		√	√			√	√	√	√	√			?	√	√	√	√		
	WESTERN MEXICAN DRAINAGE	0	-1	√						√	?	√	√						√							?	√	√				
	WILLCOX	-1,213	-3,825	?		?			√	√	?	√	√	√		√			√						√	?	?	?	?	?	√	
Instate Subtotals (Non-Highlighted Basins Only)		-135,764	-265,211																													

1 Cost is regarded as an underlying issue in the development of any additional water supplies to offset projected unmet demands.

CR = Mainstem Colorado River Water

CAP = Central Arizona Project

Instate SW = Other Surface Water

Effluent = reclaimed water

Draft Subject to Revision 6/13/11

Draft -- Potential Additional Water Supplies, Technical and Legal Issues and Potential Infrastructure Needs Necessary to Develop and Deliver Additional Supplies to Fully or Partially Offset Projected Unment Demands in 2035

Note! Basins Highlighted in Light Blue had Insignificant or No Projected Unmet Demand in 2035

Basins Which Receive Part of their Supply from the Colorado River or CAP	BASIN NAME	2035 Supply - Demand (Projected Unmet Demand): Instate + Normal Diversions of CR Supply: -Low Demands	Instate + Normal Diversions of CR Supply: -High Demands	Instate + Shortage Diversions of CR Supply: -Low Demands	Instate + Shortage Diversions of CR Supply: -High Demands	Potential Sources of Additional Water Supplies Sufficient to Offset a Portion of Projected Unmet Demand: Groundwater: Within Basin or AMA	Groundwater: Basin or AMA Currently Allowed Some GW Imports From Other Legally Specified Basins	Surface Water: Instate	Surface Water: CR	Surface Water: CAP	Effluent	Conservation	Other
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	-23,132	-64,479	-23,132	-64,479	√		√	√		√	√	√
Instate + CR Lower Mainstem[2,3]	BILL WILLIAMS	-9,718	-29,766	-9,908	-29,956	√		√	?		√	√	?
	DETRITAL VALLEY	-54	-73	-54	-73	√		?	?			√	?
	KANAB PLATEAU	-946	-1,033	-966	-1,053	√		√	?		√	√	?
	LAKE HAVASU	8,880	7,912	-1,602	-2,570	?			√		√	√	?
	LAKE MOHAVE	4,613	-1,518	-15,742	-21,873	?			√		√	√	?
	Lake Mohave (Tribal Ag)	35,425	35,425	35,425	35,425	?			√			√	?
	LOWER GILA	198	-18,247	-9	-18,455	√			√		√	√	√
	PARKER	7,170	5,401	-2,419	-4,189	?			√		√	√	?
	Parker (Tribal Ag)	45,226	45,226	44,014	44,014	?			√			√	?
	YUMA	46,154	43,212	42,940	39,998	?			√		√	√	?
	Yuma (Tribal Ag)	10,963	10,963	10,963	10,963	?			√			√	?
Instate + CAP	HARQUAHALA INA	-70,492	-70,732	-70,492	-70,732	?				√		√	?
	PHOENIX AMA	-427,491	-511,128	-619,308	-702,944	√	√			√	√	√	√
	PINAL AMA	-314,985	-337,076	-365,181	-387,272	√	√			√	√	√	?
	TUCSON AMA	27,882	18,669	-3,705	-12,918	√	√	√		√	√	√	?
Colorado River + CAP Basin Subtotals (Non-Highlighted basins Only)		-846,765	-1,033,980	-1,112,454	-1,316,441								
Statewide Total (Non-Highlighted Basins Only)		-982,529	-1,169,744	-1,377,665	-1,581,652								

BASIN NAME	Potential Physical, Technical and Legal Issues Related to Acquiring, Developing and Delivering Additional Water Supplies to Offset Projected Unmet Demand[1]: Groundwater: Decreasing Aquifer Storage or Aquifer Heterogeneity May Limit Actual Well Production In Some Areas	Groundwater: Current or Near-Term GW-WQ Issues May Limit Some Uses in Some Areas	Groundwater: Current or Near-Term Land Subsidence Concerns In Some Areas	Groundwater: Current GW/SW Connection (h=historic connection, may not currently exist)	Groundwater: Environmental Issues	Groundwater: Tribal Rights / Claims	Groundwater: Some Legal Limits or Restrictions on Well Locations and/or GW Withdrawals Exist	Groundwater: Complete or Partial Restrictions On Import/Export Of Groundwater Exist	Surface Water: Physical Availability/Extra SW Storage	Surface Water: SW- WQ Issues	Surface Water: Water Rights (Acquire or Transfer)	Surface Water: Environmental Issues	Surface Water: Tribal Rights / Claims	Effluent: Environmental Issues	Other: ?
LITTLE COLORADO RIVER PLATEAU	√	√		√	√	√	√	√	√	√	√	√	√	√	?
BILL WILLIAMS	√	√		√	√			√	√	√	√	√		√	?
DETRITAL VALLEY	√	√			√			√	√	√	√	√			?
KANAB PLATEAU	√	√		√	√	√		√	√	√	√	√	√	√	?
LAKE HAVASU	√	√		√	√		√	√	√	√	√	√		√	?
LAKE MOHAVE	√	√		√	√	√	√	√	√	√	√	√	√	√	?
Lake Mohave (Tribal Ag)	√	√		√	√			√	√	√	√	√	√		?
LOWER GILA	√	√		(h)	√			√	√	√	√	√	√	√	?
PARKER	√	√		√	√	√	√	√	√	√	√	√	√	√	?
Parker (Tribal Ag)	√	√		√	√			√	√	√	√	√	√		?
YUMA	√	√		√	√			√	√	√	√	√	√	√	?
Yuma (Tribal Ag)	√	√		√	√			√	√	√	√	√	√		?
HARQUAHALA INA	√	√	√		√		√	√							?
PHOENIX AMA	√	√	√	√	√	√	√	√					√	√	?
PINAL AMA	√	√	√	√	√	√	√	√					√	√	?
TUCSON AMA	√	√	√	√	√	√	√	√	√	√	√	√	√	√	?

BASIN NAME	Potential Infrastructure Needs to Develop and Deliver Additional Water Supplies (For New Construction or Expansion, Upgrade, or Replacement of Existing Infrastructure): Groundwater: Wells & Pipelines	Groundwater: Water Treatment Plants or Disinfection Systems	Surface Water: Dams, Diversion Works, Canals, Wells & Pipelines	Surface Water: Water Treatment Plants	Effluent: WWTPs	Other: ?
LITTLE COLORADO RIVER PLATEAU	√	√	√	√	√	
BILL WILLIAMS	√	√	√	√	√	
DETRITAL VALLEY	√	√	?	?		
KANAB PLATEAU	√	√	√	√	√	
LAKE HAVASU	?	?	√	√	√	
LAKE MOHAVE	?	?	√	√	√	
Lake Mohave (Tribal Ag)	?	?	√	√		
LOWER GILA	√	√	√	√	√	
PARKER	?	?	√	√	√	
Parker (Tribal Ag)	?	?	√	√		
YUMA	?	?	√	√	√	
Yuma (Tribal Ag)	?	?	√	√		
HARQUAHALA INA	?	?				
PHOENIX AMA	√	√		√	√	
PINAL AMA	√	√		√	√	
TUCSON AMA	√	√		√	√	

1 Cost is regarded as an underlying issue in the development of any additional water supplies to offset projected unmet demands.

2 Any Positive Unmet Demands For Colorado River Mainstem Basins Represent Water That Could Be Used BY CAP or Other Arizona Colorado River Water Users

3 Any Positive Unmet Demand For Colorado River Tribal Ag Is Reserved For Tribal Uses

CR = Mainstem Colorado River Water

CAP = Central Arizona Project

Instate SW = Other Surface Water

Effluent = reclaimed water

TABLE 1. Statewide
Currently Developed Adjusted Supplies Vs. Projected Demands

Version 6-14-11

Statewide Demands (acre-feet)[1]													
Sector	Sub Sector	Baseline			2,035		2,060		2110 Census		2110 Area Split	
					low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
AGRICULTURE[2]		5,168,825			4,808,940	4,808,940	4,420,519	4,420,519	4,420,519	4,420,519	4,420,519	4,420,519
MUNICIPAL		1,524,510			2,693,625	2,693,625	3,414,190	3,414,190	4,717,032	4,717,032	4,630,352	4,630,352
INDUSTRIAL	Dairy	20,637			30,670	30,670	37,256	37,256	49,192	49,192	49,192	49,192
	Feedlots	7,182			10,541	10,541	10,541	10,541	10,541	10,541	10,541	10,541
	Other Industrial	29,932			54,721	54,721	54,721	54,721	54,721	54,721	54,721	54,721
	Mining	92,256			139,700	343,900	139,700	343,900	138,200	342,400	138,200	342,400
	Rock Products	18,750			52,133	125,119	66,087	158,609	91,374	219,299	91,374	219,299
	Power Plants	154,202			300,696	412,309	365,598	523,486	418,688	637,743	418,688	637,743
	Turf	87,132			100,164	115,441	128,826	129,765	117,040	154,115	117,040	154,116
TOTAL DEMANDS		7,103,425			8,191,191	8,595,266	8,637,438	9,092,987	10,017,308	10,605,563	9,930,628	10,518,883
Statewide Currently Developed Adjusted Supplies (acre-feet)													
		Baseline Demand		Currently Developed & Adjusted Water Supplies	2,035		2,060		2110 Census		2110 Area Split	
					low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
Instate	Groundwater (C. 2006)[5]	2,628,917	Instate	Groundwater (C. 2006 or CAM Values)	2,541,563	2,608,178	2,439,869	2,612,322	2,537,616	2,649,908	2,520,635	2,649,714
	Instate SW (c. 2006)[6]	1,165,176		Instate SW (2001-2006 Average With Reductions/CAM)	957,486	957,486	907,092	907,092	907,092	907,092	907,092	907,092
	Effluent (c. 2006 Used)[7]	212,583		Effluent (c.2006 Generated)	504,436	504,436	504,436	504,436	504,436	504,436	504,436	504,436
	Total Instate Supply	4,006,675		Total Instate Supply	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
					4,003,485	4,070,100	3,851,397	4,023,850	3,949,144	4,061,436	3,932,163	4,061,242
Colorado River/CAP[8,9]	Diversions (c. 2006)[8]	3,096,749	Total Diversions	Normal Year[9a]	3,433,159	3,433,159	3,391,324	3,391,324	3,391,324	3,391,324	3,391,324	3,391,324
				Shortage Year[9b]	3,114,290	3,114,290	3,072,564	3,072,564	3,072,564	3,072,564	3,072,564	3,072,564
			CR Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users	Normal Year[9a]	146,132	146,132	170,148	170,148	170,148	170,148	170,148	170,148
				Shortage Year[9b]	144,773	144,773	168,718	168,718	168,718	168,718	168,718	168,718
			Diversion Supplies For Cultural Demand Projections	Normal Year[9a]	3,579,291	3,579,291	3,561,471	3,561,471	3,561,471	3,561,471	3,561,471	3,561,471
				Shortage Year[9b]	3,259,063	3,259,063	3,241,282	3,241,282	3,241,282	3,241,282	3,241,282	3,241,282
			Environmental (Not Avilable For Cultural Supply)	Normal Year[9a]	104,339	104,339	104,339	104,339	104,339	104,339	104,339	104,339
				Shortage Year[9b]	104,339	104,339	104,339	104,339	104,339	104,339	104,339	104,339
			CAP System Loss = -5% of Diversion (Not Avilable For Supply)	Normal Year[9a]	67,462	67,462	67,462	67,462	67,462	67,462	67,462	67,462
				Shortage Year[9b]	53,062	53,062	53,062	53,062	53,062	53,062	53,062	53,062
			Total Return Flow	Normal Year[9a]	903,591	903,591	888,271	888,271	888,271	888,271	888,271	888,271
				Shortage Year[9b]	888,964	888,964	873,683	873,683	873,683	873,683	873,683	873,683
			Total Consumptive Use	Normal Year[9a]	2,847,500	2,847,500	2,845,000	2,845,000	2,845,000	2,845,000	2,845,000	2,845,000
				Shortage Year[9b]	2,527,500	2,527,500	2,525,000	2,525,000	2,525,000	2,525,000	2,525,000	2,525,000
					low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
TOTAL SUPPLIES (Instate + CR)		7,103,425		Normal Year[9a]	7,582,776	7,649,391	7,412,868	7,585,321	7,510,616	7,622,907	7,493,634	7,622,714
				Shortage Year[9b]	7,262,549	7,329,163	7,092,679	7,265,132	7,190,426	7,302,718	7,173,445	7,302,524
Currently Developed & Adjusted Supplies - Projected Demands[10]												
TOTAL SUPPLY - DEMAND		0		Year	2,035		2,060		2110 Census		2110 Area Split	
				Demands	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
				Normal Year[9a]	-608,415	-945,875	-1,224,570	-1,507,666	-2,506,693	-2,982,656	-2,436,994	-2,896,170
				Shortage Year[9b]	-928,642	-1,266,103	-1,544,759	-1,827,855	-2,826,882	-3,302,845	-2,757,183	-3,216,359

Notes

1. Based on information received to date (not expected to change). Central Arizona Model (CAM) Demands have been incorporated for the Phoenix, Pinal and Tucson AMAs have been incorporated.

2. Now Includes both tribal and non-tribal agriculture. The CAM shows an increase in tribal agriculture in the Phoenix, Pinal and Tucson AMAs.

3. The Mining, Rock Products, Power Plants and Turf Industrial sub-sectors submitted high and low projection scenarios to account for uncertainty and volatility in those industries. Both are presented here with corresponding total demands and 'supply - demand' values. Within the Phoenix, Pinal and Tucson AMAs, the CAM predicted corresponding low and high groundwater and effluent supplies, however, CAM values were only used when less than baseline supplies because additional infrastructure will be needed to fully utilize them.

4. Baseline Demand Water Sources are derived from the Arizona Water Atlas (outside AMAs) and AMA Assessments some adjustments made for basins receiving Colorado River Water to reflect estimated diversions resulting in corresponding reductions in groundwater and instate surface water quantities used. Basin totals from the original sources were maintained, sometimes resulting in the inability to fully quantify the Colorado River portion. The data is circa 2006, however, since the Municipal baseline year was 2005 instead, these values come from both 2005 and 2006.

5. Groundwater supplies used to meet baseline demands correspond with reported groundwater use from the Atlas and AMA assessments (with reductions in some basins for Colorado River use). The value is slightly different than what was used as the 'available' baseline groundwater supply, which is from 2006, because the municipal sector baseline year was 2005. Future year groundwater supplies for most basins = 'available' baseline supply (developed supply). In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If Central AZ Model (CAM) GW Supply was > Baseline (c. 2006), the GW Supply = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.

6. Instate surface water supplies used to meet baseline demands correspond with reported surface water use from the Atlas and AMA assessments (with reductions in some basins for Colorado River use). The 'Baseline Supply for Projection Purposes' surface water supply comes from the 2001-2005 average in-state use. Future surface water supplies were calculated by applying a 5% reduction in 2035 and another 5% in 2060, flat-lined thereafter. The Phoenix, Pinal and Tucson AMA instate surface water supplies came from the CAM results-which were very similar to previous values.

7. Effluent supplies used to meet baseline demands correspond with reported information in the Atlas and AMA assessments. The Baseline Supply for Projection Purposes effluent supply is the total currently generated, much of it not used for current demands. Future year effluent supplies are expected to increase and are addressed in the unmet demand analysis. Values shown here are flat-lined.

8. Colorado River Mainstem supplies used to meet baseline demands correspond with reported diversion information from the USBOR and ADWR Colorado River Management, which was later parsed into groundwater basins for use by the WRDC Supply and Demand Committee.

CAP supplies used to meet baseline demands correspond with reported use within the AMAs and the CAP delivered use in the Harquahala INA. Recharged CAP water not included. Approximately 350,000 acre feet of CAP water was recharged in 2006. Please see tab "CRCAP_DistributionsReductions" for more information.

9. The Baseline Supply for Projection Purposes of the Colorado River Mainstem and CAP Diversions are based on a calculation of diversions and return flow to obtain full on-river buildout and the consumptive use entitlement for municipal and industrial uses. Since agriculture projections along the mainstem were either held constant or reduced, previous use of 'full-buildout' diversion entitlements changed to 2001-2005 average diversions, unless those exceeded entitlements. Unused consumptive use Agriculture entitlements considered transferable to M&I uses with a 54% increase for diversion supply (based on M&I approx return flow data). Unused Consumptive Use for Tribal agriculture Tribal ag to tribal non-ag transfers and are not considered a supply usable for cultural demand projections. Environmental entitlements now listed separately and cannot appear as a supply to meet cultural demand projections.

9a. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.

9b. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.

10. Supply - Demand reflects the volume of additional water required to meet projected demands above what is currently available, with anticipated reduced availability of surface water. Sources of additional water are explored in the **Unmet Demand Analysis.**

TABLE 2. Summary of Statewide Changes in Projected Water Demand and Supply

Version 6-14-11

Change in Percentage Statewide Demands Baseline to Projection Year									
Statewide Demands (Percents)									
Sector	Sub Sector	2035		2060		2110 Census		2110 Area Split	
		low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
AGRICULTURE		-7%	-7%	-14%	-14%	-14%	-14%	-14%	-14%
MUNICIPAL		77%	77%	124%	124%	209%	209%	204%	204%
INDUSTRIAL	Dairy	49%	49%	81%	81%	138%	138%	138%	138%
	Feedlots	47%	47%	47%	47%	47%	47%	47%	47%
	Other Industrial	83%	83%	83%	83%	83%	83%	83%	83%
	Mining	51%	273%	51%	273%	50%	271%	50%	271%
	Rock Products	178%	567%	252%	746%	387%	1070%	387%	1070%
	Power Plants	95%	167%	137%	239%	172%	314%	172%	314%
	Turf	15%	32%	48%	49%	34%	77%	34%	77%
TOTAL DEMANDS		15%	21%	22%	28%	41%	49%	40%	48%
Change in Percentage Statewide Currently Developed and Adjusted Baseline to Projection Year									
Instate	Groundwater	-3%	-1%	-7%	-1%	-3%	1%	-4%	1%
	Instate Surface Water	-18%	-18%	-22%	-22%	-22%	-22%	-22%	-22%
	Effluent	137%	137%	137%	137%	137%	137%	137%	137%
Colorado River/CAP	Normal Year[9a]	16%	16%	15%	15%	15%	15%	15%	15%
	Shortage Year[9b]	5%	5%	5%	5%	5%	5%	5%	5%
TOTAL SUPPLY	Normal Year[9a]	7%	8%	4%	7%	6%	7%	5%	7%
	Shortage Year[9b]	2%	3%	0%	2%	1%	3%	1%	3%

Change in Quantities (Acre-Feet) Statewide Demands Baseline to Projection Year									
Statewide Demands (Percents)									
Sector	Sub Sector	2035		2060		2110 Census		2110 Area Split	
		low[3]	high[3]	low[3]	high[3]	low[3]	high[3]	low[3]	high[3]
AGRICULTURE		-359,884	-359,884	-748,305	-748,305	-748,305	-748,305	-748,305	-748,305
MUNICIPAL		1,169,115	1,169,115	1,889,680	1,889,680	3,192,522	3,192,522	3,105,842	3,105,842
INDUSTRIAL	Dairy	10,033	10,033	16,619	16,619	28,555	28,555	28,555	28,555
	Feedlots	3,359	3,359	3,359	3,359	3,359	3,359	3,359	3,359
	Other Industrial	24,789	24,789	24,789	24,789	24,789	24,789	24,789	24,789
	Mining	47,444	251,644	47,444	251,644	45,944	250,144	45,944	250,144
	Rock Products	33,383	106,368	47,337	139,859	72,624	200,548	72,624	200,548
	Power Plants	146,494	258,107	211,396	369,284	264,486	483,541	264,486	483,541
	Turf	13,032	28,309	41,694	42,633	29,909	66,984	29,909	66,984
TOTAL DEMANDS		1,087,766	1,491,841	1,534,013	1,989,562	2,913,883	3,502,138	2,827,203	3,415,458
Change in Quantities (Acre-Feet) Statewide Currently Developed and Asjusted Baseline to Projection Year									
Instate	Groundwater	-87,353	-20,738	-189,047	-16,595	-91,300	20,991	-108,281	20,798
	Instate Surface Water	-207,690	-207,690	-258,084	-258,084	-258,084	-258,084	-258,084	-258,084
	Effluent	291,853	291,853	291,853	291,853	291,853	291,853	291,853	291,853
Colorado River/CAP	Normal Year[9a]	482,541	482,541	464,722	464,722	464,722	464,722	464,722	464,722
	Shortage Year[9b]	162,314	162,314	144,533	144,533	144,533	144,533	144,533	144,533
TOTAL SUPPLY	Normal Year[9a]	479,352	545,966	309,444	481,897	407,191	519,483	390,210	519,289
	Shortage Year[9b]	159,124	225,739	-10,745	161,708	87,002	199,294	70,021	199,100

Projected Sector Demand (acre feet)									
		2035		2060		2110 Census		2110 Area Split	
	Baseline	low	high	low	high	low	high	low	high
AGRICULTURE	5,168,825	4,808,940	4,808,940	4,420,519	4,420,519	4,420,519	4,420,519	4,420,519	4,420,519
MUNICIPAL	1,524,510	2,693,625	2,693,625	3,414,190	3,414,190	4,717,032	4,717,032	4,630,352	4,630,352
Industrial	410,090	688,625	1,092,701	802,729	1,258,278	879,757	1,468,012	879,757	1,468,012
Total	**7,103,425**	**8,191,191**	**8,595,266**	**8,637,438**	**9,092,987**	**10,017,308**	**10,605,563**	**9,930,628**	**10,518,883**
Projected Sector Demand (percent)									
	Baseline	low	high	low	high	low	high	low	high
AGRICULTURE	73%	59%	56%	51%	49%	44%	42%	45%	42%
MUNICIPAL	21%	33%	31%	40%	38%	47%	44%	47%	44%
Industrial	6%	8%	13%	9%	14%	9%	14%	9%	14%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

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TABLE 3. Basin Totals
Adjusted Currently Developed Supplies Vs. Projected Demand

Version 6-14-11

	BASIN NAME	Baseline Supply & Demand	2035 Demands TOTAL Low	2035 Demands TOTAL High	2035 Total Supply	2035 Supply - Demand: Instate Supply - Low Demand	2035 Supply - Demand: Instate Supply - High Demand	2060 Demands TOTAL Low	2060 Demands TOTAL High	2060 Total Supply	2060 Supply - Demand: Instate Supply - Low Demand	2060 Supply - Demand: Instate Supply - High Demand
Instate Water Supplies Only	AGUA FRIA	3,602	4,772	4,888	3,632	-1,140	-1,256	5,371	5,511	3,632	-1,739	-1,879
	ARAVAIPA CANYON	1,014	1,013	1,014	989	-24	-25	1,014	1,015	964	-50	-51
	BIG SANDY	15,028	509	528	15,028	14,519	14,500	635	658	15,028	14,393	14,370
	BONITA CREEK	0	5	5	0	-5	-5	6	6	0	-6	-6
	BUTLER VALLEY	14,503	14,500	14,500	14,503	3	3	14,500	14,500	14,503	3	3
	CIENEGA CREEK	1,101	1,755	2,007	1,201	-554	-806	1,968	2,232	1,201	-767	-1,031
	COCONINO PLATEAU	1,173	1,596	1,701	2,540	944	840	1,917	2,043	2,523	605	480
	DONNELLY WASH	19	0	0	19	19	19	0	0	19	19	19
	DOUGLAS	53,300	55,841	56,344	54,700	-1,141	-1,644	57,291	57,847	54,700	-2,591	-3,147
	DRIPPING SPRINGS WASH	11	16	17	11	-5	-6	17	19	11	-6	-8
	DUNCAN VALLEY	17,954	17,969	17,994	17,509	-460	-486	18,060	18,090	17,014	-1,047	-1,076
	GILA BEND	357,823	377,271	384,396	348,769	-28,503	-35,627	390,492	400,591	345,998	-44,495	-54,593
	GRAND WASH	2	0	0	2	2	2	0	0	2	2	2
	HUALAPAI VALLEY	9,109	14,919	15,584	10,909	-4,010	-4,675	18,524	19,299	10,909	-7,615	-8,390
	LOWER SAN PEDRO	24,622	20,948	37,087	25,169	4,221	-11,918	22,961	39,054	25,127	2,167	-13,927
	MCMULLEN VALLEY	71,500	72,008	72,062	71,500	-508	-562	72,220	72,285	71,500	-720	-785
	MEADVIEW	145	251	263	145	-106	-118	312	326	145	-167	-181
	MORENCI	10,384	14,150	50,183	10,871	-3,279	-39,312	14,481	50,519	10,790	-3,691	-39,729
	PARIA	120	9,483	12,988	120	-9,363	-12,868	11,342	16,267	120	-11,222	-16,147
	PEACH SPRINGS	351	810	832	451	-359	-381	916	942	451	-465	-491
	PRESCOTT AMA	21,887	36,863	38,478	26,542	-10,321	-11,936	44,762	46,581	26,438	-18,323	-20,143
	RANEGRAS PLAIN	29,350	29,398	29,405	29,350	-48	-55	29,488	29,498	29,350	-138	-148
	SACRAMENTO VALLEY	3,765	20,005	26,067	4,065	-15,940	-22,001	22,996	29,797	4,065	-18,931	-25,732
	SAFFORD	177,558	183,181	205,523	161,032	-22,149	-44,490	184,388	206,780	157,323	-27,065	-49,457
	SALT RIVER	27,204	39,460	55,850	26,621	-12,838	-29,229	40,148	56,630	26,021	-14,127	-30,610
	SAN BERNARDINO VALLEY	19	25	26	19	-6	-7	27	28	19	-8	-9
	SAN RAFAEL	22	26	28	22	-4	-6	30	32	22	-8	-10
	SAN SIMON WASH	1,500	2,042	2,116	1,900	-142	-216	2,440	2,533	1,900	-540	-633
	SANTA CRUZ AMA	20,980	25,541	26,336	37,291	11,750	10,956	28,921	29,530	37,291	8,371	7,761
	SHIVWITS PLATEAU	2	2	2	2	0	0	3	3	2	-1	-1
	TIGER WASH	2	0	0	2	2	2	0	0	2	2	2
	TONTO CREEK	4,200	7,418	7,765	4,450	-2,968	-3,315	8,856	9,236	4,400	-4,456	-4,836
	UPPER HASSAYAMPA	3,286	5,551	5,699	3,886	-1,664	-1,813	6,685	6,869	3,886	-2,799	-2,983
	UPPER SAN PEDRO	29,237	39,528	50,520	33,484	-6,044	-17,036	44,660	55,686	33,262	-11,398	-22,425
	VERDE RIVER	44,527	53,750	58,275	50,418	-3,332	-7,857	59,459	63,748	49,593	-9,866	-14,155
	VIRGIN RIVER	2,305	2,705	2,740	3,132	427	393	2,953	2,998	3,052	98	53
	WESTERN MEXICAN DRAINAGE	6	6	7	6	0	-1	8	8	6	-2	-2
	WILLCOX	176,075	177,569	180,182	176,357	-1,213	-3,825	179,443	183,085	176,349	-3,094	-6,736

	Basins Which Receive Part of their Supply from the Colorado River or CAP	Baseline Supply & Demand	2035 TOTAL Low	2035 TOTAL High	2035 Total Supply		2035 Supply - Demand Cont.[4] Instate + Normal -Low Demands	Instate + Normal -High Demands	Instate + Shortage -Low Demands	Instate + Shortage -High Demands	2060 TOTAL Low	2060 TOTAL High	2060 Total Supply Normal Year[1]	Shortage Year[2]	2060 Supply - Demand Cont.[4] Instate + Normal -Low Demands	Instate + Normal -High Demands	Instate + Shortage -Low Demands	Instate + Shortage -High Demands
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	160,823	218,219	259,566	195,087	195,087	-23,132	-64,479	-23,132	-64,479	249,821	307,246	191,762	191,762	-58,059	-115,484	-58,059	-115,484
Instate + CR Lower Mainstem	BILL WILLIAMS	4,150	14,298	34,346	4,579	4,390	-9,718	-29,766	-9,908	-29,956	14,529	34,584	4,554	4,365	-9,975	-30,029	-10,164	-30,219
	DETRITAL VALLEY	309	410	430	357	357	-54	-73	-54	-73	511	534	354	354	-156	-180	-156	-180
	KANAB PLATEAU	3,627	5,075	5,163	4,129	4,109	-946	-1,033	-966	-1,053	6,057	6,166	4,089	4,069	-1,968	-2,077	-1,988	-2,097
	LAKE HAVASU	16,130	31,577	32,545	40,457	29,975	8,880	7,912	-1,602	-2,570	40,113	41,286	40,457	29,975	344	-829	-10,138	-11,311
	LAKE MOHAVE	47,769	72,736	78,867	77,349	56,995	4,613	-1,518	-15,742	-21,873	84,201	92,464	77,349	56,995	-6,852	-15,115	-27,207	-35,470
	Lake Mohave (Tribal Ag)	68,110	68,110	68,110	103,535	103,535	35,425	35,425	35,425	35,425	68,110	68,110	103,535	103,535	35,425	35,425	35,425	35,425
	LOWER GILA	504,687	497,669	516,115	497,868	497,660	198	-18,247	-9	-18,455	490,312	509,041	483,841	483,633	-6,471	-25,201	-6,679	-25,408
	PARKER	26,462	33,298	35,067	40,468	30,879	7,170	5,401	-2,419	-4,189	38,242	41,130	40,468	30,879	2,225	-662	-7,364	-10,251
	Parker (Tribal Ag)	621,454	621,454	621,454	666,680	665,468	45,226	45,226	44,014	44,014	621,454	621,454	666,680	665,468	45,226	45,226	44,014	44,014
	YUMA	852,241	858,095	861,037	904,249	901,035	46,154	43,212	42,940	39,998	848,232	851,923	878,958	875,852	30,725	27,035	27,620	23,929
	Yuma (Tribal Ag)	6,234	6,234	6,234	17,197	17,197	10,963	10,963	10,963	10,963	6,234	6,234	17,197	17,197	10,963	10,963	10,963	10,963
	HARQUAHALA INA	136,735	136,670	136,910	66,178	66,178	-70,492	-70,732	-70,492	-70,732	137,516	137,944	66,178	66,178	-71,338	-71,766	-71,338	-71,766
Instate + CAP	Major Active Management Areas (AMAs)		TOTAL Low	TOTAL High	Low	High	Low	High	-Low Demands	-High Demands	-Low Demands	-High Demands	TOTAL Low	TOTAL High	Low	High	Low	High	-Low Demands	-High Demands	-Low Demands	-High Demands
	PHOENIX AMA	2,170,179	2,985,423	3,097,639	2,557,931	2,586,512	2,366,114	2,394,695	-427,491	-511,128	-619,308	-702,944	3,356,261	3,489,538	2,416,455	2,549,545	2,224,638	2,357,729	-939,806	-939,993	-1,131,623	-1,131,810
	PINAL AMA	1,022,762	985,887	1,007,978	670,902	670,902	620,706	620,706	-314,985	-337,076	-365,181	-387,272	902,124	925,757	667,405	667,405	617,209	617,209	-234,719	-258,352	-284,915	-308,548
	TUCSON AMA	338,067	425,148	472,395	453,030	491,064	421,442	459,477	27,882	18,669	-3,705	-12,918	486,427	535,325	455,821	495,184	424,234	463,596	-30,606	-40,141	-62,193	-71,729
	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users	NA			146,132	146,132	144,773	144,773	146,132	146,132	144,773	144,773			170,148	170,148	168,718	168,718	170,148	170,148	168,718	168,718
	STATEWIDE	7,103,425	8,191,191	8,595,266	7,582,776	7,649,391	7,262,549	7,329,163	-608,415	-945,875	-928,642	-1,266,103	8,637,438	9,092,987	7,412,868	7,585,321	7,092,679	7,265,132	-1,224,570	-1,507,666	-1,544,759	-1,827,855

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
2. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
3. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.
4. Positive values for (supply – demand) for Colorado River basins would be available for use by CAP or other Colorado River water users. No water would be left unused in the basin.

Preliminary DRAFT- Subject to Revision

TABLE 3. Basin Totals
Adjusted Currently Developed Supplies Vs. Projected Demand

Version 6-14-11

	BASIN NAME	Baseline Supply & Demand	2110 Demands TOTAL Low	2110 Demands TOTAL High	2110 Total Supply	2110 Supply - Demand: Instate Supply - Low Demand	2110 Supply - Demand: Instate Supply - High Demand	2110 Area Split TOTAL Low	2110 Area Split TOTAL High	2110 Area Split Total Supply	2110 (Area Split) Supply - Demand: Instate Supply - Low Demand	2110 (Area Split) Supply - Demand: Instate Supply - High Demand
Instate Water Supplies Only	AGUA FRIA	3,602	6,738	6,931	3,632	-3,106	-3,299	75,504	71,004	3,632	-71,872	-67,372
	ARAVAIPA CANYON	1,014	1,020	1,021	964	-56	-57	1,098	1,105	964	-134	-141
	BIG SANDY	15,028	879	910	15,028	14,149	14,118	3,232	3,347	15,028	11,796	11,681
	BONITA CREEK	0	8	8	0	-8	-8	342	357	0	-342	-357
	BUTLER VALLEY	14,503	14,500	14,500	14,503	3	3	14,500	14,500	14,503	3	3
	CIENEGA CREEK	1,101	2,415	2,703	1,201	-1,214	-1,502	2,195	2,471	1,201	-994	-1,270
	COCONINO PLATEAU	1,173	2,651	2,824	2,523	-128	-302	3,063	3,264	2,523	-540	-741
	DONNELLY WASH	19	850	906	19	-831	-887	850	906	19	-831	-887
	DOUGLAS	53,300	60,845	61,533	54,700	-6,145	-6,833	60,198	60,862	54,700	-5,498	-6,162
	DRIPPING SPRINGS WASH	11	24	27	11	-13	-16	587	651	11	-576	-640
	DUNCAN VALLEY	17,954	18,311	18,352	17,014	-1,298	-1,339	18,377	18,421	17,014	-1,364	-1,408
	GILA BEND	357,823	404,603	418,574	345,998	-58,605	-72,576	428,755	440,191	345,998	-82,757	-94,193
	GRAND WASH	2	0	0	2	2	2	79	83	2	-77	-81
	HUALAPAI VALLEY	9,109	25,612	26,603	10,909	-14,703	-15,694	23,331	24,252	10,909	-12,422	-13,343
	LOWER SAN PEDRO	24,622	24,843	41,023	25,127	285	-15,895	25,666	42,123	25,127	-538	-16,995
	MCMULLEN VALLEY	71,500	72,652	72,740	71,500	-1,152	-1,240	73,432	73,562	71,500	-1,932	-2,062
	MEADVIEW	145	431	451	145	-286	-306	70	73	145	75	72
	MORENCI	10,384	15,401	51,454	10,790	-4,611	-40,664	15,801	51,860	10,790	-5,011	-41,070
	PARIA	120	12,901	19,728	120	-12,781	-19,608	12,750	19,572	120	-12,630	-19,452
	PEACH SPRINGS	351	1,151	1,188	451	-700	-737	2,307	2,394	451	-1,856	-1,942
	PRESCOTT AMA	21,887	60,736	63,463	26,438	-34,298	-37,024	55,423	57,797	26,438	-28,984	-31,359
	RANEGRAS PLAIN	29,350	29,603	29,615	29,350	-253	-265	29,447	29,456	29,350	-97	-106
	SACRAMENTO VALLEY	3,765	27,462	35,495	4,065	-23,396	-31,429	27,938	35,987	4,065	-23,873	-31,922
	SAFFORD	177,558	187,971	210,513	157,323	-30,648	-53,190	187,911	210,451	157,323	-30,588	-53,127
	SALT RIVER	27,204	42,332	59,001	26,021	-16,311	-32,980	43,971	60,718	26,021	-17,951	-34,697
	SAN BERNARDINO VALLEY	19	38	39	19	-19	-20	906	930	19	-887	-911
	SAN RAFAEL	22	42	44	22	-20	-22	176	185	22	-154	-163
	SAN SIMON WASH	1,500	3,182	3,311	1,900	-1,282	-1,411	3,405	3,544	1,900	-1,505	-1,644
	SANTA CRUZ AMA	20,980	34,906	36,116	37,291	2,385	1,175	35,207	36,460	37,291	2,084	831
	SHIVWITS PLATEAU	2	4	4	2	-2	-2	820	853	2	-818	-851
	TIGER WASH	2	0	0	2	2	2	1,285	1,307	2	-1,283	-1,305
	TONTO CREEK	4,200	11,670	12,115	4,400	-7,270	-7,715	15,567	16,340	4,400	-11,167	-11,940
	UPPER HASSAYAMPA	3,286	8,943	9,197	3,886	-5,056	-5,311	3,461	3,545	3,886	425	342
	UPPER SAN PEDRO	29,237	56,827	68,577	33,262	-23,565	-35,316	56,252	67,957	33,262	-22,991	-34,696
	VERDE RIVER	44,527	71,347	76,836	49,593	-21,754	-27,243	73,058	78,793	49,593	-23,465	-29,200
	VIRGIN RIVER	2,305	3,363	3,426	3,052	-312	-374	2,083	2,091	3,052	969	960
	WESTERN MEXICAN DRAINAGE	6	11	12	6	-5	-6	123	128	6	-117	-122
	WILLCOX	176,075	182,216	187,264	176,349	-5,867	-10,915	181,770	186,805	176,349	-5,421	-10,456

	Basins Which Receive Part of their Supply from the Colorado River or CAP	Baseline Supply & Demand	TOTAL Low	TOTAL High	Total Supply: Normal Year[1]	Total Supply: Shortage Year[2]	2110 Supply - Demand Cont.[4] Instate + Normal: -Low Demands	Instate + Normal: -High Demands	Instate + Shortage: -Low Demands	Instate + Shortage: -High Demands	TOTAL Low	TOTAL High	Total Supply: Normal Year[1]	Total Supply: Shortage Year[2]	2110 Supply - Demand Cont.[4] Instate + Normal: -Low Demands	Instate + Normal: -High Demands	Instate + Shortage: -Low Demands	Instate + Shortage: -High Demands
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	160,823	292,195	372,121	191,762	191,762	-100,433	-180,359	-100,433	-180,359	291,806	371,709	191,762	191,762	-100,044	-179,947	-100,044	-179,947
Instate + CR Lower Mainstem	BILL WILLIAMS	4,150	15,260	35,337	4,554	4,365	-10,705	-30,782	-10,895	-30,972	21,541	41,574	4,554	4,365	-16,986	-37,019	-17,176	-37,209
	DETRITAL VALLEY	309	706	739	354	354	-352	-385	-352	-385	950	995	354	354	-596	-641	-596	-641
	KANAB PLATEAU	3,627	7,943	8,095	4,089	4,069	-3,854	-4,006	-3,874	-4,025	8,901	9,074	4,089	4,069	-4,812	-4,985	-4,832	-5,005
	LAKE HAVASU	16,130	55,754	57,242	40,457	29,975	-15,296	-16,785	-25,778	-27,267	55,390	56,870	40,457	29,975	-14,933	-16,413	-25,415	-26,895
	LAKE MOHAVE	47,769	103,795	115,459	77,349	56,995	-26,447	-38,110	-46,801	-58,464	100,045	111,560	77,349	56,995	-22,697	-34,211	-43,051	-54,565
	Lake Mohave (Tribal Ag)	68,110	68,110	68,110	103,535	103,535	35,425	35,425	35,425	35,425	68,110	68,110	103,535	103,535	35,425	35,425	35,425	35,425
	LOWER GILA	504,687	502,324	521,304	483,841	483,633	-18,483	-37,463	-18,691	-37,670	517,200	535,164	483,841	483,633	-33,360	-51,324	-33,567	-51,531
	PARKER	26,462	43,651	47,440	40,468	30,879	-3,183	-6,973	-12,772	-16,562	43,321	47,102	40,468	30,879	-2,854	-6,635	-12,443	-16,224
	Parker (Tribal Ag)	621,454	621,454	621,454	666,680	665,468	45,226	45,226	44,014	44,014	621,454	621,454	666,680	665,468	45,226	45,226	44,014	44,014
	YUMA	852,241	885,215	890,423	878,958	875,852	-6,257	-11,465	-9,362	-14,571	884,506	889,691	878,958	875,852	-5,548	-10,733	-8,654	-13,839
	Yuma (Tribal Ag)	6,234	6,234	6,234	17,197	17,197	10,963	10,963	10,963	10,963	6,234	6,234	17,197	17,197	10,963	10,963	10,963	10,963
Instate + CAP	HARQUAHALA INA	136,735	138,374	138,953	66,178	66,178	-72,196	-72,775	-72,196	-72,775	142,642	143,163	66,178	66,178	-76,464	-76,985	-76,464	-76,985
	Major Active Management Areas (AMAs)		**TOTAL Low**	**TOTAL High**	**Low**	**High**	**Low**	**High**	**-Low Demands**	**-High Demands**	**-Low Demands**	**-High Demands**	**TOTAL Low**	**TOTAL High**	**Low**	**High**	**Low**	**High**	**-Low Demands**	**-High Demands**	**-Low Demands**	**-High Demands**
	PHOENIX AMA	2,170,179	4,279,621	4,484,942	2,484,097	2,549,545	2,292,280	2,357,729	-1,795,524	-1,935,397	-1,987,341	-2,127,214	4,078,593	4,291,514	2,465,951	2,549,545	2,274,134	2,357,729	-1,612,642	-1,741,968	-1,804,459	-1,933,785
	PINAL AMA	1,022,762	983,096	1,015,930	667,405	667,405	617,209	617,209	-315,691	-348,525	-365,887	-398,721	981,227	1,016,058	667,405	667,405	617,209	617,209	-313,822	-348,653	-364,018	-398,849
	TUCSON AMA	338,067	627,088	685,279	485,926	532,769	454,339	501,182	-141,162	-152,509	-172,749	-184,097	627,766	684,268	487,092	532,576	455,504	500,988	-140,674	-151,692	-172,262	-183,279
	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users	NA			170,148	170,148	168,718	168,718	170,148	170,148	168,718	168,718			170,148	170,148	168,718	168,718	170,148	170,148	168,718	168,718
	STATEWIDE	7,103,425	**10,017,308**	**10,605,563**	**7,510,616**	**7,622,907**	**7,190,426**	**7,302,718**	**-2,506,693**	**-2,982,656**	**-2,826,882**	**-3,302,845**	**9,930,628**	**10,518,883**	**7,493,634**	**7,622,714**	**7,173,445**	**7,302,524**	**-2,436,994**	**-2,896,170**	**-2,757,183**	**-3,216,359**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Normal Colorado River Supply A1. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
2. The first degree shortage of Colc2. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet.
Of that 90% is reduced from the CAOf that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
3. In the AMAs, a low and high groa.3. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.
4. Positive values for (supply – dem4. Positive values for (supply – demand) for Colorado River basins would be available for use by CAP or other Colorado River water users. No water would be left unused in the basin.

Preliminary DRAFT-Subject to Revision

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Preliminary DRAFT-Subject to Revision

	BASIN NAME	Baseline Demands										Baseline Demand Water Sources[1]						Supply - Demand
		AGRICULTURE	MUNICIPAL	INDUSTRIAL							TOTAL	Instate				Colorado River/ CAP Diversions	TOTAL	
				Dairy	Feedlots	Other Industrial	Mining	Rock Products	Power Plants	Turf		GW (c. 2006)	Instate SW (c. 2006)	Effluent (Used c. 2006)	Total Instate Supply			
Instate Water Supplies Only	AGUA FRIA	1,800	1,800	0	0	0	0	2	0	0	**3,602**	3,602	0	0	**3,602**	NA	**3,602**	**0**
	ARAVAIPA CANYON	1,000	14	0	0	0	0	0	0	0	**1,014**	514	500	0	**1,014**	NA	**1,014**	**0**
	BIG SANDY	0	271	0	0	0	14,717	40	0	0	**15,028**	15,028	0	0	**15,028**	NA	**15,028**	**0**
	BONITA CREEK	0	0	0	0	0	0	0	0	0	**0**	0	0	0	**0**	NA	**0**	**0**
	BUTLER VALLEY	14,500	3	0	0	0	0	0	0	0	**14,503**	14,503	0	0	**14,503**	NA	**14,503**	**0**
	CIENEGA CREEK	500	600	0	0	0	0	1	0	0	**1,101**	1,101	0	0	**1,101**	NA	**1,101**	**0**
	COCONINO PLATEAU	0	1,173	0	0	0	0	0	0	0	**1,173**	500	400	273	**1,173**	NA	**1,173**	**0**
	DONNELLY WASH	0	19	0	0	0	0	0	0	0	**19**	19	0	0	**19**	NA	**19**	**0**
	DOUGLAS	48,000	5,300	0	0	0	0	0	0	0	**53,300**	53,300	0	0	**53,300**	NA	**53,300**	**0**
	DRIPPING SPRINGS WASH	0	11	0	0	0	0	0	0	0	**11**	11	0	0	**11**	NA	**11**	**0**
	DUNCAN VALLEY	17,100	550	93	0	0	0	0	0	211	**17,954**	8,054	9,900	0	**17,954**	NA	**17,954**	**0**
	GILA BEND	351,500	750	173	0	0	0	0	5,400	0	**357,823**	295,323	62,500	0	**357,823**	NA	**357,823**	**0**
	GRAND WASH	0	2	0	0	0	0	0	0	0	**2**	2	0	0	**2**	NA	**2**	**0**
	HUALAPAI VALLEY	0	9,100	0	0	0	0	9	0	0	**9,109**	9,109	0	0	**9,109**	NA	**9,109**	**0**
	LOWER SAN PEDRO	3,700	2,745	0	0	0	17,544	423	0	211	**24,622**	23,677	800	145	**24,622**	NA	**24,622**	**0**
	MCMULLEN VALLEY	71,000	500	0	0	0	0	0	0	0	**71,500**	71,500	0	0	**71,500**	NA	**71,500**	**0**
	MEADVIEW	0	145	0	0	0	0	0	0	0	**145**	145	0	0	**145**	NA	**145**	**0**
	MORENCI	0	2,200	0	0	0	8,109	0	0	75	**10,384**	9,126	1,258	0	**10,384**	NA	**10,384**	**0**
	PARIA	0	120	0	0	0	0	0	0	0	**120**	120	0	0	**120**	NA	**120**	**0**
	PEACH SPRINGS	0	350	0	0	0	0	1	0	0	**351**	351	0	0	**351**	NA	**351**	**0**
	PRESCOTT AMA	2,847	17,554	0	0	567	0	126	0	793	**21,887**	17,679	1,674	2,534	**21,887**	NA	**21,887**	**0**
	RANEGRAS PLAIN	29,000	350	0	0	0	0	0	0	0	**29,350**	29,350	0	0	**29,350**	NA	**29,350**	**0**
	SACRAMENTO VALLEY	0	2,300	76	0	0	90	0	1,300	0	**3,765**	3,765	0	0	**3,765**	NA	**3,765**	**0**
	SAFFORD	169,600	7,300	0	0	0	44	192	0	423	**177,558**	87,958	89,100	500	**177,558**	NA	**177,558**	**0**
	SALT RIVER	6,900	4,250	0	0	0	15,448	395	0	211	**27,204**	12,611	14,593	0	**27,204**	NA	**27,204**	**0**
	SAN BERNARDINO VALLEY	0	19	0	0	0	0	0	0	0	**19**	19	0	0	**19**	NA	**19**	**0**
	SAN RAFAEL	0	22	0	0	0	0	0	0	0	**22**	22	0	0	**22**	NA	**22**	**0**
	SAN SIMON WASH	500	1,000	0	0	0	0	0	0	0	**1,500**	1,500	0	0	**1,500**	NA	**1,500**	**0**
	SANTA CRUZ AMA	10,704	8,502	0	0	98	0	195	0	1,482	**20,980**	20,980	0	0	**20,980**	NA	**20,980**	**0**
	SHIVWITS PLATEAU	0	2	0	0	0	0	0	0	0	**2**	2	0	0	**2**	NA	**2**	**0**
	TIGER WASH	0	2	0	0	0	0	0	0	0	**2**	2	0	0	**2**	NA	**2**	**0**
	TONTO CREEK	1,500	2,700	0	0	0	0	0	0	0	**4,200**	3,000	1,000	200	**4,200**	NA	**4,200**	**0**
	UPPER HASSAYAMPA	0	2,500	786	0	0	0	0	0	0	**3,286**	3,286	0	0	**3,286**	NA	**3,286**	**0**
	UPPER SAN PEDRO	8,800	18,480	42	0	288	0	75	0	1,552	**29,237**	23,957	4,450	830	**29,237**	NA	**29,237**	**0**
	VERDE RIVER	23,700	16,560	0	0	0	0	1,180	0	3,087	**44,527**	28,549	15,194	784	**44,527**	NA	**44,527**	**0**
	VIRGIN RIVER	1,000	423	0	0	0	0	0	0	882	**2,305**	1,585	720	0	**2,305**	NA	**2,305**	**0**
	WESTERN MEXICAN DRAINAGE	0	6	0	0	0	0	0	0	0	**6**	6	0	0	**6**	NA	**6**	**0**
	WILLCOX	166,000	3,161	584	130	0	0	0	6,200	0	**176,075**	175,714	150	211	**176,075**	NA	**176,075**	**0**

Basins Which Receive Part of their Supply from the Colorado River or CAP		Baseline Demands Cont.										Baseline Demand Water Sources[1] Cont.						Supply - Demand Cont.
		AGRICULTURE Cont.		MUNICIPAL	INDUSTRIAL							TOTAL	Instate				Colorado River/ CAP Diversions	TOTAL	
					Dairy	Feedlots	Other Industrial	Mining	Rock Products	Power Plants	Turf		GW (c. 2006)	Instate SW (c. 2006)	Effluent (Used c. 2006)	Total Instate Supply			
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	39,250		42,800	20	539	11,766	1,201	331	63,200	1,716	**160,823**	95,813	16,109	14,900	**126,822**	34,001	**160,823**	**0**
Instate + CR Lower Mainstem	BILL WILLIAMS	2,700		1,250	0	0	0	200	0	0	0	**4,150**	3,251	500	200	**3,951**	199	**4,150**	**0**
	DETRITAL VALLEY	0		309	0	0	0	0	0	0	0	**309**	159	72	0	**231**	78	**309**	**0**
	KANAB PLATEAU	1,100		2,500	27	0	0	0	0	0	0	**3,627**	2,799	800	0	**3,599**	28	**3,627**	**0**
	LAKE HAVASU	0		16,070	0	0	0	0	60	0	0	**16,130**	47	0	2,433	**2,480**	13,650	**16,130**	**0**
	LAKE MOHAVE	20,890		21,920	0	0	0	0	77	4,000	882	**47,769**	2,007	0	715	**2,722**	45,046	**47,768**	**0**
	Lake Mohave (Tribal Ag)	68,110										**68,110**	0	0	0	**0**	68,110	**68,110**	**0**
	LOWER GILA	499,000		2,020	246	3,421	0	0	0	0	0	**504,687**	110,296	320	0	**110,616**	394,071	**504,687**	**0**
	PARKER	21,942		4,520	0	0	0	0	0	0	0	**26,462**	1,787	0	1,116	**2,903**	23,559	**26,462**	**0**
	Parker (Tribal Ag)	621,454										**621,454**	0	0	0	**0**	621,454	**621,454**	**0**
	YUMA	804,766		44,960	0	0	1,178	0	238	658	441	**852,241**	108,570	1,041	460	**110,071**	742,170	**852,241**	**0**
	Yuma (Tribal Ag)	6,234										**6,234**	0	0	0	**0**	6,234	**6,234**	**0**
Instate + CAP	HARQUAHALA INA	135,500		128	0	0	0	0	0	1,107	0	**136,735**	66,178	0	0	**66,178**	70,557	**136,735**	**0**
	Major Active Management Areas (AMAs)	**Non-Tribal Ag**	**Tribal Ag**	**MUNICIPAL**	**Dairy**	**Feedlots**	**Other Industrial**	**Mining**	**Rock Products**	**Power Plants**	**Turf**	**TOTAL**	**GW (c. 2006)**	**Instate SW (c. 2006)**	**Effluent (Used c. 2006)**	**Total Instate Supply**	**CAP**	**TOTAL**	**Supply -Demand**
	PHOENIX AMA	730,025	217,779	1,060,995	10,080	58	10,624	0	10,401	69,585	60,632	**2,170,179**	673,754	842,773	168,331	**1,684,858**	485,321	**2,170,179**	**0**
	PINAL AMA	819,894	152,140	30,485	8,400	3,033	1,229	0	1,199	96	6,286	**1,022,762**	431,290	100,734	4,614	**536,638**	486,124	**1,022,762**	**0**
	TUCSON AMA	87,755	10,635	185,769	110	0	4,181	34,905	3,807	2,656	8,249	**338,067**	216,997	588	14,336	**231,921**	106,146	**338,067**	**0**
	STATEWIDE	**5,168,825**		**1,524,510**	**20,637**	**7,182**	**29,932**	**92,256**	**18,750**	**154,202**	**87,132**	**7,103,425**	**2,628,917**	**1,165,176**	**212,583**	**4,006,675**	**3,096,749**	**7,103,425**	**0**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Baseline Demand Water Sources are derived from the Arizona Water Atlas (outside AMAs) and AMA Assessments with some adjustments made for basins receiving Colorado River Water to reflect estimated diversions resulting in corresponding reductions in groundwater and instate surface water quantities used. **Recharged CAP not included as a cultural water demand.**

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Preliminary DRAFT-Subject to Revision

Baseline Supply for Projection Purposes[1]

	BASIN NAME	Instate GW (c. 2006)	Instate SW (2001-2006 Average Diversions)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River/CAP	Total Supply
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**
	ARAVAIPA CANYON	514	500	0	**1,014**	NA	**1,014**
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**
	BONITA CREEK	0	0	0	**0**	NA	**0**
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**
	COCONINO PLATEAU	500	358	1,700	**2,558**	NA	**2,558**
	DONNELLY WASH	19	0	0	**19**	NA	**19**
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**
	DUNCAN VALLEY	8,054	9,900	50	**18,004**	NA	**18,004**
	GILA BEND	295,323	55,417	800	**351,540**	NA	**351,540**
	GRAND WASH	2	0	0	**2**	NA	**2**
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**
	LOWER SAN PEDRO	23,677	833	700	**25,211**	NA	**25,211**
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**
	MEADVIEW	145	0	0	**145**	NA	**145**
	MORENCI	9,126	1,627	200	**10,953**	NA	**10,953**
	PARIA	120	0	0	**120**	NA	**120**
	PEACH SPRINGS	351	0	100	**451**	NA	**451**
	PRESCOTT AMA	17,679	2,067	6,900	**26,645**	NA	**26,645**
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**
	SAFFORD	87,958	74,183	2,600	**164,741**	NA	**164,741**
	SALT RIVER	12,611	12,011	2,600	**27,222**	NA	**27,222**
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**
	SAN RAFAEL	22	0	0	**22**	NA	**22**
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**
	TIGER WASH	2	0	0	**2**	NA	**2**
	TONTO CREEK	3,000	1,000	500	**4,500**	NA	**4,500**
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**
	UPPER SAN PEDRO	23,957	4,450	5,300	**33,707**	NA	**33,707**
	VERDE RIVER	28,549	16,494	6,200	**51,243**	NA	**51,243**
	VIRGIN RIVER	1,585	1,618	10	**3,213**	NA	**3,213**
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**
	WILLCOX	175,714	150	500	**176,364**	NA	**176,364**

Baseline Supply for Projection Purposes

Basins Which Receive Part of their Supply from the Colorado River or CAP		Instate GW (c. 2006)	Instate SW (2001-2006 Average Diversions)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River Priority 1,2,3 or NA	Colorado River Priority 4+ Normal	Colorado River Priority 4+ Shortage	Colorado River/CAP Normal Year[2]	Colorado River/CAP Shortage Year[3]	Total Supply Normal Year[2]	Total Supply Shortage Year[3]	Colorado River Priority 1,2,3 or NA	Colorado River Priority 4+ Normal	Colorado River Priority 4+ Shortage	Colorado River Normal Year[2]	Colorado River Shortage Year[3]	Colorado River Priority 1,2,3 or NA	Colorado River Priority 4+ Normal	Colorado River Priority 4+ Shortage	Colorado River Consumptive Normal Year[2]	Colorado River Consumptive Shortage Year[3]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813	14,717	36,100	**146,630**	51,782	0	0	51,782	51,782	**198,412**	**198,412**	1,782	0	0	1,782	1,782	50,000	0	0	50,000	50,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251	500	200	**3,951**	**0**	**654**	**464**	654	464	**4,604**	**4,415**	0	237	0	237	0	0	417	299	417	299
	DETRITAL VALLEY	159	50	0	**209**	**150**	**0**	**0**	150	150	**359**	**359**	0	0	0	0	0	150	0	0	150	150
	KANAB PLATEAU	2,799	800	500	**4,099**	**0**	**70**	**50**	70	50	**4,169**	**4,149**	0	25	0	25	0	0	45	32	45	32
	LAKE HAVASU	47	0	3,400	**3,447**	**0**	**37,010**	**26,528**	37,010	26,528	**40,457**	**29,975**	0	13,578	0	13,578	0	0	23,432	16,796	23,432	16,796
	LAKE MOHAVE	2,007	0	3,100	**5,107**	**450**	**71,792**	**51,437**	72,242	51,887	**77,349**	**56,995**	89	24,464	0	24,553	89	361	47,328	33,923	47,689	34,285
	Lake Mohave (Tribal Ag)	0	0	0	**0**	103,535	0	0	103,535	103,535	**103,535**	**103,535**	47,570	0	0	47,570	47,570	55,965	0	0	55,965	55,965
	LOWER GILA	110,296	473	300	**111,070**	**400,092**	**732**	**525**	400,825	400,617	**511,894**	**511,687**	139,790	254	0	140,045	139,790	260,302	478	343	260,780	260,645
	PARKER	1,787	0	2,100	**3,887**	**990**	**35,591**	**26,002**	36,581	26,992	**40,468**	**30,879**	348	9,451	0	9,799	348	642	26,140	18,737	26,782	19,378
	Parker (Tribal Ag)	0	0	0	**0**	662,402	4,278	3,066	666,680	665,468	**666,680**	**665,468**	288,164	1,861	0	290,025	288,164	374,238	2,417	1,732	376,655	375,971
	YUMA	108,570	973	13,500	**123,042**	**794,010**	**12,488**	**9,165**	806,498	803,175	**929,540**	**926,217**	320,786	4,309	0	325,095	320,786	473,224	8,179	5,862	481,403	479,086
	Yuma (Tribal Ag)	0	0	0	**0**	17,197	0	0	17,197	17,197	**17,197**	**17,197**	4,793	0	0	4,793	4,793	12,404	0	0	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178	0	0	**66,178**	0	0	0	0	0	**66,178**	**66,178**	0	0	0	0	0	0	0	0	0	0
	Major Active Management Areas (AMAs)	**GW (c. 2006)**	**Instate SW (2001-2006 Average Diversions)**	**Effluent (Generated c. 2006)**	**Total Instate Supply**	**Priority 1,2,3 or NA**	**Priority 4+ Normal**	**Priority 4+ Shortage**	**Normal Year[2]**	**Shortage Year[3]**	**Normal Year[2]**	**Shortage Year[3]**	**Priority 1,2,3 or NA**	**Priority 4+ Normal**	**Priority 4+ Shortage**	**Normal Year[2]**	**Shortage Year[3]**	**Priority 1,2,3 or NA**	**Priority 4+ Normal**	**Priority 4+ Shortage**	**Normal Year[2]**	**Shortage Year[3]**
	PHOENIX AMA	673,755	727,402	315,000	1,693,083	0	895,395	703,579	895,395	703,579	2,588,479	2,396,662	0	0	0	0	0	0	895,395	703,579	895,395	703,579
	PINAL AMA	431,290	73,830	6,900	506,639	0	166,269	116,073	166,269	116,073	672,908	622,712	0	0	0	0	0	0	166,269	116,073	166,269	116,073
	TUCSON AMA	216,996	506	74,235	291,721	0	220,106	188,519	220,106	188,519	511,827	480,240	0	0	0	0	0	0	220,106	188,519	220,106	188,519
Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users[1]						**117,566**	**4,551**	**3,262**	122,117	120,828	122,117	120,828	0	0	0	0	0	**117,566**	**4,551**	**3,262**	122,117	120,828
Colorado Mainstem Environmental (Not Available For Cultural Supply)						104,339	0	0	104,339	104,339	**0**	**0**	61,409	0	0	61,409	61,409	42,930	0	0	42,930	42,930
CAP System Loss = -5% of Diversion (Not Available For Supply)						0	0	0	67,462	53,062	**0**	**0**	0	0	0	0	0	0	0	0	67,462	53,062
STATEWIDE		**2,628,917**	**999,860**	**504,436**	**4,104,742**	**2,030,608**	**1,444,385**	**1,125,408**	**3,768,911**	**3,434,245**	**7,701,852**	**7,381,586**	**642,827**	**49,628**	**36,251**	**918,911**	**864,732**	**1,387,781**	**1,394,758**	**1,089,157**	**2,850,000**	**2,530,000**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. The Baseline Supply for Projection Purposes represents currently developed supplies that are available today and throughout the study period to meet both baseline and, if applicable, future demand. This value will be adjusted in the future scenarios to simulate reductions in water supply due to climate change and other stressors.
2. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
3. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.

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	BASIN NAME	2035 Supply					
		Instate					
		GW (c. 2006)	Instate SW (2001-2006 Average Diversions -5%)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River/CAP	Total Supply
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**
	ARAVAIPA CANYON	514	475	0	**989**	NA	**989**
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**
	BONITA CREEK	0	0	0	**0**	NA	**0**
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**
	COCONINO PLATEAU	500	340	1,700	**2,540**	NA	**2,540**
	DONNELLY WASH	19	0	0	**19**	NA	**19**
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**
	DUNCAN VALLEY	8,054	9,405	50	**17,509**	NA	**17,509**
	GILA BEND	295,323	52,646	800	**348,769**	NA	**348,769**
	GRAND WASH	2	0	0	**2**	NA	**2**
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**
	LOWER SAN PEDRO	23,677	792	700	**25,169**	NA	**25,169**
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**
	MEADVIEW	145	0	0	**145**	NA	**145**
	MORENCI	9,126	1,545	200	**10,871**	NA	**10,871**
	PARIA	120	0	0	**120**	NA	**120**
	PEACH SPRINGS	351	0	100	**451**	NA	**451**
	PRESCOTT AMA	17,679	1,963	6,900	**26,542**	NA	**26,542**
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**
	SAFFORD	87,958	70,474	2,600	**161,032**	NA	**161,032**
	SALT RIVER	12,611	11,410	2,600	**26,621**	NA	**26,621**
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**
	SAN RAFAEL	22	0	0	**22**	NA	**22**
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**
	TIGER WASH	2	0	0	**2**	NA	**2**
	TONTO CREEK	3,000	950	500	**4,450**	NA	**4,450**
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**
	UPPER SAN PEDRO	23,957	4,228	5,300	**33,484**	NA	**33,484**
	VERDE RIVER	28,549	15,669	6,200	**50,418**	NA	**50,418**
	VIRGIN RIVER	1,585	1,537	10	**3,132**	NA	**3,132**
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**
	WILLCOX	175,714	143	500	**176,357**	NA	**176,357**

Basins Which Receive Part of their Supply from the Colorado River or CAP		2035 Supply													
		Instate				Colorado River/CAP		Total Supply				Colorado River		Colorado River	
		GW (c. 2006)	Instate SW (2001-2006 Average Diversions -5%)	Effluent (Generated c. 2006)	Total Instate Supply	Normal Year[2]	Shortage Year[3]	Normal Year[2]	Shortage Year[3]			Normal Year[2]	Shortage Year[3]	Normal Year[2]	Shortage Year[3]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813	13,981	36,100	**145,894**	49,193	49,193	**195,087**	**195,087**			1,693	1,693	47,500	47,500
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251	475	200	**3,926**	654	464	**4,579**	**4,390**			237	165	417	299
	DETRITAL VALLEY	159	48	0	**207**	150	150	**357**	**357**			0	0	150	150
	KANAB PLATEAU	2,799	760	500	**4,059**	70	50	**4,129**	**4,109**			25	18	45	32
	LAKE HAVASU	47	0	3,400	**3,447**	37,010	26,528	**40,457**	**29,975**			13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007	0	3,100	**5,107**	72,242	51,887	**77,349**	**56,995**			24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0	0	0	**0**	103,535	103,535	**103,535**	**103,535**			47,570	47,570	55,965	55,965
	LOWER GILA	110,296	450	300	**111,046**	386,822	386,614	**497,868**	**497,660**			135,152	135,080	251,670	251,534
	PARKER	1,787	0	2,100	**3,887**	36,581	26,992	**40,468**	**30,879**			9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0	0	0	**0**	666,680	665,468	**666,680**	**665,468**			290,025	289,498	376,655	375,971
	YUMA	108,570	924	13,500	**122,994**	781,255	778,041	**904,249**	**901,035**			314,757	313,789	466,498	464,252
	Yuma (Tribal Ag)	0	0	0	**0**	17,197	17,197	**17,197**	**17,197**			4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178	0	0	**66,178**	0	0	**66,178**	**66,178**			0	0	0	0
	Major Active Management Areas (AMAs)	**GW Low[4]**	**GW High[4]**	**Instate SW (CAM)**	**Effluent (Generated c. 2006)**	**Total Instate Supply Low**	**Total Instate Supply High**	**Normal Year[2]**	**Shortage Year[3]**	**Low**	**High**	**Low**	**High**	**Normal Year[2]**	**Shortage Year[3]**	**Normal Year[2]**	**Shortage Year[3]**
	PHOENIX AMA	645,174	673,755	702,362	315,000	**1,662,536**	**1,691,116**	895,395	703,579	**2,557,931**	**2,586,512**	**2,366,114**	**2,394,695**	0	0	895,395	703,579
	PINAL AMA	431,290	431,290	66,443	6,900	**504,633**	**504,633**	166,269	116,073	**670,902**	**670,902**	**620,706**	**620,706**	0	0	166,269	116,073
	TUCSON AMA	158,223	196,258	466	74,235	**232,924**	**270,958**	220,106	188,519	**453,030**	**491,064**	**421,442**	**459,477**	0	0	220,106	188,519
Colorado Mainstem Potentially Available for Trans		**Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or**						146,132	144,773	**146,132**	**146,132**	**144,773**	**144,773**	0	0	146,132	144,773
Colo		**Colorado Mainstem Environmental (Not Available For Cultural Supply)**						104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
		CAP System Loss = -5% of Diversion (Not Available For Supply)						67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
STATEWIDE		**2,541,563**	**2,608,178**	**957,486**	**504,436**	**4,003,485**	**4,070,100**	**3,751,091**	**3,416,464**	**7,582,776**	**7,649,391**	**7,262,549**	**7,329,163**	**903,591**	**888,964**	**2,847,500**	**2,527,500**

GW = groundwater

CR = Mainstem Colorado River Water

CAP = Central Arizona Project

Instate SW = Other Surface Water

Effluent = reclaimed water

2. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.

3. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.

4. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.

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2060 Supply

	BASIN NAME	Instate GW (c. 2006)	Instate SW (2001-2006 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River/CAP	Total Supply
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**
	ARAVAIPA CANYON	514	450	0	**964**	NA	**964**
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**
	BONITA CREEK	0	0	0	**0**	NA	**0**
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**
	COCONINO PLATEAU	500	323	1,700	**2,523**	NA	**2,523**
	DONNELLY WASH	19	0	0	**19**	NA	**19**
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**
	DUNCAN VALLEY	8,054	8,910	50	**17,014**	NA	**17,014**
	GILA BEND	295,323	49,875	800	**345,998**	NA	**345,998**
	GRAND WASH	2	0	0	**2**	NA	**2**
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**
	LOWER SAN PEDRO	23,677	750	700	**25,127**	NA	**25,127**
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**
	MEADVIEW	145	0	0	**145**	NA	**145**
	MORENCI	9,126	1,464	200	**10,790**	NA	**10,790**
	PARIA	120	0	0	**120**	NA	**120**
	PEACH SPRINGS	351	0	100	**451**	NA	**451**
	PRESCOTT AMA	17,679	1,860	6,900	**26,438**	NA	**26,438**
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**
	SAFFORD	87,958	66,765	2,600	**157,323**	NA	**157,323**
	SALT RIVER	12,611	10,810	2,600	**26,021**	NA	**26,021**
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**
	SAN RAFAEL	22	0	0	**22**	NA	**22**
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**
	TIGER WASH	2	0	0	**2**	NA	**2**
	TONTO CREEK	3,000	900	500	**4,400**	NA	**4,400**
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**
	UPPER SAN PEDRO	23,957	4,005	5,300	**33,262**	NA	**33,262**
	VERDE RIVER	28,549	14,845	6,200	**49,593**	NA	**49,593**
	VIRGIN RIVER	1,585	1,457	10	**3,052**	NA	**3,052**
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**
	WILLCOX	175,714	135	500	**176,349**	NA	**176,349**

2060 Supply

Basins Which Receive Part of their Supply from the Colorado River or CAP		Instate GW (c. 2006)	Instate SW (2001-2006 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River/CAP Normal Year[2]	Colorado River/CAP Shortage Year[3]	Total Supply Normal Year[2]	Total Supply Shortage Year[3]	Colorado River Normal Year[2]	Colorado River Shortage Year[3]	Colorado River Normal Year[2]	Colorado River Shortage Year[3]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813	13,246	36,100	**145,158**	46,604	46,604	**191,762**	**191,762**	1,604	1,604	45,000	45,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251	450	200	**3,901**	654	464	**4,554**	**4,365**	237	165	417	299
	DETRITAL VALLEY	159	45	0	**204**	150	150	**354**	**354**	0	0	150	150
	KANAB PLATEAU	2,799	720	500	**4,019**	70	50	**4,089**	**4,069**	25	18	45	32
	LAKE HAVASU	47	0	3,400	**3,447**	37,010	26,528	**40,457**	**29,975**	13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007	0	3,100	**5,107**	72,242	51,887	**77,349**	**56,995**	24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0	0	0	**0**	103,535	103,535	**103,535**	**103,535**	47,570	47,570	55,965	55,965
	LOWER GILA	110,296	426	300	**111,022**	372,818	372,611	**483,841**	**483,633**	130,259	130,187	242,559	242,424
	PARKER	1,787	0	2,100	**3,887**	36,581	26,992	**40,468**	**30,879**	9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0	0	0	**0**	666,680	665,468	**666,680**	**665,468**	290,025	289,498	376,655	375,971
	YUMA	108,570	875	13,500	**122,945**	756,013	752,907	**878,958**	**875,852**	304,419	303,490	451,593	449,417
	Yuma (Tribal Ag)	0	0	0	**0**	17,197	17,197	**17,197**	**17,197**	4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178	0	0	**66,178**	0	0	**66,178**	**66,178**	0	0	0	0

Major Active Management Areas (AMAs)	GW Low[4]	GW High[4]	Instate SW (CAM)	Effluent (Generated c. 2006)	Total Instate Supply Low	Total Instate Supply High	Normal Year[2]	Shortage Year[3]	Total Supply Low	Total Supply High	Total Supply Low	Total Supply High	Colorado River Normal Year[2]	Colorado River Shortage Year[3]	Colorado River Normal Year[2]	Colorado River Shortage Year[3]
PHOENIX AMA	540,665	673,755	665,395	315,000	**1,521,060**	**1,654,150**	895,395	703,579	**2,416,455**	**2,549,545**	**2,224,638**	**2,357,729**	0	0	895,395	703,579
PINAL AMA	431,290	431,290	62,946	6,900	**501,136**	**501,136**	166,269	116,073	**667,405**	**667,405**	**617,209**	**617,209**	0	0	166,269	116,073
TUCSON AMA	161,039	200,402	441	74,235	**235,715**	**275,078**	220,106	188,519	**455,821**	**495,184**	**424,234**	**463,596**	0	0	220,106	188,519
Colorado Mainstem Potentially Available for Trans	**Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to**						*170,148*	*168,718*	**170,148**	**170,148**	**168,718**	**168,718**	0	0	*170,148*	*168,718*
Color	**Colorado Mainstem Environmental (Not Available For Cultural Supply)**						104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
	CAP System Loss = -5% of Diversion (Not Available For Supply)						67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
STATEWIDE	**2,439,869**	**2,612,322**	**907,092**	**504,436**	**3,851,397**	**4,023,850**	**3,733,272**	**3,398,683**	**7,412,868**	**7,585,321**	**7,092,679**	**7,265,132**	**888,271**	**873,683**	**2,845,000**	**2,525,000**

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Instate SW = Other Surface Water
Effluent = reclaimed water

2. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
3. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
4. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.

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2110 Supply

	BASIN NAME	Instate GW (c. 2006)	Instate SW (2001-2005 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River/CAP	Total Supply
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**
	ARAVAIPA CANYON	514	450	0	**964**	NA	**964**
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**
	BONITA CREEK	0	0	0	**0**	NA	**0**
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**
	COCONINO PLATEAU	500	323	1,700	**2,523**	NA	**2,523**
	DONNELLY WASH	19	0	0	**19**	NA	**19**
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**
	DUNCAN VALLEY	8,054	8,910	50	**17,014**	NA	**17,014**
	GILA BEND	295,323	49,875	800	**345,998**	NA	**345,998**
	GRAND WASH	2	0	0	**2**	NA	**2**
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**
	LOWER SAN PEDRO	23,677	750	700	**25,127**	NA	**25,127**
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**
	MEADVIEW	145	0	0	**145**	NA	**145**
	MORENCI	9,126	1,464	200	**10,790**	NA	**10,790**
	PARIA	120	0	0	**120**	NA	**120**
	PEACH SPRINGS	351	0	100	**451**	NA	**451**
	PRESCOTT AMA	17,679	1,860	6,900	**26,438**	NA	**26,438**
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**
	SAFFORD	87,958	66,765	2,600	**157,323**	NA	**157,323**
	SALT RIVER	12,611	10,810	2,600	**26,021**	NA	**26,021**
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**
	SAN RAFAEL	22	0	0	**22**	NA	**22**
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**
	TIGER WASH	2	0	0	**2**	NA	**2**
	TONTO CREEK	3,000	900	500	**4,400**	NA	**4,400**
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**
	UPPER SAN PEDRO	23,957	4,005	5,300	**33,262**	NA	**33,262**
	VERDE RIVER	28,549	14,845	6,200	**49,593**	NA	**49,593**
	VIRGIN RIVER	1,585	1,457	10	**3,052**	NA	**3,052**
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**
	WILLCOX	175,714	135	500	**176,349**	NA	**176,349**

2110 Supply

Basins Which Receive Part of their Supply from the Colorado River or CAP		Instate GW (c. 2006)	Instate SW (2001-2005 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply	Colorado River/CAP Normal Year[2]	Colorado River/CAP Shortage Year[3]	Total Supply Normal Year[2]	Total Supply Shortage Year[3]	Colorado River Normal Year[2]	Colorado River Shortage Year[3]	Colorado River Normal Year[2]	Colorado River Shortage Year[3]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813	13,246	36,100	**145,158**	46,604	46,604	**191,762**	**191,762**	1,604	1,604	45,000	45,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251	450	200	**3,901**	654	464	**4,554**	**4,365**	237	165	417	299
	DETRITAL VALLEY	159	45	0	**204**	150	150	**354**	**354**	0	0	150	150
	KANAB PLATEAU	2,799	720	500	**4,019**	70	50	**4,089**	**4,069**	25	18	45	32
	LAKE HAVASU	47	0	3,400	**3,447**	37,010	26,528	**40,457**	**29,975**	13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007	0	3,100	**5,107**	72,242	51,887	**77,349**	**56,995**	24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0	0	0	**0**	103,535	103,535	**103,535**	**103,535**	47,570	47,570	55,965	55,965
	LOWER GILA	110,296	426	300	**111,022**	372,818	372,611	**483,841**	**483,633**	130,259	130,187	242,559	242,424
	PARKER	1,787	0	2,100	**3,887**	36,581	26,992	**40,468**	**30,879**	9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0	0	0	**0**	666,680	665,468	**666,680**	**665,468**	290,025	289,498	376,655	375,971
	YUMA	108,570	875	13,500	**122,945**	756,013	752,907	**878,958**	**875,852**	304,419	303,490	451,593	449,417
	Yuma (Tribal Ag)	0	0	0	**0**	17,197	17,197	**17,197**	**17,197**	4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178	0	0	**66,178**	0	0	**66,178**	**66,178**	0	0	0	0

Major Active Management Areas (AMAs)	GW Low[4]	GW High[4]	Instate SW (CAM)	Effluent (Generated c. 2006)	Total Instate Supply Low	Total Instate Supply High	Normal Year[2]	Shortage Year[3]	Low	High	Low	High	Normal Year[2]	Shortage Year[3]	Normal Year[2]	Shortage Year[3]
PHOENIX AMA	608,306	673,755	665,395	315,000	1,588,701	1,654,150	895,395	703,579	**2,484,097**	**2,549,545**	**2,292,280**	**2,357,729**	0	0	895,395	703,579
PINAL AMA	431,290	431,290	62,946	6,900	501,136	501,136	166,269	116,073	**667,405**	**667,405**	**617,209**	**617,209**	0	0	166,269	116,073
TUCSON AMA	191,144	237,987	441	74,235	265,820	312,663	220,106	188,519	**485,926**	**532,769**	**454,339**	**501,182**	0	0	220,106	188,519
Colorado Mainstem Potentially Available for Trans	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP						170,148	168,718	**170,148**	**170,148**	**168,718**	**168,718**	0	0	170,148	168,718
Color	Colorado Mainstem Environmental (Not Available For Cultural Supply)						104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
	CAP System Loss = -5% of Diversion (Not Available For Supply)						67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
STATEWIDE	**2,537,616**	**2,649,908**	**907,092**	**504,436**	**3,949,144**	**4,061,436**	**3,733,272**	**3,398,683**	**7,510,616**	**7,622,907**	**7,190,426**	**7,302,718**	**888,271**	**873,683**	**2,845,000**	**2,525,000**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

2. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
3. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
4. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.

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2110 Area Split Supply

	BASIN NAME	Instate: GW (c. 2006)	Instate: Instate SW (2001-2005 Average Diversions -10%)	Instate: Effluent (Generated c. 2006)	Instate: Total Instate Supply	Colorado River/CAP	Total Supply
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**
	ARAVAIPA CANYON	514	450	0	**964**	NA	**964**
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**
	BONITA CREEK	0	0	0	**0**	NA	**0**
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**
	COCONINO PLATEAU	500	323	1,700	**2,523**	NA	**2,523**
	DONNELLY WASH	19	0	0	**19**	NA	**19**
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**
	DUNCAN VALLEY	8,054	8,910	50	**17,014**	NA	**17,014**
	GILA BEND	295,323	49,875	800	**345,998**	NA	**345,998**
	GRAND WASH	2	0	0	**2**	NA	**2**
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**
	LOWER SAN PEDRO	23,677	750	700	**25,127**	NA	**25,127**
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**
	MEADVIEW	145	0	0	**145**	NA	**145**
	MORENCI	9,126	1,464	200	**10,790**	NA	**10,790**
	PARIA	120	0	0	**120**	NA	**120**
	PEACH SPRINGS	351	0	100	**451**	NA	**451**
	PRESCOTT AMA	17,679	1,860	6,900	**26,438**	NA	**26,438**
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**
	SAFFORD	87,958	66,765	2,600	**157,323**	NA	**157,323**
	SALT RIVER	12,611	10,810	2,600	**26,021**	NA	**26,021**
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**
	SAN RAFAEL	22	0	0	**22**	NA	**22**
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**
	TIGER WASH	2	0	0	**2**	NA	**2**
	TONTO CREEK	3,000	900	500	**4,400**	NA	**4,400**
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**
	UPPER SAN PEDRO	23,957	4,005	5,300	**33,262**	NA	**33,262**
	VERDE RIVER	28,549	14,845	6,200	**49,593**	NA	**49,593**
	VIRGIN RIVER	1,585	1,457	10	**3,052**	NA	**3,052**
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**
	WILLCOX	175,714	135	500	**176,349**	NA	**176,349**

2110 Area Split Supply

Basins Which Receive Part of their Supply from the Colorado River or CAP		Instate: GW (c. 2006)	Instate: Instate SW (2001-2005 Average Diversions -10%)	Instate: Effluent (Generated c. 2006)	Instate: Total Instate Supply	Colorado River/CAP: Normal Year[2]	Colorado River/CAP: Shortage Year[3]	Total Supply: Normal Year[2]	Total Supply: Shortage Year[3]	Colorado River: Normal Year[2]	Colorado River: Shortage Year[3]	Colorado River: Normal Year[2]	Colorado River: Shortage Year[3]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813	13,246	36,100	**145,158**	46,604	46,604	**191,762**	**191,762**	1,604	1,604	45,000	45,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251	450	200	**3,901**	654	464	**4,554**	**4,365**	237	165	417	299
	DETRITAL VALLEY	159	45	0	**204**	150	150	**354**	**354**	0	0	150	150
	KANAB PLATEAU	2,799	720	500	**4,019**	70	50	**4,089**	**4,069**	25	18	45	32
	LAKE HAVASU	47	0	3,400	**3,447**	37,010	26,528	**40,457**	**29,975**	13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007	0	3,100	**5,107**	72,242	51,887	**77,349**	**56,995**	24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0	0	0	**0**	103,535	103,535	**103,535**	**103,535**	47,570	47,570	55,965	55,965
	LOWER GILA	110,296	426	300	**111,022**	372,818	372,611	**483,841**	**483,633**	130,259	130,187	242,559	242,424
	PARKER	1,787	0	2,100	**3,887**	36,581	26,992	**40,468**	**30,879**	9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0	0	0	**0**	666,680	665,468	**666,680**	**665,468**	290,025	289,498	376,655	375,971
	YUMA	108,570	875	13,500	**122,945**	756,013	752,907	**878,958**	**875,852**	304,419	303,490	451,593	449,417
	Yuma (Tribal Ag)	0	0	0	**0**	17,197	17,197	**17,197**	**17,197**	4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178	0	0	**66,178**	0	0	**66,178**	**66,178**	0	0	0	0

Major Active Management Areas (AMAs)	GW Low[4]	GW High[4]	Instate SW (CAM)	Effluent (Generated c. 2006)	Total Instate Supply Low	Total Instate Supply High	Normal Year[2]	Shortage Year[3]	Total Supply Low	Total Supply High	Total Supply Low	Total Supply High	Colorado River Normal Year[2]	Colorado River Shortage Year[3]	Colorado River Normal Year[2]	Colorado River Shortage Year[3]
PHOENIX AMA	590,160	673,755	665,395	315,000	1,570,555	1,654,150	895,395	703,579	**2,465,951**	**2,549,545**	**2,274,134**	**2,357,729**	0	0	895,395	703,579
PINAL AMA	431,290	431,290	62,946	6,900	501,136	501,136	166,269	116,073	**667,405**	**667,405**	**617,209**	**617,209**	0	0	166,269	116,073
TUCSON AMA	192,310	237,794	441	74,235	266,986	312,470	220,106	188,519	**487,092**	**532,576**	**455,504**	**500,988**	0	0	220,106	188,519
Colorado Mainstem Potentially Available for Trans	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to						170,148	168,718	**170,148**	**170,148**	**168,718**	**168,718**	0	0	170,148	168,718
Color	Colorado Mainstem Environmental (Not Available For Cultural Supply)						104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
	CAP System Loss = -5% of Diversion (Not Available For Supply)						67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
STATEWIDE	**2,520,635**	**2,649,714**	**907,092**	**504,436**	**3,932,163**	**4,061,242**	**3,733,272**	**3,398,683**	**7,493,634**	**7,622,714**	**7,173,445**	**7,302,524**	**888,271**	**873,683**	**2,845,000**	**2,525,000**

GW = groundwater

CR = Mainstem Colorado River Water

CAP = Central Arizona Project

Instate SW = Other Surface Water

Effluent = reclaimed water

2. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.

3. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.

4. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.

TABLE 6. Currently Developed Adjusted Supplies Vs. 2035 Projected Demands

Version 6-14-11

	BASIN NAME	2035 Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate Water Supplies Only	AGUA FRIA	1,800	2,888	0	0	0	0	0	83	200	0	0	0	0	**4,772**	**4,888**
	ARAVAIPA CANYON	1,000	12	0	0	0	0	0	1	1	0	0	0	0	**1,013**	**1,014**
	BIG SANDY	0	496	0	0	0	0	0	13	31	0	0	0	0	**509**	**528**
	BONITA CREEK	0	5	0	0	0	0	0	0	0	0	0	0	0	**5**	**5**
	BUTLER VALLEY	14,500	0	0	0	0	0	0	0	0	0	0	0	0	**14,500**	**14,500**
	CIENEGA CREEK	500	918	0	0	0	300	500	37	89	0	0	0	0	**1,755**	**2,007**
	COCONINO PLATEAU	0	1,521	0	0	0	0	0	75	179	0	0	0	0	**1,596**	**1,701**
	DONNELLY WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	DOUGLAS	48,000	7,633	0	0	0	0	0	208	498	1	2	0	211	**55,841**	**56,344**
	DRIPPING SPRINGS WASH	0	14	0	0	0	0	0	1	3	0	0	0	0	**16**	**17**
	DUNCAN VALLEY	17,100	546	93	0	0	0	0	18	44	0	0	211	211	**17,969**	**17,994**
	GILA BEND	351,500	1,332	5,281	0	0	0	0	57	136	19,102	26,147	0	0	**377,271**	**384,396**
	GRAND WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	HUALAPAI VALLEY	0	14,595	0	0	0	0	0	324	778	0	0	0	211	**14,919**	**15,584**
	LOWER SAN PEDRO	3,700	2,937	0	0	0	14,000	30,000	100	239	0	0	211	211	**20,948**	**37,087**
	MCMULLEN VALLEY	71,000	970	0	0	0	0	0	39	93	0	0	0	0	**72,008**	**72,062**
	MEADVIEW	0	243	0	0	0	0	0	8	20	0	0	0	0	**251**	**263**
	MORENCI	0	2,051	0	0	0	12,000	48,000	24	57	0	0	75	75	**14,150**	**50,183**
	PARIA	0	148	0	0	0	0	0	3	8	9,332	12,832	0	0	**9,483**	**12,988**
	PEACH SPRINGS	0	494	0	0	0	300	300	16	38	0	0	0	0	**810**	**832**
	PRESCOTT AMA	1,329	32,994	0	0	567	0	0	1,056	2,535	16	22	902	1,032	**36,863**	**38,478**
	RANEGRAS PLAIN	29,000	392	0	0	0	0	0	5	13	0	0	0	0	**29,398**	**29,405**
	SACRAMENTO VALLEY	0	7,403	76	0	0	8,000	12,000	180	432	4,346	5,944	0	211	**20,005**	**26,067**
	SAFFORD	169,600	7,914	0	0	0	5,000	27,000	244	585	0	0	423	423	**183,181**	**205,523**
	SALT RIVER	6,900	4,762	0	0	0	27,000	43,000	167	400	420	577	211	211	**39,460**	**55,850**
	SAN BERNARDINO VALLEY	0	25	0	0	0	0	0	0	1	0	0	0	0	**25**	**26**
	SAN RAFAEL	0	25	0	0	0	0	0	1	2	0	0	0	0	**26**	**28**
	SAN SIMON WASH	500	1,489	0	0	0	0	0	53	127	0	0	0	0	**2,042**	**2,116**
	SANTA CRUZ AMA	11,233	12,347	0	0	98	0	0	344	824	38	52	1,482	1,781	**25,541**	**26,336**
	SHIVWITS PLATEAU	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**
	TIGER WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	TONTO CREEK	1,500	5,821	0	0	0	0	0	97	233	0	0	0	211	**7,418**	**7,765**
	UPPER HASSAYAMPA	0	4,659	786	0	0	0	0	106	255	0	0	0	0	**5,551**	**5,699**
	UPPER SAN PEDRO	8,800	26,226	42	0	288	2,000	12,000	620	1,489	0	0	1,552	1,675	**39,528**	**50,520**
	VERDE RIVER	23,700	25,190	0	0	0	1,000	4,000	773	1,855	0	0	3,087	3,530	**53,750**	**58,275**
	VIRGIN RIVER	1,000	798	0	0	0	0	0	25	59	0	0	882	882	**2,705**	**2,740**
	WESTERN MEXICAN DRAINAGE	0	6	0	0	0	0	0	0	0	0	0	0	0	**6**	**7**
	WILLCOX	166,000	3,816	584	130	0	300	300	83	200	6,656	9,152	0	0	**177,569**	**180,182**

Basins Which Receive Part of their Supply from the Colorado River or CAP		2035 Demands Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	39,250	58,523	20	539	11,766	1,500	1,500	1,871	4,490	103,034	141,672	1,716	1,806	**218,219**	**259,566**
Instate + CR Lower Mainstem	BILL WILLIAMS	2,700	1,564	0	0	0	10,000	30,000	34	82	0	0	0	0	**14,298**	**34,346**
	DETRITAL VALLEY	0	397	0	0	0	0	0	14	33	0	0	0	0	**410**	**430**
	KANAB PLATEAU	1,100	3,885	27	0	0	0	0	63	150	0	0	0	0	**5,075**	**5,163**
	LAKE HAVASU	0	31,036	0	0	0	0	0	541	1,299	0	0	0	211	**31,577**	**32,545**
	LAKE MOHAVE	20,890	36,384	0	0	0	0	0	483	1,160	14,097	19,383	882	1,050	**72,736**	**78,867**
	Lake Mohave (Tribal Ag)	68,110													**68,110**	**68,110**
	LOWER GILA	481,535	2,676	5,281	6,781	0	0	18,000	83	200	1,313	1,642	0	0	**497,669**	**516,115**
	PARKER	21,942	5,391	0	0	0	300	300	102	245	5,563	6,979	0	211	**33,298**	**35,067**
	Parker (Tribal Ag)	621,454													**621,454**	**621,454**
	YUMA	776,599	76,244	0	0	1,178	0	0	1,536	3,686	2,061	2,784	476	545	**858,095**	**861,037**
	Yuma (Tribal Ag)	6,234													**6,234**	**6,234**
Instate + CAP	HARQUAHALA INA	135,500	245	0	0	0	0	0	7	18	918	1,147	0	0	**136,670**	**136,910**

Major Active Management Areas (AMAs)	Non-Tribal Ag	Tribal Ag	MUNICIPAL	Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High	TOTAL Low	TOTAL High
PHOENIX AMA	307,926	525,228	1,876,700	0	58	34,476	15,000	25,000	32,135	77,125	126,752	174,283	67,147	76,843	**2,985,423**	**3,097,639**
PINAL AMA	590,540	194,616	151,212	18,480	3,033	3,847	4,000	18,000	3,366	8,078	4,135	5,686	12,658	14,486	**985,887**	**1,007,978**
TUCSON AMA	66,242	20,412	278,695	0	0	2,501	39,000	74,000	7,136	17,126	2,913	4,005	8,249	9,414	**425,148**	**472,395**
STATEWIDE	**4,808,940**		**2,693,625**	**30,670**	**10,541**	**54,721**	**139,700**	**343,900**	**52,133**	**125,119**	**300,696**	**412,309**	**100,164**	**115,441**	**8,191,191**	**8,595,266**

GW = groundwater
CR = Mainstem Colorado River Water
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Effluent = reclaimed water

Preliminary DRAFT- Subject to Revision

TABLE 6. Currently Developed Adjusted Supplies Vs. 2035 Projected Demands

Version 6-14-11

	BASIN NAME	2035 Supply											
		Instate				Colorado River/CAP	Total Supply						
		GW (c. 2006)	Instate SW (2001-2006 Average Diversions -5%)	Effluent (Generated c. 2006)	Total Instate Supply								
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**						
	ARAVAIPA CANYON	514	475	0	**989**	NA	**989**						
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**						
	BONITA CREEK	0	0	0	**0**	NA	**0**						
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**						
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**						
	COCONINO PLATEAU	500	340	1,700	**2,540**	NA	**2,540**						
	DONNELLY WASH	19	0	0	**19**	NA	**19**						
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**						
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**						
	DUNCAN VALLEY	8,054	9,405	50	**17,509**	NA	**17,509**						
	GILA BEND	295,323	52,646	800	**348,769**	NA	**348,769**						
	GRAND WASH	2	0	0	**2**	NA	**2**						
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**						
	LOWER SAN PEDRO	23,677	792	700	**25,169**	NA	**25,169**						
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**						
	MEADVIEW	145	0	0	**145**	NA	**145**						
	MORENCI	9,126	1,545	200	**10,871**	NA	**10,871**						
	PARIA	120	0	0	**120**	NA	**120**						
	PEACH SPRINGS	351	0	100	**451**	NA	**451**						
	PRESCOTT AMA	17,679	1,963	6,900	**26,542**	NA	**26,542**						
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**						
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**						
	SAFFORD	87,958	70,474	2,600	**161,032**	NA	**161,032**						
	SALT RIVER	12,611	11,410	2,600	**26,621**	NA	**26,621**						
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**						
	SAN RAFAEL	22	0	0	**22**	NA	**22**						
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**						
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**						
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**						
	TIGER WASH	2	0	0	**2**	NA	**2**						
	TONTO CREEK	3,000	950	500	**4,450**	NA	**4,450**						
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**						
	UPPER SAN PEDRO	23,957	4,228	5,300	**33,484**	NA	**33,484**						
	VERDE RIVER	28,549	15,669	6,200	**50,418**	NA	**50,418**						
	VIRGIN RIVER	1,585	1,537	10	**3,132**	NA	**3,132**						
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**						
	WILLCOX	175,714	143	500	**176,357**	NA	**176,357**						

Basins Which Receive Part of their Supply from the Colorado River or CAP		2035 Supply													
		Instate						Colorado River/CAP		Total Supply				Colorado River Expected Return		Colorado River Consumptive Use	
		GW (c. 2006)		Instate SW (2001-2006 Average Diversions -5%)	Effluent (Generated c. 2006)	Total Instate Supply		Normal Year[1]	Shortage Year[2]	Normal Year[1]		Shortage Year[2]		Normal Year[1]	Shortage Year[2]	Normal Year[1]	Shortage Year[2]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813		13,981	36,100	**145,894**		49,193	49,193	**195,087**		**195,087**		1,693	1,693	47,500	47,500
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251		475	200	**3,926**		654	464	**4,579**		**4,390**		237	165	417	299
	DETRITAL VALLEY	159		48	0	**207**		150	150	**357**		**357**		0	0	150	150
	KANAB PLATEAU	2,799		760	500	**4,059**		70	50	**4,129**		**4,109**		25	18	45	32
	LAKE HAVASU	47		0	3,400	**3,447**		37,010	26,528	**40,457**		**29,975**		13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007		0	3,100	**5,107**		72,242	51,887	**77,349**		**56,995**		24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0		0	0	**0**		103,535	103,535	**103,535**		**103,535**		47,570	47,570	55,965	55,965
	LOWER GILA	110,296		450	300	**111,046**		386,822	386,614	**497,868**		**497,660**		135,152	135,080	251,670	251,534
	PARKER	1,787		0	2,100	**3,887**		36,581	26,992	**40,468**		**30,879**		9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0		0	0	**0**		666,680	665,468	**666,680**		**665,468**		290,025	289,498	376,655	375,971
	YUMA	108,570		924	13,500	**122,994**		781,255	778,041	**904,249**		**901,035**		314,757	313,789	466,498	464,252
	Yuma (Tribal Ag)	0		0	0	**0**		17,197	17,197	**17,197**		**17,197**		4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178		0	0	**66,178**		0	0	**66,178**		**66,178**		0	0	0	0
	Major Active Management Areas (AMAs)	**GW Low[3]**	**GW High[3]**	**Instate SW (CAM)**	**Effluent (Generated c. 2006)**	**Total Instate Supply Low**	**Total Instate Supply High**	**Normal Year[1]**	**Shortage Year[2]**	**Low**	**High**	**Low**	**High**	**Normal Year[1]**	**Shortage Year[2]**	**Normal Year[1]**	**Shortage Year[2]**
	PHOENIX AMA	645,174	673,755	702,362	315,000	1,662,536	1,691,116	895,395	703,579	**2,557,931**	**2,586,512**	**2,366,114**	**2,394,695**	0	0	895,395	703,579
	PINAL AMA	431,290	431,290	66,443	6,900	504,633	504,633	166,269	116,073	**670,902**	**670,902**	**620,706**	**620,706**	0	0	166,269	116,073
	TUCSON AMA	158,223	196,258	466	74,235	232,924	270,958	220,106	188,519	**453,030**	**491,064**	**421,442**	**459,477**	0	0	220,106	188,519
	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users[1]							146,132	144,773	**146,132**	**146,132**	**144,773**	**144,773**	0	0	146,132	144,773
	Colorado Mainstem Environmental (Not Available For Cultural Supply)							104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
	CAP System Loss = -5% of Diversion (Not Available For Supply)							67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
	STATEWIDE	**2,541,563**	**2,608,178**	**957,486**	**504,436**	**4,003,485**	**4,070,100**	**3,751,091**	**3,416,464**	**7,582,776**	**7,649,391**	**7,262,549**	**7,329,163**	**903,591**	**888,964**	**2,847,500**	**2,527,500**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
2. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
3. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.
4. Positive values for (supply – demand) for Colorado River basins would be available for use by CAP or other Colorado River water users. No water would be left unused in the basin.

Preliminary DRAFT- Subject to Revision

TABLE 6. Currently Developed Adjusted Supplies Vs. 2035 Projected Demands

Version 6-14-11

	BASIN NAME	2035 Supply - Demand		Ratio (Projected Unmet Demand/Projected Total Demand)	
		Instate Supply - Low Demand	Instate Supply - High Demand	Instate Supply - Low Demand	Instate Supply - High Demand
Instate Water Supplies Only	AGUA FRIA	-1,140	-1,256	-0.24	-0.26
	ARAVAIPA CANYON	-24	-25	-0.02	-0.02
	BIG SANDY	14,519	14,500	28.50	27.48
	BONITA CREEK	-5	-5	-1.00	-1.00
	BUTLER VALLEY	3	3	0.00	0.00
	CIENEGA CREEK	-554	-806	-0.32	-0.40
	COCONINO PLATEAU	944	840	0.59	0.49
	DONNELLY WASH	19	19	0.00	0.00
	DOUGLAS	-1,141	-1,644	-0.02	-0.03
	DRIPPING SPRINGS WASH	-5	-6	-0.30	-0.37
	DUNCAN VALLEY	-460	-486	-0.03	-0.03
	GILA BEND	-28,503	-35,627	-0.08	-0.09
	GRAND WASH	2	2	0.00	0.00
	HUALAPAI VALLEY	-4,010	-4,675	-0.27	-0.30
	LOWER SAN PEDRO	4,221	-11,918	0.20	-0.32
	MCMULLEN VALLEY	-508	-562	-0.01	-0.01
	MEADVIEW	-106	-118	-0.42	-0.45
	MORENCI	-3,279	-39,312	-0.23	-0.78
	PARIA	-9,363	-12,868	-0.99	-0.99
	PEACH SPRINGS	-359	-381	-0.44	-0.46
	PRESCOTT AMA	-10,321	-11,936	-0.28	-0.31
	RANEGRAS PLAIN	-48	-55	0.00	0.00
	SACRAMENTO VALLEY	-15,940	-22,001	-0.80	-0.84
	SAFFORD	-22,149	-44,490	-0.12	-0.22
	SALT RIVER	-12,838	-29,229	-0.33	-0.52
	SAN BERNARDINO VALLEY	-6	-7	-0.25	-0.27
	SAN RAFAEL	-4	-6	-0.17	-0.21
	SAN SIMON WASH	-142	-216	-0.07	-0.10
	SANTA CRUZ AMA	11,750	10,956	0.46	0.42
	SHIVWITS PLATEAU	0	0	-0.07	-0.11
	TIGER WASH	2	2	0.00	0.00
	TONTO CREEK	-2,968	-3,315	-0.40	-0.43
	UPPER HASSAYAMPA	-1,664	-1,813	-0.30	-0.32
	UPPER SAN PEDRO	-6,044	-17,036	-0.15	-0.34
	VERDE RIVER	-3,332	-7,857	-0.06	-0.13
	VIRGIN RIVER	427	393	0.16	0.14
	WESTERN MEXICAN DRAINAGE	0	-1	-0.07	-0.11
	WILLCOX	-1,213	-3,825	-0.01	-0.02

Basins Which Receive Part of their Supply from the Colorado River or CAP		2035 Supply - Demand Cont.[4]				Ratio Cont.			
		Instate + Normal		Instate + Shortage		Instate + Normal		Instate + Shortage	
		-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	-23,132	-64,479	-23,132	-64,479	-0.11	-0.25	-0.11	-0.25
Instate + CR Lower Mainstem	BILL WILLIAMS	-9,718	-29,766	-9,908	-29,956	-0.68	-0.87	-0.69	-0.87
	DETRITAL VALLEY	-54	-73	-54	-73	-0.13	-0.17	-0.13	-0.17
	KANAB PLATEAU	-946	-1,033	-966	-1,053	-0.19	-0.20	-0.19	-0.20
	LAKE HAVASU	8,880	7,912	-1,602	-2,570	0.28	0.24	-0.05	-0.08
	LAKE MOHAVE	4,613	-1,518	-15,742	-21,873	0.06	-0.02	-0.22	-0.28
	Lake Mohave (Tribal Ag)	35,425	35,425	35,425	35,425	0.52	0.52	0.52	0.52
	LOWER GILA	198	-18,247	-9	-18,455	0.00	-0.04	0.00	-0.04
	PARKER	7,170	5,401	-2,419	-4,189	0.22	0.15	-0.07	-0.12
	Parker (Tribal Ag)	45,226	45,226	44,014	44,014	0.07	0.07	0.07	0.07
	YUMA	46,154	43,212	42,940	39,998	0.05	0.05	0.05	0.05
	Yuma (Tribal Ag)	10,963	10,963	10,963	10,963	1.76	1.76	1.76	1.76
Instate + CAP	HARQUAHALA INA	-70,492	-70,732	-70,492	-70,732	-0.52	-0.52	-0.52	-0.52
	Major Active Management Areas (AMAs)	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
	PHOENIX AMA	-427,491	-511,128	-619,308	-702,944	-0.14	-0.17	-0.21	-0.23
	PINAL AMA	-314,985	-337,076	-365,181	-387,272	-0.32	-0.33	-0.37	-0.38
	TUCSON AMA	27,882	18,669	-3,705	-12,918	0.07	0.04	-0.01	-0.03
		146,132	146,132	144,773	144,773				
	STATEWIDE	-608,415	-945,875	-928,642	-1,266,103	-0.07	-0.11	-0.11	-0.15

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

TABLE 7. Currently Developed Adjusted Supplies Vs. 2060 Projected Demands

Version 6-14-11

	BASIN NAME	2060 Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate Water Supplies Only	AGUA FRIA	1,800	3,471	0	0	0	0	0	100	240	0	0	0	0	**5,371**	**5,511**
	ARAVAIPA CANYON	1,000	14	0	0	0	0	0	1	2	0	0	0	0	**1,014**	**1,015**
	BIG SANDY	0	619	0	0	0	0	0	16	39	0	0	0	0	**635**	**658**
	BONITA CREEK	0	6	0	0	0	0	0	0	0	0	0	0	0	**6**	**6**
	BUTLER VALLEY	14,500	0	0	0	0	0	0	0	0	0	0	0	0	**14,500**	**14,500**
	CIENEGA CREEK	500	1,123	0	0	0	300	500	46	109	0	0	0	0	**1,968**	**2,232**
	COCONINO PLATEAU	0	1,827	0	0	0	0	0	90	215	0	0	0	0	**1,917**	**2,043**
	DONNELLY WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	DOUGLAS	48,000	9,043	0	0	0	0	0	246	590	2	3	0	211	**57,291**	**57,847**
	DRIPPING SPRINGS WASH	0	16	0	0	0	0	0	1	3	0	0	0	0	**17**	**19**
	DUNCAN VALLEY	17,100	635	93	0	0	0	0	21	51	0	0	211	211	**18,060**	**18,090**
	GILA BEND	351,500	1,672	13,814	0	0	0	0	71	171	23,435	33,434	0	0	**390,492**	**400,591**
	GRAND WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	HUALAPAI VALLEY	0	18,122	0	0	0	0	0	403	966	0	0	0	211	**18,524**	**19,299**
	LOWER SAN PEDRO	3,700	4,756	0	0	0	14,000	30,000	161	387	0	0	343	211	**22,961**	**39,054**
	MCMULLEN VALLEY	71,000	1,173	0	0	0	0	0	47	112	0	0	0	0	**72,220**	**72,285**
	MEADVIEW	0	302	0	0	0	0	0	10	25	0	0	0	0	**312**	**326**
	MORENCI	0	2,378	0	0	0	12,000	48,000	27	66	0	0	75	75	**14,481**	**50,519**
	PARIA	0	167	0	0	0	0	0	4	9	11,171	16,091	0	0	**11,342**	**16,267**
	PEACH SPRINGS		597	0	0	0	300	300	19	45	0	0	0	0	**916**	**942**
	PRESCOTT AMA	1,329	40,447	0	0	567	0	0	1,295	3,107	19	28	1,105	1,103	**44,762**	**46,581**
	RANEGRAS PLAIN	29,000	482	0	0	0	0	0	7	16	0	0	0	0	**29,488**	**29,498**
	SACRAMENTO VALLEY	0	9,342	76	0	0	8,000	12,000	227	545	5,351	7,623	0	211	**22,996**	**29,797**
	SAFFORD	169,600	9,085	0	0	0	5,000	27,000	280	672	0	0	423	423	**184,388**	**206,780**
	SALT RIVER	6,900	5,347	0	0	0	27,000	43,000	187	449	502	723	211	211	**40,148**	**56,630**
	SAN BERNARDINO VALLEY	0	27	0	0	0	0	0	1	1	0	0	0	0	**27**	**28**
	SAN RAFAEL	0	29	0	0	0	0	0	1	3	0	0	0	0	**30**	**32**
	SAN SIMON WASH	500	1,873	0	0	0	0	0	67	160	0	0	0	0	**2,440**	**2,533**
	SANTA CRUZ AMA	11,233	15,204	0	0	98	0	0	423	1,015	46	66	1,917	1,914	**28,921**	**29,530**
	SHIVWITS PLATEAU	0	3	0	0	0	0	0	0	0	0	0	0	0	**3**	**3**
	TIGER WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	TONTO CREEK	1,500	7,235	0	0	0	0	0	121	290	0	0	0	211	**8,856**	**9,236**
	UPPER HASSAYAMPA	0	5,768	786	0	0	0	0	131	315	0	0	0	0	**6,685**	**6,869**
	UPPER SAN PEDRO	8,800	31,062	42	0	288	2,000	12,000	735	1,764	0	0	1,734	1,731	**44,660**	**55,686**
	VERDE RIVER	23,700	30,143	0	0	0	1,000	4,000	925	2,220	0	0	3,691	3,686	**59,459**	**63,748**
	VIRGIN RIVER	1,000	1,039	0	0	0	0	0	32	77	0	0	882	882	**2,953**	**2,998**
	WESTERN MEXICAN DRAINAGE	0	8	0	0	0	0	0	0	1	0	0	0	0	**8**	**8**
	WILLCOX	166,000	4,366	584	130	0	300	300	96	229	7,967	11,476	0	0	**179,443**	**183,085**

Basins Which Receive Part of their Supply from the Colorado River or CAP		2060 Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	39,250	69,327	20	539	11,766	1,500	1,500	2,216	5,319	123,332	177,657	1,870	1,867	**249,821**	**307,246**
Instate + CR Lower Mainstem	BILL WILLIAMS	2,700	1,790	0	0	0	10,000	30,000	39	94	0	0	0	0	**14,529**	**34,584**
	DETRITAL VALLEY	0	494	0	0	0	0	0	17	41	0	0	0	0	**511**	**534**
	KANAB PLATEAU	1,100	4,852	27	0	0	0	0	78	188	0	0	0	0	**6,057**	**6,166**
	LAKE HAVASU	0	39,425	0	0	0	0	0	687	1,650	0	0	0	211	**40,113**	**41,286**
	LAKE MOHAVE	20,890	44,715	0	0	0	0	0	594	1,426	16,874	24,307	1,128	1,126	**84,201**	**92,464**
	Lake Mohave (Tribal Ag)	68,110													**68,110**	**68,110**
	LOWER GILA	464,070	3,184	13,814	6,781	0	0	18,000	99	238	2,364	2,955	0	0	**490,312**	**509,041**
	PARKER	21,942	5,993	0	0	0	300	300	113	272	9,894	12,412	0	211	**38,242**	**41,130**
	Parker (Tribal Ag)	621,454													**621,454**	**621,454**
	YUMA	748,432	93,451	0	0	1,178	0	0	1,882	4,518	2,705	3,761	584	583	**848,232**	**851,923**
	Yuma (Tribal Ag)	6,234													**6,234**	**6,234**
Instate + CAP	HARQUAHALA INA	135,500	354	0	0	0	0	0	11	26	1,652	2,065	0	0	**137,516**	**137,944**

Major Active Management Areas (AMAs)	Non-Tribal Ag	Tribal Ag	MUNICIPAL	Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High	TOTAL Low	TOTAL High
PHOENIX AMA	147,045	525,228	2,357,875	0	58	34,476	15,000	25,000	40,375	96,899	151,841	218,724	84,364	84,234	**3,356,261**	**3,489,538**
PINAL AMA	418,152	194,616	240,081	8,000	3,033	3,847	4,000	18,000	5,344	12,826	4,954	7,136	20,097	20,066	**902,124**	**925,757**
TUCSON AMA	56,723	20,412	345,271	0	0	2,501	39,000	74,000	8,840	21,217	3,489	5,026	10,191	10,175	**486,427**	**535,325**
STATEWIDE	**4,420,519**		**3,414,190**	**37,256**	**10,541**	**54,721**	**139,700**	**343,900**	**66,087**	**158,609**	**365,598**	**523,486**	**128,826**	**129,765**	**8,637,438**	**9,092,987**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

Preliminary DRAFT- Subject to Revision

TABLE 7. Currently Developed Adjusted Supplies Vs. 2060 Projected Demands

Version 6-14-11

	BASIN NAME	2060 Supply											
		Instate				Colorado River/CAP		Total Supply					
		GW (c. 2006)	Instate SW (2001-2006 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply								
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA		**3,632**					
	ARAVAIPA CANYON	514	450	0	**964**	NA		**964**					
	BIG SANDY	15,028	0	0	**15,028**	NA		**15,028**					
	BONITA CREEK	0	0	0	**0**	NA		**0**					
	BUTLER VALLEY	14,503	0	0	**14,503**	NA		**14,503**					
	CIENEGA CREEK	1,101	0	100	**1,201**	NA		**1,201**					
	COCONINO PLATEAU	500	323	1,700	**2,523**	NA		**2,523**					
	DONNELLY WASH	19	0	0	**19**	NA		**19**					
	DOUGLAS	53,300	0	1,400	**54,700**	NA		**54,700**					
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA		**11**					
	DUNCAN VALLEY	8,054	8,910	50	**17,014**	NA		**17,014**					
	GILA BEND	295,323	49,875	800	**345,998**	NA		**345,998**					
	GRAND WASH	2	0	0	**2**	NA		**2**					
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA		**10,909**					
	LOWER SAN PEDRO	23,677	750	700	**25,127**	NA		**25,127**					
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA		**71,500**					
	MEADVIEW	145	0	0	**145**	NA		**145**					
	MORENCI	9,126	1,464	200	**10,790**	NA		**10,790**					
	PARIA	120	0	0	**120**	NA		**120**					
	PEACH SPRINGS	351	0	100	**451**	NA		**451**					
	PRESCOTT AMA	17,679	1,860	6,900	**26,438**	NA		**26,438**					
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA		**29,350**					
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA		**4,065**					
	SAFFORD	87,958	66,765	2,600	**157,323**	NA		**157,323**					
	SALT RIVER	12,611	10,810	2,600	**26,021**	NA		**26,021**					
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA		**19**					
	SAN RAFAEL	22	0	0	**22**	NA		**22**					
	SAN SIMON WASH	1,500	0	400	**1,900**	NA		**1,900**					
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA		**37,291**					
	SHIVWITS PLATEAU	2	0	0	**2**	NA		**2**					
	TIGER WASH	2	0	0	**2**	NA		**2**					
	TONTO CREEK	3,000	900	500	**4,400**	NA		**4,400**					
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA		**3,886**					
	UPPER SAN PEDRO	23,957	4,005	5,300	**33,262**	NA		**33,262**					
	VERDE RIVER	28,549	14,845	6,200	**49,593**	NA		**49,593**					
	VIRGIN RIVER	1,585	1,457	10	**3,052**	NA		**3,052**					
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA		**6**					
	WILLCOX	175,714	135	500	**176,349**	NA		**176,349**					

Basins Which Receive Part of their Supply from the Colorado River or CAP		2060 Supply													
		Instate						Colorado River/CAP Diversions		Total Supply				Colorado River Expected Return Flow		Colorado River Consumptive Use	
		GW (c. 2006)		Instate SW (2001-2006 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply		Normal Year[1]	Shortage Year[2]	Normal Year[1]		Shortage Year[2]		Normal Year[1]	Shortage Year[2]	Normal Year[1]	Shortage Year[2]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813		13,246	36,100	**145,158**		46,604	46,604	**191,762**		**191,762**		1,604	1,604	45,000	45,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251		450	200	**3,901**		654	464	**4,554**		**4,365**		237	165	417	299
	DETRITAL VALLEY	159		45	0	**204**		150	150	**354**		**354**		0	0	150	150
	KANAB PLATEAU	2,799		720	500	**4,019**		70	50	**4,089**		**4,069**		25	18	45	32
	LAKE HAVASU	47		0	3,400	**3,447**		37,010	26,528	**40,457**		**29,975**		13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007		0	3,100	**5,107**		72,242	51,887	**77,349**		**56,995**		24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0		0	0	**0**		103,535	103,535	**103,535**		**103,535**		47,570	47,570	55,965	55,965
	LOWER GILA	110,296		426	300	**111,022**		372,818	372,611	**483,841**		**483,633**		130,259	130,187	242,559	242,424
	PARKER	1,787		0	2,100	**3,887**		36,581	26,992	**40,468**		**30,879**		9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0		0	0	**0**		666,680	665,468	**666,680**		**665,468**		290,025	289,498	376,655	375,971
	YUMA	108,570		875	13,500	**122,945**		756,013	752,907	**878,958**		**875,852**		304,419	303,490	451,593	449,417
	Yuma (Tribal Ag)	0		0	0	**0**		17,197	17,197	**17,197**		**17,197**		4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178		0	0	**66,178**		0	0	**66,178**		**66,178**		0	0	0	0
	Major Active Management Areas (AMAs)	**GW Low[3]**	**GW High[3]**	**Instate SW (CAM)**	**Effluent (Generated c. 2006)**	**Total Instate Supply Low**	**Total Instate Supply High**	**Normal Year[1]**	**Shortage Year[2]**	**Low**	**High**	**Low**	**High**	**Normal Year[1]**	**Shortage Year[2]**	**Normal Year[1]**	**Shortage Year[2]**
	PHOENIX AMA	540,665	673,755	665,395	315,000	1,521,060	1,654,150	895,395	703,579	**2,416,455**	**2,549,545**	**2,224,638**	**2,357,729**	0	0	895,395	703,579
	PINAL AMA	431,290	431,290	62,946	6,900	501,136	501,136	166,269	116,073	**667,405**	**667,405**	**617,209**	**617,209**	0	0	166,269	116,073
	TUCSON AMA	161,039	200,402	441	74,235	235,715	275,078	220,106	188,519	**455,821**	**495,184**	**424,234**	**463,596**	0	0	220,106	188,519
	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users[1]							170,148	168,718	**170,148**	**170,148**	**168,718**	**168,718**	0	0	170,148	168,718
	Colorado Mainstem Environmental (Not Available For Cultural Supply)							104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
	CAP System Loss = -5% of Diversion (Not Available For Supply)							67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
	STATEWIDE	**2,439,869**	**2,612,322**	**907,092**	**504,436**	**3,851,397**	**4,023,850**	**3,733,272**	**3,398,683**	**7,412,868**	**7,585,321**	**7,092,679**	**7,265,132**	**888,271**	**873,683**	**2,845,000**	**2,525,000**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
2. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet.
Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
3. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.
4. Positive values for (supply – demand) for Colorado River basins would be available for use by CAP or other Colorado River water users. No water would be left unused in the basin.

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TABLE 7. Currently Developed Adjusted Supplies Vs. 2060 Projected Demands

Version 6-14-11

	BASIN NAME	2060 Supply - Demand		Ratio (Projected Unmet Demand/Projected Total Demand)	
		Instate Supply - Low Demand	Instate Supply - High Demand	Instate Supply - Low Demand	Instate Supply - High Demand
Instate Water Supplies Only	AGUA FRIA	-1,739	-1,879	-0.32	-0.34
	ARAVAIPA CANYON	-50	-51	-0.05	-0.05
	BIG SANDY	14,393	14,370	22.65	21.84
	BONITA CREEK	-6	-6	-1.00	-1.00
	BUTLER VALLEY	3	3	0.00	0.00
	CIENEGA CREEK	-767	-1,031	-0.39	-0.46
	COCONINO PLATEAU	605	480	0.32	0.23
	DONNELLY WASH	19	19	0.00	0.00
	DOUGLAS	-2,591	-3,147	-0.05	-0.05
	DRIPPING SPRINGS WASH	-6	-8	-0.37	-0.43
	DUNCAN VALLEY	-1,047	-1,076	-0.06	-0.06
	GILA BEND	-44,495	-54,593	-0.11	-0.14
	GRAND WASH	2	2	0.00	0.00
	HUALAPAI VALLEY	-7,615	-8,390	-0.41	-0.43
	LOWER SAN PEDRO	2,167	-13,927	0.09	-0.36
	MCMULLEN VALLEY	-720	-785	-0.01	-0.01
	MEADVIEW	-167	-181	-0.54	-0.56
	MORENCI	-3,691	-39,729	-0.25	-0.79
	PARIA	-11,222	-16,147	-0.99	-0.99
	PEACH SPRINGS	-465	-491	-0.51	-0.52
	PRESCOTT AMA	-18,323	-20,143	-0.41	-0.43
	RANEGRAS PLAIN	-138	-148	0.00	-0.01
	SACRAMENTO VALLEY	-18,931	-25,732	-0.82	-0.86
	SAFFORD	-27,065	-49,457	-0.15	-0.24
	SALT RIVER	-14,127	-30,610	-0.35	-0.54
	SAN BERNARDINO VALLEY	-8	-9	-0.30	-0.32
	SAN RAFAEL	-8	-10	-0.28	-0.31
	SAN SIMON WASH	-540	-633	-0.22	-0.25
	SANTA CRUZ AMA	8,371	7,761	0.29	0.26
	SHIVWITS PLATEAU	-1	-1	-0.29	-0.31
	TIGER WASH	2	2	0.00	0.00
	TONTO CREEK	-4,456	-4,836	-0.50	-0.52
	UPPER HASSAYAMPA	-2,799	-2,983	-0.42	-0.43
	UPPER SAN PEDRO	-11,398	-22,425	-0.26	-0.40
	VERDE RIVER	-9,866	-14,155	-0.17	-0.22
	VIRGIN RIVER	98	53	0.03	0.02
	WESTERN MEXICAN DRAINAGE	-2	-2	-0.26	-0.29
	WILLCOX	-3,094	-6,736	-0.02	-0.04

Basins Which Receive Part of their Supply from the Colorado River or CAP		2060 Supply - Demand Cont.[4]				Ratio Cont.			
		Instate + Normal Diversions of CR Supply		Instate + Shortage Diversions of CR Supply		Instate + Normal Diversions of CR Supply		Instate + Shortage Diversions of CR Supply	
		-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	-58,059	-115,484	-58,059	-115,484	-0.23	-0.38	-0.23	-0.38
Instate + CR Lower Mainstem	BILL WILLIAMS	-9,975	-30,029	-10,164	-30,219	-0.69	-0.87	-0.70	-0.87
	DETRITAL VALLEY	-156	-180	-156	-180	-0.31	-0.34	-0.31	-0.34
	KANAB PLATEAU	-1,968	-2,077	-1,988	-2,097	-0.32	-0.34	-0.33	-0.34
	LAKE HAVASU	344	-829	-10,138	-11,311	0.01	-0.02	-0.25	-0.27
	LAKE MOHAVE	-6,852	-15,115	-27,207	-35,470	-0.08	-0.16	-0.32	-0.38
	Lake Mohave (Tribal Ag)	35,425	35,425	35,425	35,425	0.52	0.52	0.52	0.52
	LOWER GILA	-6,471	-25,201	-6,679	-25,408	-0.01	-0.05	-0.01	-0.05
	PARKER	2,225	-662	-7,364	-10,251	0.06	-0.02	-0.19	-0.25
	Parker (Tribal Ag)	45,226	45,226	44,014	44,014	0.07	0.07	0.07	0.07
	YUMA	30,725	27,035	27,620	23,929	0.04	0.03	0.03	0.03
	Yuma (Tribal Ag)	10,963	10,963	10,963	10,963	1.76	1.76	1.76	1.76
Instate + CAP	HARQUAHALA INA	-71,338	-71,766	-71,338	-71,766	-0.52	-0.52	-0.52	-0.52
	Major Active Management Areas (AMAs)	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
	PHOENIX AMA	-939,806	-939,993	-1,131,623	-1,131,810	-0.28	-0.27	-0.34	-0.32
	PINAL AMA	-234,719	-258,352	-284,915	-308,548	-0.26	-0.28	-0.32	-0.33
	TUCSON AMA	-30,606	-40,141	-62,193	-71,729	-0.06	-0.07	-0.13	-0.13
		170,148	170,148	168,718	168,718				
	STATEWIDE	-1,224,570	-1,507,666	-1,544,759	-1,827,855	-0.14	-0.17	-0.18	-0.20

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

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TABLE 8. Currently Developed Adjusted Supplies Vs. 2110 (CENSUS) Projected Demands

Preliminary DRAI Version 6-14-11

	BASIN NAME	2110 Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate Water Supplies Only	AGUA FRIA	1,800	4,800	0	0	0	0	0	138	332	0	0	0	0	**6,738**	**6,931**
	ARAVAIPA CANYON	1,000	19	0	0	0	0	0	1	2	0	0	0	0	**1,020**	**1,021**
	BIG SANDY	0	856	0	0	0	0	0	22	54	0	0	0	0	**879**	**910**
	BONITA CREEK	0	8	0	0	0	0	0	0	1	0	0	0	0	**8**	**8**
	BUTLER VALLEY	14,500	0	0	0	0	0	0	0	0	0	0	0	0	**14,500**	**14,500**
	CIENEGA CREEK	500	1,552	0	0	0	300	500	63	151	0	0	0	0	**2,415**	**2,703**
	COCONINO PLATEAU	0	2,526	0	0	0	0	0	124	298	0	0	0	0	**2,651**	**2,824**
	DONNELLY WASH	0	811	0	0	0	0	0	39	95	0	0	0	0	**850**	**906**
	DOUGLAS	48,000	12,503	0	0	0	0	0	340	816	2	3	0	211	**60,845**	**61,533**
	DRIPPING SPRINGS WASH	0	22	0	0	0	0	0	2	4	0	0	0	0	**24**	**27**
	DUNCAN VALLEY	17,100	878	93	0	0	0	0	29	70	0	0	211	211	**18,311**	**18,352**
	GILA BEND	351,500	2,312	23,782	0	0	0	0	99	237	26,910	40,743	0	0	**404,603**	**418,574**
	GRAND WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	HUALAPAI VALLEY	0	25,056	0	0	0	0	0	557	1,336	0	0	0	211	**25,612**	**26,603**
	LOWER SAN PEDRO	3,700	6,576	0	0	0	14,000	30,000	223	535	0	0	343	211	**24,843**	**41,023**
	MCMULLEN VALLEY	71,000	1,588	0	0	0	0	0	63	152	0	0	0	0	**72,652**	**72,740**
	MEADVIEW	0	417	0	0	0	0	0	14	34	0	0	0	0	**431**	**451**
	MORENCI	0	3,288	0	0	0	12,000	48,000	38	91	0	0	75	75	**15,401**	**51,454**
	PARIA	0	231	0	0	0	0	0	5	13	12,665	19,484	0	0	**12,901**	**19,728**
	PEACH SPRINGS	0	825	0	0	0	300	300	26	63	0	0	0	0	**1,151**	**1,188**
	PRESCOTT AMA	1,329	55,923	0	0	567	0	0	1,790	4,296	22	33	1,105	1,314	**60,736**	**63,463**
	RANEGRAS PLAIN	29,000	595	0	0	0	0	0	8	20	0	0	0	0	**29,603**	**29,615**
	SACRAMENTO VALLEY	0	12,917	76	0	0	8,000	12,000	314	754	6,155	9,298	0	450	**27,462**	**35,495**
	SAFFORD	169,600	12,561	0	0	0	5,000	27,000	387	929	0	0	423	423	**187,971**	**210,513**
	SALT RIVER	6,900	7,394	0	0	0	27,000	43,000	259	621	569	876	211	211	**42,332**	**59,001**
	SAN BERNARDINO VALLEY	0	37	0	0	0	0	0	1	2	0	0	0	0	**38**	**39**
	SAN RAFAEL	0	41	0	0	0	0	0	1	3	0	0	0	0	**42**	**44**
	SAN SIMON WASH	500	2,590	0	0	0	0	0	92	221	0	0	0	0	**3,182**	**3,311**
	SANTA CRUZ AMA	11,233	21,022	0	0	98	0	0	585	1,404	52	80	1,917	2,280	**34,906**	**36,116**
	SHIVWITS PLATEAU	0	4	0	0	0	0	0	0	0	0	0	0	0	**4**	**4**
	TIGER WASH	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
	TONTO CREEK	1,500	10,003	0	0	0	0	0	167	401	0	0	0	211	**11,670**	**12,115**
	UPPER HASSAYAMPA	0	7,975	786	0	0	0	0	182	436	0	0	0	0	**8,943**	**9,197**
	UPPER SAN PEDRO	8,800	42,947	42	0	288	2,000	12,000	1,016	2,439	0	0	1,734	2,062	**56,827**	**68,577**
	VERDE RIVER	23,700	41,677	0	0	0	1,000	4,000	1,279	3,069	0	0	3,691	4,390	**71,347**	**76,836**
	VIRGIN RIVER	1,000	1,437	0	0	0	0	0	44	107	0	0	882	882	**3,363**	**3,426**
	WESTERN MEXICAN DRAINAGE	0	11	0	0	0	0	0	0	1	0	0	0	0	**11**	**12**
	WILLCOX	166,000	6,037	584	130	0	300	300	132	317	9,033	13,896	0	0	**182,216**	**187,264**

Basins Which Receive Part of their Supply from the Colorado River or CAP		2110 Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	39,250	95,854	20	539	11,766	0	0	3,065	7,355	139,831	215,112	1,870	2,225	**292,195**	**372,121**
Instate + CR Lower Mainstem	BILL WILLIAMS	2,700	2,505	0	0	0	10,000	30,000	55	131	0	0	0	0	**15,260**	**35,337**
	DETRITAL VALLEY	0	682	0	0	0	0	0	24	57	0	0	0	0	**706**	**739**
	KANAB PLATEAU	1,100	6,708	27	0	0	0	0	108	259	0	0	0	0	**7,943**	**8,095**
	LAKE HAVASU	0	54,511	0	0	0	0	0	951	2,281	0	0	292	450	**55,754**	**57,242**
	LAKE MOHAVE	20,890	61,825	0	0	0	0	0	821	1,972	19,131	29,431	1,128	1,341	**103,795**	**115,459**
	Lake Mohave (Tribal Ag)	68,110													**68,110**	**68,110**
	LOWER GILA	464,070	4,402	23,782	6,781	0	0	18,000	137	328	3,152	3,940	0	0	**502,324**	**521,304**
	PARKER	21,942	8,111	0	0	0	300	300	153	368	13,144	16,508	0	211	**43,651**	**47,440**
	Parker (Tribal Ag)	621,454													**621,454**	**621,454**
	YUMA	748,432	129,209	0	0	1,178	0	0	2,603	6,246	3,209	4,663	584	695	**885,215**	**890,423**
	Yuma (Tribal Ag)	6,234													**6,234**	**6,234**
Instate + CAP	HARQUAHALA INA	135,500	652	0	0	0	0	0	20	48	2,202	2,753	0	0	**138,374**	**138,953**

Major Active Management Areas (AMAs)	Non-Tribal Ag	Tribal Ag	MUNICIPAL	Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High	TOTAL Low	TOTAL High
PHOENIX AMA	147,045	525,228	3,253,190	0	58	34,476	15,000	25,000	55,705	133,693	172,992	266,126	75,927	100,127	**4,279,621**	**4,484,942**
PINAL AMA	418,152	194,616	328,407	0	3,033	3,847	4,000	18,000	7,310	17,545	5,644	8,682	18,087	23,648	**983,096**	**1,015,930**
TUCSON AMA	56,723	20,412	483,537	0	0	2,501	39,000	74,000	12,381	29,714	3,975	6,115	8,560	12,277	**627,088**	**685,279**
STATEWIDE	**4,420,519**		**4,717,032**	**49,192**	**10,541**	**54,721**	**138,200**	**342,400**	**91,374**	**219,299**	**418,688**	**637,743**	**117,040**	**154,115**	**10,017,308**	**10,605,563**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

Preliminary DRAFT- Subject to Revision

TABLE 8. Currently Developed Adjusted Supplies Vs. 2110 (CENSUS) Projected Demands

Preliminary DRAI Version 6-14-11

	BASIN NAME	2110 Supply													
		Instate						Colorado River/CAP		Total Supply					
		GW (c. 2006)	Instate SW (2001-2005 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply										
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**			NA		**3,632**					
	ARAVAIPA CANYON	514	450	0	**964**			NA		**964**					
	BIG SANDY	15,028	0	0	**15,028**			NA		**15,028**					
	BONITA CREEK	0	0	0	**0**			NA		**0**					
	BUTLER VALLEY	14,503	0	0	**14,503**			NA		**14,503**					
	CIENEGA CREEK	1,101	0	100	**1,201**			NA		**1,201**					
	COCONINO PLATEAU	500	323	1,700	**2,523**			NA		**2,523**					
	DONNELLY WASH	19	0	0	**19**			NA		**19**					
	DOUGLAS	53,300	0	1,400	**54,700**			NA		**54,700**					
	DRIPPING SPRINGS WASH	11	0	0	**11**			NA		**11**					
	DUNCAN VALLEY	8,054	8,910	50	**17,014**			NA		**17,014**					
	GILA BEND	295,323	49,875	800	**345,998**			NA		**345,998**					
	GRAND WASH	2	0	0	**2**			NA		**2**					
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**			NA		**10,909**					
	LOWER SAN PEDRO	23,677	750	700	**25,127**			NA		**25,127**					
	MCMULLEN VALLEY	71,500	0	0	**71,500**			NA		**71,500**					
	MEADVIEW	145	0	0	**145**			NA		**145**					
	MORENCI	9,126	1,464	200	**10,790**			NA		**10,790**					
	PARIA	120	0	0	**120**			NA		**120**					
	PEACH SPRINGS	351	0	100	**451**			NA		**451**					
	PRESCOTT AMA	17,679	1,860	6,900	**26,438**			NA		**26,438**					
	RANEGRAS PLAIN	29,350	0	0	**29,350**			NA		**29,350**					
	SACRAMENTO VALLEY	3,765	0	300	**4,065**			NA		**4,065**					
	SAFFORD	87,958	66,765	2,600	**157,323**			NA		**157,323**					
	SALT RIVER	12,611	10,810	2,600	**26,021**			NA		**26,021**					
	SAN BERNARDINO VALLEY	19	0	0	**19**			NA		**19**					
	SAN RAFAEL	22	0	0	**22**			NA		**22**					
	SAN SIMON WASH	1,500	0	400	**1,900**			NA		**1,900**					
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**			NA		**37,291**					
	SHIVWITS PLATEAU	2	0	0	**2**			NA		**2**					
	TIGER WASH	2	0	0	**2**			NA		**2**					
	TONTO CREEK	3,000	900	500	**4,400**			NA		**4,400**					
	UPPER HASSAYAMPA	3,286	0	600	**3,886**			NA		**3,886**					
	UPPER SAN PEDRO	23,957	4,005	5,300	**33,262**			NA		**33,262**					
	VERDE RIVER	28,549	14,845	6,200	**49,593**			NA		**49,593**					
	VIRGIN RIVER	1,585	1,457	10	**3,052**			NA		**3,052**					
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**			NA		**6**					
	WILLCOX	175,714	135	500	**176,349**			NA		**176,349**					

Basins Which Receive Part of their Supply from the Colorado River or CAP		2110 Supply													
		Instate						Colorado River/CAP		Total Supply				Colorado River Expected Return		Colorado River Consumptive Use	
		GW (c. 2006)	Instate SW (2001-2006 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply			Normal Year[1]	Shortage Year[2]	Normal Year[1]		Shortage Year[2]		Normal Year[1]	Shortage Year[2]	Normal Year[1]	Shortage Year[2]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813	13,246	36,100	**145,158**			46,604	46,604	**191,762**		**191,762**		1,604	1,604	45,000	45,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251	450	200	**3,901**			654	464	**4,554**		**4,365**		237	165	417	299
	DETRITAL VALLEY	159	45	0	**204**			150	150	**354**		**354**		0	0	150	150
	KANAB PLATEAU	2,799	720	500	**4,019**			70	50	**4,089**		**4,069**		25	18	45	32
	LAKE HAVASU	47	0	3,400	**3,447**			37,010	26,528	**40,457**		**29,975**		13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007	0	3,100	**5,107**			72,242	51,887	**77,349**		**56,995**		24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0	0	0	**0**			103,535	103,535	**103,535**		**103,535**		47,570	47,570	55,965	55,965
	LOWER GILA	110,296	426	300	**111,022**			372,818	372,611	**483,841**		**483,633**		130,259	130,187	242,559	242,424
	PARKER	1,787	0	2,100	**3,887**			36,581	26,992	**40,468**		**30,879**		9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0	0	0	**0**			666,680	665,468	**666,680**		**665,468**		290,025	289,498	376,655	375,971
	YUMA	108,570	875	13,500	**122,945**			756,013	752,907	**878,958**		**875,852**		304,419	303,490	451,593	449,417
	Yuma (Tribal Ag)	0	0	0	**0**			17,197	17,197	**17,197**		**17,197**		4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178	0	0	**66,178**			0	0	**66,178**		**66,178**		0	0	0	0
	Major Active Management Areas (AMAs)	**GW Low[3]**	**GW High[3]**	**Instate SW (CAM)**	**Effluent (Generated c. 2006)**	**Total Instate Supply Low**	**Total Instate Supply High**	**Normal Year[1]**	**Shortage Year[2]**	**Low**	**High**	**Low**	**High**	**Normal Year[1]**	**Shortage Year[2]**	**Normal Year[1]**	**Shortage Year[2]**
	PHOENIX AMA	608,306	673,755	665,395	315,000	1,588,701	1,654,150	895,395	703,579	**2,484,097**	**2,549,545**	**2,292,280**	**2,357,729**	0	0	895,395	703,579
	PINAL AMA	431,290	431,290	62,946	6,900	501,136	501,136	166,269	116,073	**667,405**	**667,405**	**617,209**	**617,209**	0	0	166,269	116,073
	TUCSON AMA	191,144	237,987	441	74,235	265,820	312,663	220,106	188,519	**485,926**	**532,769**	**454,339**	**501,182**	0	0	220,106	188,519
		Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users[1]						170,148	168,718	**170,148**	**170,148**	**168,718**	**168,718**	0	0	170,148	168,718
		Colorado Mainstem Environmental (Not Available For Cultural Supply)						104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
		CAP System Loss = -5% of Diversion (Not Available For Supply)						67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
	STATEWIDE	**2,537,616**	**2,649,908**	**907,092**	**504,436**	**3,949,144**	**4,061,436**	**3,733,272**	**3,398,683**	**7,510,616**	**7,622,907**	**7,190,426**	**7,302,718**	**888,271**	**873,683**	**2,845,000**	**2,525,000**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
2. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
3. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.
4. Positive values for (supply – demand) for Colorado River basins would be available for use by CAP or other Colorado River water users. No water would be left unused in the basin.

Preliminary DRAFT- Subject to Revision

TABLE 8. Currently Developed Adjusted Supplies Vs. 2110 (CENSUS) Projected Demands

Preliminary DRA Version 6-14-11

	BASIN NAME	2110 Supply - Demand		Ratio (Projected Unmet Demand/Projected Total Demand)	
		Instate Supply - Low Demand	Instate Supply - High Demand	Instate Supply - Low Demand	Instate Supply - High Demand
Instate Water Supplies Only	AGUA FRIA	-3,106	-3,299	-0.46	-0.48
	ARAVAIPA CANYON	-56	-57	-0.05	-0.06
	BIG SANDY	14,149	14,118	16.11	15.52
	BONITA CREEK	-8	-8	-1.00	-1.00
	BUTLER VALLEY	3	3	0.00	0.00
	CIENEGA CREEK	-1,214	-1,502	-0.50	-0.56
	COCONINO PLATEAU	-128	-302	-0.05	-0.11
	DONNELLY WASH	-831	-887	0.00	0.00
	DOUGLAS	-6,145	-6,833	-0.10	-0.11
	DRIPPING SPRINGS WASH	-13	-16	-0.54	-0.59
	DUNCAN VALLEY	-1,298	-1,339	-0.07	-0.07
	GILA BEND	-58,605	-72,576	-0.14	-0.17
	GRAND WASH	2	2	0.00	0.00
	HUALAPAI VALLEY	-14,703	-15,694	-0.57	-0.59
	LOWER SAN PEDRO	285	-15,895	0.01	-0.39
	MCMULLEN VALLEY	-1,152	-1,240	-0.02	-0.02
	MEADVIEW	-286	-306	-0.66	-0.68
	MORENCI	-4,611	-40,664	-0.30	-0.79
	PARIA	-12,781	-19,608	-0.99	-0.99
	PEACH SPRINGS	-700	-737	-0.61	-0.62
	PRESCOTT AMA	-34,298	-37,024	-0.56	-0.58
	RANEGRAS PLAIN	-253	-265	-0.01	-0.01
	SACRAMENTO VALLEY	-23,396	-31,429	-0.85	-0.89
	SAFFORD	-30,648	-53,190	-0.16	-0.25
	SALT RIVER	-16,311	-32,980	-0.39	-0.56
	SAN BERNARDINO VALLEY	-19	-20	-0.49	-0.51
	SAN RAFAEL	-20	-22	-0.48	-0.50
	SAN SIMON WASH	-1,282	-1,411	-0.40	-0.43
	SANTA CRUZ AMA	2,385	1,175	0.07	0.03
	SHIVWITS PLATEAU	-2	-2	-0.48	-0.50
	TIGER WASH	2	2	0.00	0.00
	TONTO CREEK	-7,270	-7,715	-0.62	-0.64
	UPPER HASSAYAMPA	-5,056	-5,311	-0.57	-0.58
	UPPER SAN PEDRO	-23,565	-35,316	-0.41	-0.51
	VERDE RIVER	-21,754	-27,243	-0.30	-0.35
	VIRGIN RIVER	-312	-374	-0.09	-0.11
	WESTERN MEXICAN DRAINAGE	-5	-6	-0.47	-0.49
	WILLCOX	-5,867	-10,915	-0.03	-0.06

Basins Which Receive Part of their Supply from the Colorado River or CAP		2110 Supply - Demand Cont.[4]				Ratio Cont.			
		Instate + Normal		Instate + Shortage		Instate + Normal		Instate + Shortage	
		-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	-100,433	-180,359	-100,433	-180,359	-0.34	-0.48	-0.34	-0.48
Instate + CR Lower Mainstem	BILL WILLIAMS	-10,705	-30,782	-10,895	-30,972	-0.70	-0.87	-0.71	-0.88
	DETRITAL VALLEY	-352	-385	-352	-385	-0.50	-0.52	-0.50	-0.52
	KANAB PLATEAU	-3,854	-4,006	-3,874	-4,025	-0.49	-0.49	-0.49	-0.50
	LAKE HAVASU	-15,296	-16,785	-25,778	-27,267	-0.27	-0.29	-0.46	-0.48
	LAKE MOHAVE	-26,447	-38,110	-46,801	-58,464	-0.25	-0.33	-0.45	-0.51
	Lake Mohave (Tribal Ag)	35,425	35,425	35,425	35,425	0.52	0.52	0.52	0.52
	LOWER GILA	-18,483	-37,463	-18,691	-37,670	-0.04	-0.07	-0.04	-0.07
	PARKER	-3,183	-6,973	-12,772	-16,562	-0.07	-0.15	-0.29	-0.35
	Parker (Tribal Ag)	45,226	45,226	44,014	44,014	0.07	0.07	0.07	0.07
	YUMA	-6,257	-11,465	-9,362	-14,571	-0.01	-0.01	-0.01	-0.02
	Yuma (Tribal Ag)	10,963	10,963	10,963	10,963	1.76	1.76	1.76	1.76
Instate + CAP	HARQUAHALA INA	-72,196	-72,775	-72,196	-72,775	-0.52	-0.52	-0.52	-0.52
	Major Active Management Areas (AMAs)	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
	PHOENIX AMA	-1,795,524	-1,935,397	-1,987,341	-2,127,214	-0.42	-0.43	-0.46	-0.47
	PINAL AMA	-315,691	-348,525	-365,887	-398,721	-0.32	-0.34	-0.37	-0.39
	TUCSON AMA	-141,162	-152,509	-172,749	-184,097	-0.23	-0.22	-0.28	-0.27
		170,148	170,148	168,718	168,718				
	STATEWIDE	-2,506,693	-2,982,656	-2,826,882	-3,302,845	-0.25	-0.28	-0.28	-0.31

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

TABLE 9. Currently Developed Adjusted Supplies Vs. 2110 (AREA SPLIT) Projected Demands

Version 6-14-11

	BASIN NAME	2110 (Area Split) Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate Water Supplies Only	AGUA FRIA	1,800	64,732	0	0	0	0	0	1,863	4,472	0	0	7,109	0	**75,504**	**71,004**
	ARAVAIPA CANYON	1,000	93	0	0	0	0	0	5	11	0	0	0	0	**1,098**	**1,105**
	BIG SANDY	0	3,149	0	0	0	0	0	82	198	0	0	0	0	**3,232**	**3,347**
	BONITA CREEK	0	332	0	0	0	0	0	11	25	0	0	0	0	**342**	**357**
	BUTLER VALLEY	14,500	0	0	0	0	0	0	0	0	0	0	0	0	**14,500**	**14,500**
	CIENEGA CREEK	500	1,341	0	0	0	300	500	54	130	0	0	0	0	**2,195**	**2,471**
	COCONINO PLATEAU	0	2,919	0	0	0	0	0	143	344	0	0	0	0	**3,063**	**3,264**
	DONNELLY WASH	0	811	0	0	0	0	0	39	95	0	0	0	0	**850**	**906**
	DOUGLAS	48,000	11,873	0	0	0	0	0	323	775	2	3	0	211	**60,198**	**60,862**
	DRIPPING SPRINGS WASH	0	542	0	0	0	0	0	46	110	0	0	0	0	**587**	**651**
	DUNCAN VALLEY	17,100	942	93	0	0	0	0	31	75	0	0	211	211	**18,377**	**18,421**
	GILA BEND	351,500	21,922	23,782	0	0	0	0	935	2,244	26,910	40,743	3,706	0	**428,755**	**440,191**
	GRAND WASH	0	77	0	0	0	0	0	3	7	0	0	0	0	**79**	**83**
	HUALAPAI VALLEY	0	22,824	0	0	0	0	0	507	1,217	0	0	0	211	**23,331**	**24,252**
	LOWER SAN PEDRO	3,700	7,372	0	0	0	14,000	30,000	250	600	0	0	343	450	**25,666**	**42,123**
	MCMULLEN VALLEY	71,000	2,339	0	0	0	0	0	93	223	0	0	0	0	**73,432**	**73,562**
	MEADVIEW	0	68	0	0	0	0	0	2	6	0	0	0	0	**70**	**73**
	MORENCI	0	3,683	0	0	0	12,000	48,000	42	102	0	0	75	75	**15,801**	**51,860**
	PARIA	0	83	0	0	0	0	0	2	5	12,665	19,484	0	0	**12,750**	**19,572**
	PEACH SPRINGS	0	1,945	0	0	0	300	300	62	148	0	0	0	0	**2,307**	**2,394**
	PRESCOTT AMA	1,329	50,774	0	0	567	0	0	1,625	3,900	22	33	1,105	1,193	**55,423**	**57,797**
	RANEGRAS PLAIN	29,000	441	0	0	0	0	0	6	15	0	0	0	0	**29,447**	**29,456**
	SACRAMENTO VALLEY	0	13,382	76	0	0	8,000	12,000	326	781	6,155	9,298	0	450	**27,938**	**35,987**
	SAFFORD	169,600	12,503	0	0	0	5,000	27,000	385	925	0	0	423	423	**187,911**	**210,451**
	SALT RIVER	6,900	8,977	0	0	0	27,000	43,000	314	754	569	876	211	211	**43,971**	**60,718**
	SAN BERNARDINO VALLEY	0	889	0	0	0	0	0	17	41	0	0	0	0	**906**	**930**
	SAN RAFAEL	0	170	0	0	0	0	0	6	15	0	0	0	0	**176**	**185**
	SAN SIMON WASH	500	2,805	0	0	0	0	0	100	239	0	0	0	0	**3,405**	**3,544**
	SANTA CRUZ AMA	11,233	21,314	0	0	98	0	0	593	1,423	52	80	1,917	2,311	**35,207**	**36,460**
	SHIVWITS PLATEAU	0	796	0	0	0	0	0	24	57	0	0	0	0	**820**	**853**
	TIGER WASH	0	1,269	0	0	0	0	0	16	38	0	0	0	0	**1,285**	**1,307**
	TONTO CREEK	1,500	13,836	0	0	0	0	0	231	554	0	0	0	450	**15,567**	**16,340**
	UPPER HASSAYAMPA	0	2,616	786	0	0	0	0	60	143	0	0	0	0	**3,461**	**3,545**
	UPPER SAN PEDRO	8,800	42,386	42	0	288	2,000	12,000	1,003	2,407	0	0	1,734	2,035	**56,252**	**67,957**
	VERDE RIVER	23,700	43,336	0	0	0	1,000	4,000	1,330	3,192	0	0	3,691	4,565	**73,058**	**78,793**
	VIRGIN RIVER	1,000	195	0	0	0	0	0	6	14	0	0	882	882	**2,083**	**2,091**
	WESTERN MEXICAN DRAINAGE	0	119	0	0	0	0	0	4	9	0	0	0	0	**123**	**128**
	WILLCOX	166,000	5,601	584	130	0	300	300	123	294	9,033	13,896	0	0	**181,770**	**186,805**

Basins Which Receive Part of their Supply from the Colorado River or CAP		2110 (Area Split) Demand Projections														
		AGRICULTURE	MUNICIPAL	INDUSTRIAL											TOTAL Low	TOTAL High
				Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High		
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	39,250	95,477	20	539	11,766	0	0	3,052	7,326	139,831	215,112	1,870	2,219	**291,806**	**371,709**
Instate + CR Lower Mainstem	BILL WILLIAMS	2,700	8,431	0	0	0	10,000	30,000	184	443	0	0	225	0	**21,541**	**41,574**
	DETRITAL VALLEY	0	919	0	0	0	0	0	32	76	0	0	0	0	**950**	**995**
	KANAB PLATEAU	1,100	7,651	27	0	0	0	0	123	296	0	0	0	0	**8,901**	**9,074**
	LAKE HAVASU	0	54,153	0	0	0	0	0	944	2,266	0	0	292	450	**55,390**	**56,870**
	LAKE MOHAVE	20,890	58,124	0	0	0	0	0	772	1,854	19,131	29,431	1,128	1,261	**100,045**	**111,560**
	Lake Mohave (Tribal Ag)	68,110													**68,110**	**68,110**
	LOWER GILA	464,070	17,301	23,782	6,781	0	0	18,000	538	1,291	3,152	3,940	1,577	0	**517,200**	**535,164**
	PARKER	21,942	7,788	0	0	0	300	300	147	353	13,144	16,508	0	211	**43,321**	**47,102**
	Parker (Tribal Ag)	621,454													**621,454**	**621,454**
	YUMA	748,432	128,514	0	0	1,178	0	0	2,589	6,213	3,209	4,663	584	691	**884,506**	**889,691**
	Yuma (Tribal Ag)	6,234													**6,234**	**6,234**
Instate + CAP	HARQUAHALA INA	135,500	4,576	0	0	0	0	0	139	334	2,202	2,753	225	0	**142,642**	**143,163**

Major Active Management Areas (AMAs)	Non-Tribal Ag	Tribal Ag	MUNICIPAL	Dairy	Feedlots	Other Industrial	Mining Low	Mining High	Rock Products Low	Rock Products High	Power Plants Low	Power Plants High	Turf Low	Turf High	TOTAL Low	TOTAL High
PHOENIX AMA	147,045	525,228	3,069,776	0	58	34,476	15,000	25,000	52,565	126,155	172,992	266,126	61,454	97,650	**4,078,593**	**4,291,514**
PINAL AMA	418,152	194,616	326,579	0	3,033	3,847	4,000	18,000	7,270	17,447	5,644	8,682	18,087	25,702	**981,227**	**1,016,058**
TUCSON AMA	56,723	20,412	482,607	0	0	2,501	39,000	74,000	12,357	29,657	3,975	6,115	10,191	12,253	**627,766**	**684,268**
STATEWIDE	**4,420,519**		**4,630,352**	**49,192**	**10,541**	**54,721**	**138,200**	**342,400**	**91,374**	**219,299**	**418,688**	**637,743**	**117,040**	**154,116**	**9,930,628**	**10,518,883**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

Preliminary DRAFT- Subject to Revision

TABLE 9. Currently Developed Adjusted Supplies Vs. 2110 (AREA SPLIT) Projected Demands

Version 6-14-11

	BASIN NAME	2110 Area Split Supply					
		Instate				Colorado River/CAP	Total Supply
		GW (c. 2006)	Instate SW (2001-2005 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply		
Instate Water Supplies Only	AGUA FRIA	3,602	0	30	**3,632**	NA	**3,632**
	ARAVAIPA CANYON	514	450	0	**964**	NA	**964**
	BIG SANDY	15,028	0	0	**15,028**	NA	**15,028**
	BONITA CREEK	0	0	0	**0**	NA	**0**
	BUTLER VALLEY	14,503	0	0	**14,503**	NA	**14,503**
	CIENEGA CREEK	1,101	0	100	**1,201**	NA	**1,201**
	COCONINO PLATEAU	500	323	1,700	**2,523**	NA	**2,523**
	DONNELLY WASH	19	0	0	**19**	NA	**19**
	DOUGLAS	53,300	0	1,400	**54,700**	NA	**54,700**
	DRIPPING SPRINGS WASH	11	0	0	**11**	NA	**11**
	DUNCAN VALLEY	8,054	8,910	50	**17,014**	NA	**17,014**
	GILA BEND	295,323	49,875	800	**345,998**	NA	**345,998**
	GRAND WASH	2	0	0	**2**	NA	**2**
	HUALAPAI VALLEY	9,109	0	1,800	**10,909**	NA	**10,909**
	LOWER SAN PEDRO	23,677	750	700	**25,127**	NA	**25,127**
	MCMULLEN VALLEY	71,500	0	0	**71,500**	NA	**71,500**
	MEADVIEW	145	0	0	**145**	NA	**145**
	MORENCI	9,126	1,464	200	**10,790**	NA	**10,790**
	PARIA	120	0	0	**120**	NA	**120**
	PEACH SPRINGS	351	0	100	**451**	NA	**451**
	PRESCOTT AMA	17,679	1,860	6,900	**26,438**	NA	**26,438**
	RANEGRAS PLAIN	29,350	0	0	**29,350**	NA	**29,350**
	SACRAMENTO VALLEY	3,765	0	300	**4,065**	NA	**4,065**
	SAFFORD	87,958	66,765	2,600	**157,323**	NA	**157,323**
	SALT RIVER	12,611	10,810	2,600	**26,021**	NA	**26,021**
	SAN BERNARDINO VALLEY	19	0	0	**19**	NA	**19**
	SAN RAFAEL	22	0	0	**22**	NA	**22**
	SAN SIMON WASH	1,500	0	400	**1,900**	NA	**1,900**
	SANTA CRUZ AMA	20,980	0	16,311	**37,291**	NA	**37,291**
	SHIVWITS PLATEAU	2	0	0	**2**	NA	**2**
	TIGER WASH	2	0	0	**2**	NA	**2**
	TONTO CREEK	3,000	900	500	**4,400**	NA	**4,400**
	UPPER HASSAYAMPA	3,286	0	600	**3,886**	NA	**3,886**
	UPPER SAN PEDRO	23,957	4,005	5,300	**33,262**	NA	**33,262**
	VERDE RIVER	28,549	14,845	6,200	**49,593**	NA	**49,593**
	VIRGIN RIVER	1,585	1,457	10	**3,052**	NA	**3,052**
	WESTERN MEXICAN DRAINAGE	6	0	0	**6**	NA	**6**
	WILLCOX	175,714	135	500	**176,349**	NA	**176,349**

Basins Which Receive Part of their Supply from the Colorado River or CAP		2110 Area Split Supply													
		Instate						Colorado River/CAP		Total Supply				Colorado River Expected Return		Colorado River Consumptive Use	
		GW (c. 2006)		Instate SW (2001-2006 Average Diversions -10%)	Effluent (Generated c. 2006)	Total Instate Supply		Normal Year[1]	Shortage Year[2]	Normal Year[1]		Shortage Year[2]		Normal Year[1]	Shortage Year[2]	Normal Year[1]	Shortage Year[2]
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	95,813		13,246	36,100	**145,158**		46,604	46,604	**191,762**		**191,762**		1,604	1,604	45,000	45,000
Instate + CR Lower Mainstem	BILL WILLIAMS	3,251		450	200	**3,901**		654	464	**4,554**		**4,365**		237	165	417	299
	DETRITAL VALLEY	159		45	0	**204**		150	150	**354**		**354**		0	0	150	150
	KANAB PLATEAU	2,799		720	500	**4,019**		70	50	**4,089**		**4,069**		25	18	45	32
	LAKE HAVASU	47		0	3,400	**3,447**		37,010	26,528	**40,457**		**29,975**		13,578	9,732	23,432	16,796
	LAKE MOHAVE	2,007		0	3,100	**5,107**		72,242	51,887	**77,349**		**56,995**		24,553	17,603	47,689	34,285
	Lake Mohave (Tribal Ag)	0		0	0	**0**		103,535	103,535	**103,535**		**103,535**		47,570	47,570	55,965	55,965
	LOWER GILA	110,296		426	300	**111,022**		372,818	372,611	**483,841**		**483,633**		130,259	130,187	242,559	242,424
	PARKER	1,787		0	2,100	**3,887**		36,581	26,992	**40,468**		**30,879**		9,799	7,614	26,782	19,378
	Parker (Tribal Ag)	0		0	0	**0**		666,680	665,468	**666,680**		**665,468**		290,025	289,498	376,655	375,971
	YUMA	108,570		875	13,500	**122,945**		756,013	752,907	**878,958**		**875,852**		304,419	303,490	451,593	449,417
	Yuma (Tribal Ag)	0		0	0	**0**		17,197	17,197	**17,197**		**17,197**		4,793	4,793	12,404	12,404
Instate + CAP	HARQUAHALA INA	66,178		0	0	**66,178**		0	0	**66,178**		**66,178**		0	0	0	0
	Major Active Management Areas (AMAs)	**GW Low[3]**	**GW High[3]**	**Instate SW (CAM)**	**Effluent (Generated c. 2006)**	**Total Instate Supply Low**	**Total Instate Supply High**	**Normal Year[1]**	**Shortage Year[2]**	**Low**	**High**	**Low**	**High**	**Normal Year[1]**	**Shortage Year[2]**	**Normal Year[1]**	**Shortage Year[2]**
	PHOENIX AMA	590,160	673,755	665,395	315,000	1,570,555	1,654,150	895,395	703,579	**2,465,951**	**2,549,545**	**2,274,134**	**2,357,729**	0	0	895,395	703,579
	PINAL AMA	431,290	431,290	62,946	6,900	501,136	501,136	166,269	116,073	**667,405**	**667,405**	**617,209**	**617,209**	0	0	166,269	116,073
	TUCSON AMA	192,310	237,794	441	74,235	266,986	312,470	220,106	188,519	**487,092**	**532,576**	**455,504**	**500,988**	0	0	220,106	188,519
	Colorado Mainstem Potentially Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users[1]							170,148	168,718	**170,148**	**170,148**	**168,718**	**168,718**	0	0	170,148	168,718
	Colorado Mainstem Environmental (Not Available For Cultural Supply)							104,339	104,339	**0**	**0**	**0**	**0**	61,409	61,409	42,930	42,930
	CAP System Loss = -5% of Diversion (Not Available For Supply)							67,462	53,062	**0**	**0**	**0**	**0**	0	0	67,462	53,062
	STATEWIDE	**2,520,635**	**2,649,714**	**907,092**	**504,436**	**3,932,163**	**4,061,242**	**3,733,272**	**3,398,683**	**7,493,634**	**7,622,714**	**7,173,445**	**7,302,524**	**888,271**	**873,683**	**2,845,000**	**2,525,000**

GW = groundwater
CR = Mainstem Colorado River Water
CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

1. Normal Colorado River Supply Available when the Elevation of Lake Mead = 1,075-1,145. In this case CAP and Priority 4 can use their full entitlements.
2. The first degree shortage of Colorado River Supply available when the Elevation of Lake Mead = 1,050-1,075. In this case CAP and Priority 4 consumptive use entitlements are reduced by a total of 320,000 acre-feet. Of that 90% is reduced from the CAP and 10% from Priority 4 Mainstem Users.
3. In the AMAs, a low and high groundwater supply corresponds with low and high industrial demands. If CAM GW Supply > Baseline (c. 2006), the GW Supply is = Baseline (c.2006). If CAM GW Supply < Baseline (c. 2006), the GW Supply = CAM GW Supply.
4. Positive values for (supply – demand) for Colorado River basins would be available for use by CAP or other Colorado River water users. No water would be left unused in the basin.

Preliminary DRAFT- Subject to Revision

TABLE 9. Currently Developed Adjusted Supplies Vs. 2110 (AREA SPLIT) Projected Demands

Version 6-14-11

	BASIN NAME	2110 (Area Split) Supply - Demand		Ratio (Projected Unmet Demand/Projected Total Demand)	
		Instate Supply - Low Demand	Instate Supply - High Demand	Instate Supply - Low Demand	Instate Supply - High Demand
Instate Water Supplies Only	AGUA FRIA	-71,872	-67,372	-0.95	-0.95
	ARAVAIPA CANYON	-134	-141	-0.12	-0.13
	BIG SANDY	11,796	11,681	3.65	3.49
	BONITA CREEK	-342	-357	-1.00	-1.00
	BUTLER VALLEY	3	3	0.00	0.00
	CIENEGA CREEK	-994	-1,270	-0.45	-0.51
	COCONINO PLATEAU	-540	-741	-0.18	-0.23
	DONNELLY WASH	-831	-887	0.00	0.00
	DOUGLAS	-5,498	-6,162	-0.09	-0.10
	DRIPPING SPRINGS WASH	-576	-640	-0.98	-0.98
	DUNCAN VALLEY	-1,364	-1,408	-0.07	-0.08
	GILA BEND	-82,757	-94,193	-0.19	-0.21
	GRAND WASH	-77	-81	0.00	0.00
	HUALAPAI VALLEY	-12,422	-13,343	-0.53	-0.55
	LOWER SAN PEDRO	-538	-16,995	-0.02	-0.40
	MCMULLEN VALLEY	-1,932	-2,062	-0.03	-0.03
	MEADVIEW	75	72	1.08	0.98
	MORENCI	-5,011	-41,070	-0.32	-0.79
	PARIA	-12,630	-19,452	-0.99	-0.99
	PEACH SPRINGS	-1,856	-1,942	-0.80	-0.81
	PRESCOTT AMA	-28,984	-31,359	-0.52	-0.54
	RANEGRAS PLAIN	-97	-106	0.00	0.00
	SACRAMENTO VALLEY	-23,873	-31,922	-0.85	-0.89
	SAFFORD	-30,588	-53,127	-0.16	-0.25
	SALT RIVER	-17,951	-34,697	-0.41	-0.57
	SAN BERNARDINO VALLEY	-887	-911	-0.98	-0.98
	SAN RAFAEL	-154	-163	-0.88	-0.88
	SAN SIMON WASH	-1,505	-1,644	-0.44	-0.46
	SANTA CRUZ AMA	2,084	831	0.06	0.02
	SHIVWITS PLATEAU	-818	-851	-1.00	-1.00
	TIGER WASH	-1,283	-1,305	0.00	0.00
	TONTO CREEK	-11,167	-11,940	-0.72	-0.73
	UPPER HASSAYAMPA	425	342	0.12	0.10
	UPPER SAN PEDRO	-22,991	-34,696	-0.41	-0.51
	VERDE RIVER	-23,465	-29,200	-0.32	-0.37
	VIRGIN RIVER	969	960	0.47	0.46
	WESTERN MEXICAN DRAINAGE	-117	-122	-0.95	-0.95
	WILLCOX	-5,421	-10,456	-0.03	-0.06

Basins Which Receive Part of their Supply from the Colorado River or CAP		2110 Supply - Demand Cont.[4]				Ratio Cont.			
		Instate + Normal		Instate + Shortage		Instate + Normal		Instate + Shortage	
		-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	-100,044	-179,947	-100,044	-179,947	-0.34	-0.48	-0.34	-0.48
Instate + CR Lower Mainstem	BILL WILLIAMS	-16,986	-37,019	-17,176	-37,209	-0.79	-0.89	-0.80	-0.90
	DETRITAL VALLEY	-596	-641	-596	-641	-0.63	-0.64	-0.63	-0.64
	KANAB PLATEAU	-4,812	-4,985	-4,832	-5,005	-0.54	-0.55	-0.54	-0.55
	LAKE HAVASU	-14,933	-16,413	-25,415	-26,895	-0.27	-0.29	-0.46	-0.47
	LAKE MOHAVE	-22,697	-34,211	-43,051	-54,565	-0.23	-0.31	-0.43	-0.49
	Lake Mohave (Tribal Ag)	35,425	35,425	35,425	35,425	0.52	0.52	0.52	0.52
	LOWER GILA	-33,360	-51,324	-33,567	-51,531	-0.06	-0.10	-0.06	-0.10
	PARKER	-2,854	-6,635	-12,443	-16,224	-0.07	-0.14	-0.29	-0.34
	Parker (Tribal Ag)	45,226	45,226	44,014	44,014	0.07	0.07	0.07	0.07
	YUMA	-5,548	-10,733	-8,654	-13,839	-0.01	-0.01	-0.01	-0.02
	Yuma (Tribal Ag)	10,963	10,963	10,963	10,963	1.76	1.76	1.76	1.76
Instate + CAP	HARQUAHALA INA	-76,464	-76,985	-76,464	-76,985	-0.54	-0.54	-0.54	-0.54
	Major Active Management Areas (AMAs)	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands	-Low Demands	-High Demands
	PHOENIX AMA	-1,612,642	-1,741,968	-1,804,459	-1,933,785	-0.40	-0.41	-0.44	-0.45
	PINAL AMA	-313,822	-348,653	-364,018	-398,849	-0.32	-0.34	-0.37	-0.39
	TUCSON AMA	-140,674	-151,692	-172,262	-183,279	-0.22	-0.22	-0.27	-0.27
		170,148	170,148	168,718	168,718				
	STATEWIDE	-2,436,994	-2,896,170	-2,757,183	-3,216,359	-0.25	-0.28	-0.28	-0.31

GW = groundwater
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CAP = Central Arizona Project
Instate SW = Other Surface Water
Effluent = reclaimed water

Preliminary Draft-Subject to Revision

Version 4-27-11 (unchanged as of 06-14-11)

2006 Central Arizona Project Water Summary

CAP Diverted From Lake Havasu (ADWR Colorado River Management Information From USBOR)										**1,616,713**
Approximate Quantity Available After 5% System Loss										**1,535,877**
Reported CAP	M & I		Agriculture		Federal					
Deliveries,	922,387		436,846		145,094					**1,504,327**
CAP Residual (Either System Loss >5% and/or excess stored in Lake Pleasant)										**31,550**
	Information From Atlas (Haraquahala INA) and AMA Assessments									
Basin/INA/AMA	**Used**						**Stored**			**Used + Stored**
	Municipal	**Industrial**	**Agriculture**		**Tribal**	**Total Used**	**USF**	**GSF (not including**	**Total Stored**	
			Direct	**GSF (Ag Only)**						
Haraquahala INA	0	557	70,000	0	0	70,557	0	0	0	**70,557**
Phoenix AMA	338,101	1,698	56,305	104,640	12,149	512,892	204,879	4,306	209,184	**722,077**
Pinal AMA	2,961	1,462	261,598	139,616	80,314	485,951	0	8,453	8,453	**494,404**
Prescott AMA	0	0	0	0	0	0	0	0	0	**0**
Santa Cruz AMA	0	0	0	0	0	0	0	0	0	**0**
Tucson AMA	72,179	135	5,450	18,794	10,635	107,193	129,449	0	129,449	**236,642**
INA/AMA totals	**413,241**	**3,295**	**323,353**	**263,050**	**103,098**	**1,106,036**	**334,328**	**12,759**	**347,086**	**1,453,123**
Additional CAP Residual (Deliveries - Reported Use and Stored in INA and AMA)										**51,204**
Total CAP										**1,616,713**

COLORADO RIVER WATER DEMAND ASSUMPTIONS

INTRODUCTION

The Colorado River Compact of 1922 divided the waters of the Colorado River between the Upper Colorado and Lower Colorado River Basins. Each Basin was allocated 7.5 million acre-feet. In 1928, the Boulder Canyon Project Act (which authorized the construction of Hoover Dam) divided the Lower Basin's allocation among the Lower Basin States of Arizona, California, and Nevada. The Act gave 2.8 million acre-feet to Arizona, 300,000 acre-feet to Nevada, and the remainder – 4.4 million acre-feet - to California. These amounts are summarized below.

California:	4.4 million acre-feet
Arizona:	2.8 million acre-feet
Nevada:	0.3 million acre-feet
Total:	7.5 million acre-feet

These amounts represent each state's basic annual apportionment and are based on consumptive use.[1]

Under Section 5 of the Boulder Canyon Project Act, a contract with the United States Secretary of the Interior (Secretary) is required for diversion and use of Colorado River water. Since 1980, the Secretary consults with the Arizona Department of Water Resources (ADWR) before making any final decision on a contract. With the exception of the Central Arizona Project (CAP), all other contracts in Arizona quantify the amount of water which can be used, either in terms of a maximum diversion amount, the amount of water required to irrigate a given amount of land (beneficial uses), or consumptive use.

The Secretary has adopted a priority system for delivering Arizona's apportionment. The priorities are listed below.

First Priority
Satisfaction of Present Perfected Rights as defined and provided for in the Arizona v. California Decree (2006 Consolidated).

Second Priority
Satisfaction of Federal Reservations and Perfected Rights established or effective prior to September 30, 1968.

Third Priority
Satisfaction of entitlements pursuant to contracts between the United States and water users in the State of Arizona executed on or before September 30, 1968.

[1] The term consumptive use means diversion minus return flows. The definition is found in the decree: Supreme Court of the United States, State of Arizona v. State of California, No. 8 Orig. Entered March 27, 2006, 547 US 150 (2006 Consolidated).

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Fourth Priority
Satisfaction of entitlements pursuant to: (i) contracts, Secretarial Reservations, and other arrangements between the United States and water users in Arizona entered into or established subsequent to September 30, 1968, for use on Federal, State, or privately owned lands in Arizona (for a total quantity of not to exceed 164,652 acre-feet of diversions annually); and (ii) Contract No. 14-06-W-245 dated December 15, 1972, as amended, between the United States and the Central Arizona Water Conservation District for the delivery of mainstem water for the Central Arizona Project (CAP), including use of mainstem water on Indian lands.

Entitlements having a fourth priority as defined in (i) and (ii) are considered coequal.

Fifth Priority
Satisfaction of entitlements to any unused Arizona entitlement.

Sixth Priority
Satisfaction of entitlements to surplus apportionment water.

In a normal year, the CAP is entitled to divert the remainder of Arizona's 2.8 million acre-feet apportionment, after water is provided to the first through third priority rights and contracts, and mainstem fourth priority contracts (the same priority as the CAP). In general, it is assumed that the non-CAP related contractual entitlements will eventually be fully used.

COLORADO RIVER DEMAND ASSUMPTIONS

In order for the Water Supply and Demand Work Group to estimate the Colorado River water supply available in 2035, 2060, and 2110, the Work Group has made assumptions regarding the future demands for several water use sectors. These assumptions are discussed below.

Municipal and Industrial (M & I) Demands
M & I mainstem contractor demand is projected to increase in the future. It has been assumed that in the future M & I contractors will fully use their entitlements.

Agricultural Water Supply
Based on the projections made by the Agricultural Demand Subcommittee, it has been assumed that mainstem agricultural demands will not increase in the future. For the Lake Mohave, Havasu, and Parker groundwater basins, the agricultural demand is assumed by constant based on the 2001- 2005 average demand. For the Lower Gila and Yuma Basins, 2001-2005 average agricultural demand is projected to decrease by 7% by 2060 and remain constant thereafter.

Based on the above agricultural demand assumptions, Colorado River water that is not used by mainstem agriculture contractors may be available for transfer for:

1. Future mainstem M & I demand;

2. Diversion by the CAP; and/or

3. For any other water user.

For any transfers, ADWR would require compliance with its transfer policy and the water user would also have to contract with the Secretary.

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Tribal Water Supply
It is assumed that in the future mainstem Tribal users will fully use their entitlements.

Environmental Water Supply

There are three wildlife refuges that have entitlements use Colorado River water. They are the Havasu, Cibola and Imperial National Wildlife Refuges (NWRs). The Cibola NWR was established by a public land order, while the Havasu and Imperial NWRS were established by executive orders. Entitlements for the refuges were either established by Secretarial reservation, quantified in the Arizona v. California Decree, or both. It is assumed that the NWRs will fully use their entitlements.

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Table 1. Detailed Listing of Individual Colorado River Mainstem Contract Area Use (2001-2005), Entitlements and Supply For the WRDC

DRAFT-SUBJECT TO REVISION

Version 6-14-2011

FOR THE WATER RESOURCES DEVELOPMENT COMMISSION

Arizona Lower Colorado River Mainstem Entitlements

Alternative 2.2: Revised 06-09-11

						2001-2005 Average Diversions, Return Flow and Consumptive Use (acre-feet)			Entitlements					Normal Year		Shortage Year	
										Normal Year				WRDC Alternate Supply To Meet Cultural Demands		WRDC Alternate Supply To Meet Cultural Demands	
BASIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)	Comments	Alt Supply Source H = 'historic' 2001-2005 Use T = Transfer E = Entitlement	Diversion	CU	Diversion	CU
BILL WILLIAMS	Municipal	AZCR013	Bureau of Land Management (7.60%)	7.60%	4	116	28	88	1.54	***470***	305	Assigned only 7.6% of the full 4,010 afa entitlement to this basin.	E	470	305	337	219
		AZCR035	Hillcrest Water Company	100.00%	4	31	7	24	1.64	84	***51***		E	84	51	60	37
		AZCR067	Springs del Sol Domestic Water Improvement District	100.00%	4	0	0	0	1.54	100	***61***		E	100	61	67	44
	All		**Bill Williams Basin Subtotal**			**147**	**35**	**112**		**654**	**417**			**654**	**417**	**464**	**299**
DETRITAL VALLEY	Municipal	AZCR042	Lake Mead National Recreation Area - National Park Service (30%)	30.00%	2	104	0	104	1.00	150	***150***	No quantified entitlement, listed as "Annual quantity needed to fulfill purpose of Recreation Area". Assumed 500 afa based on historic use and assigned 30% to Detrital Basin and 70% to Lake Mohave Basin.	E	150	150	150	150
	All		**Detrital Valley Basin Subtotal**			**104**	**0**	**104**		**150**	**150**			**150**	**150**	**150**	**150**
KANAB PLATEAU	Municipal	AZCR044	Marble Canyon Company, Inc.	100.00%	4	25	6	20	1.55	70	***45***	Also has an "Unspecified" 5th and/or 6th Priority amount.	E	70	45	50	32
	All		**Kanab Plateau Basin Subtotal**			**25**	**6**	**20**		**70**	**45**			**70**	**45**	**50**	**32**
LAKE HAVASU	Municipal	AZCR004b	Arizona State Land Department-Muni (20%)	20.00%	4	65	23	42	1.54	307	***199***	Assigned only 20% of the full 1,534 afa entitlement to this basin.	E	307	199	220	143
		AZCR005	Arizona State Parks Board / Contact Point	100.00%	4	0	0	0	1.54	20	***13***		E	20	13	14	9
		AZCR006	Arizona State Parks Board / Windsor Beach	100.00%	4	31	7	24	1.54	90	***58***		E	90	58	65	42
		AZCR008	Arizona-American Water Company (Havasu)	100.00%	4	665	136	530	1.54	1,420	***922***		E	1,420	922	1,018	661
		AZCR013	Bureau of Land Management (46.85%)	46.85%	4	715	170	544	1.54	***2,893***	1,879	Assigned only 46.85% of the full 4,010 afa entitlement to this basin.	E	2,893	1,879	2,074	1,347
		AZCR020	Crystal Beach Water Conservation District	100.00%	4	98	22	76	1.54	132	***86***		E	132	86	95	61
		AZCR041	Lake Havasu City	100.00%	4	15,562	3,566	11,996	1.61	26,180	***16,261***	includes 7,000 MCWA Subcontract. Also has "unspecified" 5th and/or 6th priority water.	E	26,180	16,261	18,765	11,655
									1.40	2,139	***1,528***	Future contracted supply from MCWA Cibola IDD ag to Muni Transfer. Currently water is used in Parker Basin for Agriculture.	E	2,139	1,528	1,533	1,095
		NA	Unallocated Priority 4 Entitlement	33.00%	4	0	0	0	1.54	3,829	***2,486***	This water will not be allocated until Reclamation adopts "Unlawful Users " rules. This water has been divided up among the Lake Mohave, Lake Havasu, and Parker Basins.	E	3,829	2,486	2,745	1,782
	All		**Lake Havasu Basin Subtotal**			**17,136**	**3,923**	**13,212**		**37,010**	**23,432**			**37,010**	**23,432**	**26,528**	**16,796**
LAKE MOHAVE	Non-Indian Agriculture	AZCR026	First American Title Insurance Company of Mohave, Inc. (formerly Hopal)	100.00%	1	0	0	0	1.85	1,050	***568***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0
		AZCR037	Hulet	100.00%	1	0	0	0	1.85	1,080	***584***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0
		AZCR047	McKellips/Granite Reef Farms	100.00%	1	0	0	0	1.85	810	***438***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0
		AZCR048	Miller	100.00%	1	0	0	0	1.85	240	***130***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0
		AZCR050b	Mohave Valley Irrigation and Drainage District-Ag	100.00%	4	27,638	9,711	17,928	1.54	28,060	***18,221***		H	27,638	17,928	19,789	12,850
		AZCR065	Sherill and Lafollette	100.00%	1	0	0	0	1.85	1,080	***584***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0
		AZCR068	Swan	100.00%	1	0	0	0	1.85	960	***519***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0
		AZCR080	Zozoya	100.00%	1	0	0	0	1.85	720	***389***	Located within the Mohave Valley Irrigation and Drainage District (MVIDD) contract service area. MVIDD delivers water to this contractor.	H	0	0	0	0

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BASIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	2001-2005 Average Diversions, Return Flow and Consumptive Use (acre-feet)			Entitlements			Comments	Alt Supply Source H = 'historic' 2001-2005 Use T = Transfer E = Entitlement	Normal Year WRDC Alternate Supply To Meet Cultural Demands		Shortage Year WRDC Alternate Supply To Meet Cultural Demands	
										Normal Year							
						Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)			Diversion	CU	Diversion	CU
			Non-Indian Agriculture Subtotal			**27,638**	**9,711**	**17,928**		**34,000**	**21,432**	The difference between entitlment CU and Alt Supply (01-05 Ave) CU is listed below as available for other uses.	H	**27,638**	**17,928**	**19,789**	**12,850**
	Industrial	AZCR033	Gold Standard Mines Corporation	100.00%	4	0	0	0	1.00	75	***75***		E	75	75	54	54
		AZCR043	Lower Colorado River Dams Project - United States Bureau of Reclamation - Davis Dam	100.00%	2	34	30	4	8.90	100	***11***		E	100	11	100	11
			Industrial Subtotal			**34**	**30**	**4**		**175**	**86**		E	**175**	**86**	**154**	**65**
	Municipal	AZCR012	Bullhead City	100.00%	4	9,177	1,921	7,256	1.49	22,210	14,906		E	22,210	14,906	15,920	10,684
					4				1.40	2,139	***1,528***	Future contracted supply from MCWA Cibola IDD ag to Muni Transfer. Currently water is used in Parker Basin for Agriculture.	E	2,139	1,528	1,533	1,095
		AZCR013	Bureau of Land Management (9.07%)	9.07%	4	138	33	105	1.54	***560***	364	Assigned only 9.07% of the full 4,010 afa entitlement to this basin.	E	560	364	402	261
		AZCR034	Golden Shores Water Conservation District	100.00%	4	538	107	431	1.57	2,000	***1,274***		E	2,000	1,274	1,434	913
		AZCR042	Lake Mead National Recreation Area - National Park Service (70%)	70.00%	2	385	0	385	1.00	350	***350***	No quantified entitlement, listed as "Annual quantity needed to fulfill purpose of Recreation Area". Assumed 500 afa based on historic use and assigned 30% to Detrital Basin and 70% to Lake Mohave Basin.	E	350	350	350	350
		AZCR046	McAllister, Maurice L.	100.00%	4	6	1	4	1.54	40	***26***		E	40	26	29	19
		AZCR049a	Mohave County Water Authority (Lake Mohave Basin)	100.00%	4	0	0	0	1.54	500	***325***	Of the Mohave County Water Authority's (MCWA) 18,850 are-feet entitlement, the MCWA has 18,000 acre-feet subcontracted to: Lake Havasu City and Bullhead City - 7,000 acre-feet each; Mohave Water Conservation District - 3,000 acre-feet; MVIDD 1,000 acre-feet. It also has subcontracted its 4,278 acre-feet of its Cibola Valley IDD entitlement to both Lake Havasu and Bullhead cities - 2,139 acre-feet each. This water has not been transferred to Lake Havasu City and Bullhead City.	E	500	325	358	233
LAKE MOHAVE	**Municipal**	AZCR050a	Mohave Valley Irrigation and Drainage District-Muni	100.00%	4	8,000	0	8,000	1.54	8,000	***5,195***		E	8,000	5,195	5,734	3,724
		AZCR051	Mohave Water Conservation District	100.00%	4	791	163	628	1.49	4,800	***3,221***		E	4,800	3,221	3,441	2,309
		NA	Unallocated Priority 4 Entitlement	33.00%	4	0	0	0	1.54	3,829	***2,486***	This water will not be allocated until Reclamation adopts "Unlawful Users " rules. This water has been divided up among the Lake Mohave, Lake Havasu, and Parker Basins.	E	3,829	2,486	2,745	1,782
			Municipal Subtotal			**18,310**	**2,122**	**16,188**		**44,428**	**29,675**		E	**44,428**	**29,675**	**31,945**	**21,370**
	All		**Lake Mohave Basin Subtotal**			**45,982**	**11,863**	**34,120**		**78,603**	**51,193**			**72,242**	**47,689**	**51,887**	**34,285**
	Non-Indian Agriculture	AZCR072	Wellton-Mohawk Irrigation and Drainage District	98.00%	3	400,092	139,790	260,302	1.54	**419,558**	272,440	98% of the Wellton-Mohawk Irrigation and Drainage lies within the Lower Gila Basin.	H	400,092	260,302	400,092	260,302
			Non-Indian Agriculture Subtotal			**400,092**	**139,790**	**260,302**		**419,558**	**272,440**	The difference between entitlment CU and Alt Supply (01-05 Ave) CU is listed below as available for other uses.	H	**400,092**	**260,302**	**400,092**	**260,302**
	Industrial	AZCR032	Gold Dome Mining Company	100.00%	4	0	0	0	1.00	7	***7***		E	7	7	5	5
			Industrial Subtotal			**0**	**0**	**0**		**7**	**7**		E	**7**	**7**	**5**	**5**
LOWER GILA	**Municipal**	AZCR004b	Arizona State Land Department-Muni (23%)	23.00%	4	75	26	49	1.54	353	***229***	Assigned only 23% of the full 1,534 afa entitlement to this basin.	E	353	229	253	164
		AZCR013	Bureau of Land Management (3.99%)	3.99%	4	61	15	46	1.54	***247***	160	Assigned only 3.99% of the full 4,010 afa entitlement to this basin.	E	247	160	177	115
		AZCR027	Fisher Landing Water and Sewer	100.00%	4	0	0	0	1.54	53	***34***		E	53	34	38	25
		AZCR045	Martinez Lake cabin sites	100.00%	4	0	0	0	1.54	23	***15***		E	23	15	16	11
		AZCR064	Shepard Water Company	100.00%	4	0	0	0	1.54	50	***32***		E	50	32	36	23
			Municipal Subtotal			**136**	**41**	**95**		**725**	**471**		E	**725**	**471**	**520**	**338**

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BASIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	2001-2005 Average Diversions, Return Flow and Consumptive Use (acre-feet)			Entitlements			Comments	Alt Supply Source H = 'historic' 2001-2005 Use T = Transfer E = Entitlement	Normal Year WRDC Alternate Supply To Meet Cultural Demands		Shortage Year WRDC Alternate Supply To Meet Cultural Demands	
										Normal Year							
						Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)			Diversion	CU	Diversion	CU
	All		**Lower Gila Basin Subtotal**			**400,228**	**139,831**	**260,397**		**420,290**	**272,918**			**400,825**	**260,780**	**400,617**	**260,645**
PARKER	Non-Indian Agriculture	AZCR001	Arizona Game and Fish Commission	100.00%	4	0	0	0	1.40	2,838	***2,027***	Inactive during the 2001-2005 time period but became active later (2008), so entitlement volumes used as for WRDC Alt Supply. 5th and 6th Priority Entitlements Listed Under CAP for planning purposes	E	2,838	2,027	2,034	1,453
		AZCR003	Arizona Recreational Facilities, LLC	100.00%	4	0	0	0	1.40	2,700	***1,929***	This entity was not active in 2001-2005 is expected to be in the future. Therefore Alternative Future Supply = Entitlements.	E	2,700	1,929	1,935	1,382
		AZCR004a	Arizona State Land Department-Ag (45%)	45.00%	4	3,988	820	3,167	1.54	2,973	***1,931***	Assigned only 45% of the full entitlement to this basin. 5th and 6th Priority Entitlements Listed Under CAP for planning purposes. 2001-2005 Diversions > Entitlement, therefore Alternative Future Supply = Entitlement.	E	2,973	1,931	2,131	1,384
		AZCR017b	Cibola Valley Irrigation and Drainage District-Ag	100.00%	4	23,887	3,852	20,035	1.40	9,366	***6,690***	2001-2005 Diversions > Entitlement, therefore Alternative Future Supply = Entitlement.	E	9,366	6,690	6,713	4,795
		AZCR049b	Mohave County Water Authority (Cibola IDD)	100.00%	4	6,657	1,897	4,760	0.00	0	***0***	Water currently used for Ag in Parker basin but will eventually be transferred to Bullhead City (Lake Mohave Basin) and Lake Havasu City (Lake Mohave Basin).	E	0	0	0	0
		AZCR053	North Baja, LLC	100.00%	4	85	28	57	1.54	480	***312***		H	85	57	63	41
		AZCR062	Rayner Ranches	100.00%	4	3,554	804	2,750	1.54	4,500	***2,922***	2001-2005 Average diversions < normal entitlements but > shortage entitlements.	H	3,554	2,750	3,036	1,971
		AZCR086	Other Pumpers Davis Dam to International Boundary	15.00%	4	970	36	934	1.54	59	39	Portion diversion assumed to occur in this basin. 2001-2005 Diversions > Entitlement, therefore Alternative Future Supply = Entitlement.	E	59	39	43	28
			Non-Indian Agriculture Subtotal		**4**	**39,141**	**7,437**	**31,704**		**22,916**	**15,849**	The difference between entitlment CU and Alt Supply (01-05 Ave) CU is listed below as available for other uses.		**21,575**	**15,423**	**15,956**	**11,055**
	Industrial	AZCR009	B & F Investments, LLC	100.00%	4	0	0	0	1.00	60	***60***		E	60	60	43	43
			Industrial Subtotal			**0**	**0**	**0**		**60**	**60**		E	**60**	**60**	**43**	**43**
	Municipal	AZCR004b	Arizona State Land Department-Muni (57%)	57.00%	4	186	65	121	1.54	874	***568***	Assigned only 57% of the full 1,534 afa entitlement to this basin.	E	874	568	627	407
		AZCR011	Brooke Water LLC	100.00%	1	429	88	340	1.49	360	***242***		E	360	242	360	242
					4				1.49	440	***295***		E	440	295	315	212
		AZCR013	Bureau of Land Management (30.96%)	30.96%	4	472	113	360	1.54	***1,911***	1,241	Assigned only 30.96% of the full 4,010 afa entitlement to this basin.	E	1,911	1,241	1,370	890
		AZCR017a	Cibola Valley Irrigation and Drainage District -Muni	100.00%	4	300	0	300	1.40	300	***214***		E	300	214	215	154
		AZCR025	Ehrenberg Improvement Association	100.00%	4	0	0	0	1.40	500	***357***		E	500	357	358	256
		AZCR040	La Paz County	100.00%	4	482	87	395	1.00	500	***500***		E	500	500	358	358
		AZCR056	Parker, Town of	100.00%	1	900	385	516	an	630	400	5th and 6th Priority Entitlements Listed Under CAP for planning purposes	E	630	400	630	400
					4				2.43	1,030	***425***		E	1,030	425	738	304
		AZCR061	Quartzsite, Town of	100.00%	4	0	0	0	1.00	1,070	***1,070***		E	1,070	1,070	767	767
		AZCR071	Verizon California, Inc.	100.00%	4	0	0	0	1.00	1	1		E	1	1	0.72	0.72
		an	Unallocated Priority 4 Entitlement	33.00%	4	0	0	0	1.54	3,829	***2,486***	This water will not be allocated until Reclamation adopts "Unlawful Users " rules. This water has been divided up among the Lake Mohave, Lake Havasu, and Parker Basins.	E	3,829	2,486	2,745	1,782
		an	Water Reserved for Indian Water Rights Settlements	100.00%	4	0	0	0	1.00	3,500	***3,500***	This water will probably not be used before 2025.	E	3,500	3,500	2,509	2,509
			Municipal Subtotal			**2,769**	**738**	**2,032**		**14,946**	**11,299**		E	**14,946**	**11,299**	**10,993**	**8,281**
	All		**Parker Basin Subtotal**			**41,910**	**8,175**	**33,735**		**37,922**	**27,208**			**36,581**	**26,782**	**26,992**	**19,378**

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										Normal Year				WRDC Alternate Supply To Meet Cultural Demands		WRDC Alternate Supply To Meet Cultural Demands	
BASIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)	Comments	Alt Supply Source H = 'historic' 2001-2005 Use T = Transfer E = Entitlement	Diversion	CU	Diversion	CU
YUMA	Non-Indian Agriculture	AZCR004a	Arizona State Land Department-Ag (55%)	55.00%	4	4,874	1,002	3,871	1.54	3,634	2,360	Assigned only 55% of the entitlement to this basin. 5th and 6th Priority Entitlements Listed Under CAP for planning purposes. The 2001-2005 Average diversion and consumptive use > entitlements, therefore the entitlement values are used for the alternative supply scenario.	E	3,634	2,360	2,605	1,691
		AZCR007	Arizona, University of	100.00%	3	736	0	736	1.00	1,088	1,088		H	736	736	736	736
		AZCR010	Beattie Farms Southwest	100.00%	4	1,085	240	845	1.54	1,110	721	The 2001-2005 Average Diversions are very close to the entitlement and the reported consumptive use > entitlement but may not be accurate because of unmeasured return flows. Therefore the entitlement is listed as the alternative future supply.	H	1,110	721	796	517
		AZCR014	C. Allec Company, Inc. (formerly Allec, Camille)	100.00%	3	55	9	46	1.41	120	85		H	55	46	55	46
		AZCR016	CHA CHA, LLC	100.00%	4	4,936	454	4,482	1.81	2,100	1,160	2001-2005 Average Diversion and CU> both normal and shortage year entitlements.	E	2,100	1,160	1,505	832
		AZCR021	Curtis, Armon	100.00%	4	260	59	200	1.54	300	195	2001-2005 Average CU > Entitlement CU. However, 2001-2005 Average Diversions < Entitlement Diversions. Alternative Future Supplies use 2001-2005 Diversions, but Entitlement CU.	H	260	195	215	140
		AZCR031	Gila Monster Farms, Inc.	100.00%	1	11,120	2,920	8,200	1.77	780	441	5th and 6th Priority Entitlements Listed Under CAP for planning purposes	E	780	441	780	441
					3				1.77	6,285	3,551	2001-2005 Diversions and CU > Entitlements, therefore entitlements used as alternative future supply	E	6,285	3,551	6,285	3,551
					4				1.77	1,435	811		E	1,435	811	1,029	581
		AZCR038	JRJ Partners LLC	100.00%	4	2,648	606	2,042	1.54	1,080	701		E	1,080	701	774	503
		AZCR052	Molina	100.00%	1	0	0	0	1.54	318	206		H	0	0	0	0
		AZCR054	North Gila Valley Irrigation District	100.00%	1	24,500	18,153	6,347	3.86	24,500	6,347	Actual reported diversions and consumptive uses did not differentiate between priority 1 and 3, so assumed full use of 1 and partial use of 3.	H	24,500	6,347	24,500	6,347
				100.00%	3	21,180	13,109	8,071	3.86	159,044	41,203		H	21,180	8,071	21,180	8,071
		AZCR055	Ogram Boys Enterprises	100.00%	4	165	58	107	1.54	924	600	2001-2005 Average Diversion and CU< both normal and shortage year entitlements and are used as the alternative supply.	H	165	107	118	77
		AZCR057	Pasquinelli, Gary J. (formerly Ansel Hall)	100.00%	4	484	104	380	1.54	486	316	2001-2005 Average CU > Entitlement CU. However, 2001-2005 Average Diversions < Entitlement Diversions. Alternative Future Supplies use 2001-2005 Diversions, but Entitlement CU.	H	484	316	349	227
		AZCR058	Peach, John	100.00%	4	543	95	448	1.54	456	296		E	456	296	327	212
		AZCR059	Phillips, Milton and Jean	100.00%	1				1.54	42	27		H	0	0	0	0
					4	0	0	0	1.54	18	12		H	0	0	0	0
		AZCR060	Powers	100.00%	1	1,634	278	1,356	1.54	960	623	2001-2005 Average Diversions and CU > Entitlements, therefore the Entitlements are shown as the alternative future supply.	E	960	623	960	623
		AZCR070	Unit "B" Irrigation and Drainage District	100.00%	1 and 3	24,950	10,736	14,214	1.90	27,529	13,174	Unit B Irrigation and Drainage District has unquantified water rights. Values shown are for 2006. 2001-2005 Average CU > Entitlement CU. However, 2001-2005 Average Diversions < Entitlement Diversions. Alternative Future Supplies use 2001-2005 Diversions, but Entitlement CU.	E	24,950	13,174	24,950	13,174
		AZCR072	Wellton-Mohawk Irrigation and Drainage District	2.00%	3	8,165	2,853	5,312	1.46	8,118	5,560	2% of the Wellton-Mohawk Irrigation and Drainage District lies within the Yuma Basin.	H	8,165	5,312	8,165	5,312
		AZCR074	Yuma County Water Users' Association	100.00%	1 and 3	357,905	131,410	226,494	1.61	354,510	243,091	The Yuma County Water Users Association also has unquantified water rights. Values shown are 2001 - 2005 averages.	H	357,905	226,494	357,905	226,494
		AZCR075	Yuma Irrigation District	100.00%	3	66,113	26,627	39,486	1.95	131,192	67,278		H	66,113	39,486	66,113	39,486
		AZCR077	Yuma Mesa Irrigation and Drainage District	100.00%	3	198,303	83,819	114,484	1.93	273,132	141,519	Approximately 5,000 acre feet used for municipal.	H	198,303	114,484	198,303	114,484
		AZCR085	George Ogram, Ogram Farms	100.00%	4	224	29	195	1.54	480	312		H	224	195	215	140

Table 1. Detailed Listing of Individual Colorado River Mainstem Contract Area Use (2001-2005), Entitlements and Supply For the WRDC

DRAFT-SUBJECT TO REVISION

Version 6-14-2011

FOR THE WATER RESOURCES DEVELOPMENT COMMISSION

Arizona Lower Colorado River Mainstem Entitlements

Alternative 2.2: Revised 06-09-11

						2001-2005 Average Diversions, Return Flow and Consumptive Use (acre-feet)			Entitlements					Normal Year		Shortage Year	
										Normal Year				WRDC Alternate Supply To Meet Cultural Demands		WRDC Alternate Supply To Meet Cultural Demands	
BASIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)	Comments	Alt Supply Source H = 'historic' 2001-2005 Use T = Transfer E = Entitlement	Diversion	CU	Diversion	CU
YUMA		AZCR086	Other Pumpers Davis Dam to International Boundary	85.00%	4	5,497	203	5,293	1.54	336	220	Portion diversion assumed to occur in this basin. 2001-2005 Average Diversions and CU > approximate entitlement (these users actually have no entitlements). Therefore the smaller values are used for the alternative future supplies.	E	336	220	243	158
			Non-Indian Agriculture Subtotals		**1,2, and/or 3**	**715,747**	**290,156**	**425,591**		**987,617**	**524,194**	The difference between entitlment CU and Alt Supply (01-05 Ave) CU is listed below as available for other uses.	H	**709,933**	**418,766**	**709,933**	**418,766**
					4	**19,629**	**2,611**	**17,018**		**12,359**	**7,703**	The difference between entitlment CU and Alt Supply (01-05 Ave) CU is listed below as available for other uses.	H	**11,283**	**7,082**	**8,175**	**5,076**
	Industrial	AZCR002	Arizona Public Service (Yucca Power Plant)	100.00%	5 and/or 6	572	79	493	0.00	0	***0***	5th and 6th Priority Entitlements Listed Under CAP for planning purposes	E	0	0	0	0
		AZCR024	Desert Lawn Memorial Park Association	100.00%	3				1.43	200	***140***		E	200	140	200	140
					4	207	22	185	1.43	360	***252***		E	360	252	360	180
		AZCR039	Kaman, Inc.	100.00%	3	0	0	0	1.00	2	***2***		E	2	2	2	2
		AZCR063	Roy, Edward P.	100.00%	4	0	0	0	1.00	1	***1***		E	1	1	1	1
		AZCR069	Union Pacific Railroad Company	100.00%	3	48	14	34	2.00	48	***24***		E	48	24	48	24
		AZCR076	Yuma Mesa Fruit Growers Association	100.00%	3	10	0	10	1.00	15	***15***		E	15	15	15	15
		AZCR078	Yuma Union High School	100.00%	3	164	25	139	1.35	200	***148***		E	200	148	200	148
			Industrial Subtotal			**1,000**	**141**	**860**		**826**	**582**		E	**826**	**582**	**826**	**510**
	Municipal	AZCR013	Bureau of Land Management (1.52%)	1.52%	4	23	6	18	1.54	61	***61***	Assigned only 1.52% of the full 4,010 afa entitlement to this basin.	E	61	61	67	44
		AZCR022	Department of the Army - Yuma Proving Ground	100.00%	2	666	0	666	1.00	1,129	***1,129***		E	1,129	1,129	1,129	1,129
		AZCR023	Department of the Navy - Marine Corps Air Station - Yuma	100.00%	2	2,069	0	2,069	1.10	3,000	***3,000***		E	3,000	3,000	3,000	3,000
		AZCR066	Somerton, City of	100.00%	4	0	0	0	1.00	750	***750***		E	750	750	538	538
		AZCR073	Yuma County Water Users and City of Yuma (Ray Smucker Park)	100.00%	4	0	0	0	1.00	33	***33***		E	33	33	24	24
		AZCR077	Yuma Mesa Irrigation and Drainage District (Muni Portion)	100.00%	3	5,000	0	5,000		***0***		Approximate transfer to Municipal use.	E	0	0	0	0
		AZCR079	Yuma, City of	100.00%	1	28,824	10,479	18,345	1.36	2,333	1,478	The consumptive use is limited to 1,478 acre-feet	E	2,333	1,478	2,333	1,478
					3				1.59	***77,150***	48,522	The consumptive use is limited to 48,522 acre-feet	E	77,150	48,522	77,150	48,522
			Municipal Subtotal			**36,582**	**10,485**	**26,097**		**84,456**	**54,973**		E	**84,456**	**54,973**	**84,241**	**54,734**
	Other	AZCR087	**Other Return Flow**		**an**	**an**	**63,171**	**an**				Not an in-state entitlement. Pumped from South Gila Wells (DPOC), Yuma Mesa Outlet Drain, and Minute 242 Wells used to satisfy Mexican Treaty requirements or diverted by CAP.	E	0	0	0	0
	All		**Yuma Basin Subtotal**			**772,958**	**366,563**	**469,566**		**1,085,258**	**587,451**			**806,498**	**481,403**	**803,175**	**479,086**
TOTALS MAINSTEM LOWER BASINS: SUPPLIES TO MEET CULTURAL DEMANDS (EXCEPT TRIBAL AGRICULTURE)						**1,278,491**	**530,395**	**811,267**		**1,659,957**	**962,815**			**1,354,029**	**840,698**	**1,309,864**	**810,671**

Table 1. Detailed Listing of Individual Colorado River Mainstem Contract Area Use (2001-2005), Entitlements and Supply For the WRDC

DRAFT-SUBJECT TO REVISION

Version 6-14-2011

FOR THE WATER RESOURCES DEVELOPMENT COMMISSION

Arizona Lower Colorado River Mainstem Entitlements

Alternative 2.2: Revised 06-09-11

						2001-2005 Average Diversions, Return Flow and Consumptive Use (acre-feet)			Entitlements					Normal Year		Shortage Year	
										Normal Year				WRDC Alternate Supply To Meet Cultural Demands		WRDC Alternate Supply To Meet Cultural Demands	
BASIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)	Comments	Alt Supply Source H = 'historic' 2001-2005 Use T = Transfer E = Entitlement	Diversion	CU	Diversion	CU
Other Colorado River Uses																	
BASIN of ORIGIN	SECTOR	Entity ID	Entity Name/Owner	Percent Water Use Basin	Priority	Reported Diversion	Reported Return Flow	Reported Consumptive Use	2001-2005 Diversion to Consumptive Use Ratio	Diversion (Estimated is In Bold and Italics)	Consumptive Use (Estimated is In Bold and Italics)	Comments	Alt Supply Source H = 'historic' 2001-2005 Use E = Entitlement	Diversion	CU	Diversion	CU
LAKE MOHAVE	*Environment (Not Available For Cultural Demands)*	*AZCR082*	*Havasu National Wildlife Refuge*	*100.00%*	*2*	*42,102*	*28,497*	*13,605*	*10.18*	*41,839*	***4,110***	**Since this water is only available for Environmental Needs It won't be shown as available to meet Cultural (Ag, Muni, Industrial, Tribal) demands. Full Entitlements used as supply.**	E	41,839	4,110	41,839	4,110
LOWER GILA		*AZCR083*	*Imperial National Wildlife Refuge*	*100.00%*	*2*	*3,734*	*583*	*3,151*	*1.61*	*28,000*	***17,391***		E	28,000	17,391	28,000	17,391
PARKER		*AZCR081*	*Cibola National Wildlife Refuge*	*100.00%*	*2*	*12,011*	*2,713*	*9,299*	*1.61*	*34,500*	*21,429*		E	34,500	21,429	34,500	21,429
		Environmental Subtotal				***57,847***	***31,793***	***26,055***		***104,339***	***42,930***		E	**104,339**	**42,930**	**104,339**	**42,930**
Lake Mohave	**Indian Agriculture**	AZCR028	Fort Mojave Indian Reservation	100.00%	1	61,133	18,299	42,833	1.85	103,535	***55,965***	3,740 acre feet used for Power Plant on the reservation. But it is using water under the 'ag' subcontract.	E	103,535	55,965	103,535	55,965
		AZCR028	Fort Mojave Indian Reservation (Power Plant)	100.00%	1	3,740	0	3,740					E	0	0	0	0
Parker		AZCR036	Hopi Tribe	100.00%	4	1,349	385	965	1.77	4,278	***2,417***	5th and 6th Priority Entitlements Listed Under CAP for planning purposes	E	4,278	2,417	3,066	1,732
		AZCR019	Colorado River Indian Tribes Reservation	100.00%	1	594,013	245,464	348,549	1.77	662,402	***374,238***		E	662,402	374,238	662,402	374,238
Yuma		AZCR018	Cocopah Indian Reservation	100.00%	1	8,325	373	7,952	1.31	10,847	***8,280***		E	10,847	8,280	10,847	8,280
		AZCR029	Fort Yuma Indian Reservation	100.00%	1	1,336	348	988	1.54	6,350	***4,123***		E	6,350	4,123	6,350	4,123
		Indian Agriculture Subtotal				***669,897***	***264,869***	***405,028***	***8***	***787,412***	***445,024***		E	***787,412***	***445,024***	***786,200***	***444,339***
Diversions shown here = consumptive use but may be greater if transferred water use is along the mainstem with return flow.														**Diversion ≥ CU**		**Diversion ≥ CU**	
Lake Mohave	***Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users***				4				Unknown			If this water is transferred from mainstem agriculture to mainstem M&I, to users with return flow infrastructure, diversions might exceed consumptive use. However, if the water is transferred off-river (for example to the CAP) without a return flow, diversions = consumptive use. Also, any water diverted to CAP is expected to lose about 5% volume system loss between the diversion and place of use (AMAs).	T	3,504	3,504	2,512	2,512
Lower Gila					1, 2 and 3				Unknown				T	12,138	12,138	12,138	12,138
PARKER					4				Unknown				T	427	427	306	306
Yuma					1,2 and 3				Unknown				T	105,428	105,428	105,428	105,428
					4				Unknown				T	621	621	445	445
	Transfer Subtotal												T	**122,117**	**122,117**	**120,828**	**120,828**
		TOTALS MAINSTEM LOWER BASIN				**2,006,235**	**827,057**	**1,242,349**	**8**	**2,551,708**	**1,450,768**			**2,367,897**	**1,450,768**	**2,321,231**	**1,418,768**
Central Arizona Project (CAP) (Before 5% System Loss)		**CAP Diversion**			**4**	**1,555,215**	**0**	**1,555,215**		**1,349,232**	**1,349,232**	This value is calculated by subtracting the Total Mainstem consumptive use from 2,800,000 acre-feet (normal year) or 2,480,000 (-320K) First Tier Shortage Year. Before 5% System Loss.	E	**1,349,232**	**1,349,232**	**1,061,232**	**1,061,232**
GRAND TOTALS LOWER BASIN MAINSTEM + CAP						**3,561,450**	**827,057**	**2,797,564**		**3,900,939**	**2,800,000**	This value is calculated by adding the Central Arizona Project diversion to the Total Mainstem diversion.		**3,717,129**	**2,800,000**	**3,382,463**	**2,480,000**

Table 2. Basin/Sector Total Colorado River Diversion and Consumptive Use Alternative Supply to Meet Cultural Demand Projections

Version 6-14-11

DRAFT-SUBJECT TO REVISION

	BASIN	SECTOR	Alternative 2.2: 6/10/11						Baseline Supply For Projection Purposes				2035				2060 & 2110			
			Diversions (Priorities)			Consumptive Use (Priorities)			Normal Year		Shortage Year		Normal Year		Shortage Year		Normal Year		Shortage Year	
			1,2,3	4	4 Short	1,2,3	4	4 Short	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU
Available Supply For Cultural Demand Projections	**BILL WILLIAMS**	**Municipal-Basin Subtotal**	**0**	**654**	**464**	**0**	**417**	**299**	**654**	**417**	**464**	**299**	**654**	**417**	**464**	**299**	**654**	**417**	**464**	**299**
	DETRITAL VALLEY	**Municipal-Basin Subtotal**	**150**	**0**	**0**	**150**	**0**	**0**	**150**	**150**	**150**	**150**	**150**	**150**	**150**	**150**	**150**	**150**	**150**	**150**
	KANAB	**Municipal-Basin Subtotal**	**0**	**70**	**50**	**0**	**45**	**32**	**70**	**45**	**50**	**32**	**70**	**45**	**50**	**32**	**70**	**45**	**50**	**32**
	LAKE HAVASU	**Municipal-Basin Subtotal**	**0**	**37,010**	**26,528**	**0**	**23,432**	**16,796**	**37,010**	**23,432**	**26,528**	**16,796**	**37,010**	**23,432**	**26,528**	**16,796**	**37,010**	**23,432**	**26,528**	**16,796**
	LAKE MOHAVE	Non-Indian Agriculture	0	27,638	19,789	0	17,928	12,850	27,638	17,928	19,789	12,850	27,638	17,928	19,789	12,850	27,638	17,928	19,789	12,850
		Industrial	100	75	54	11	75	54	175	86	154	65	175	86	154	65	175	86	154	65
		Municipal	350	44,078	31,595	350	29,325	21,020	44,428	29,675	31,945	21,370	44,428	29,675	31,945	21,370	44,428	29,675	31,945	21,370
		Basin Subtotal	**450**	**71,792**	**51,437**	**361**	**47,328**	**33,923**	**72,242**	**47,689**	**51,887**	**34,285**	**72,242**	**47,689**	**51,887**	**34,285**	**72,242**	**47,689**	**51,887**	**34,285**
	LOWER GILA	Non-Indian Agriculture[1]	400,092	0	0	260,302	0	0	400,092	260,302	400,092	260,302	386,089	251,192	386,089	251,192	372,086	242,081	372,086	242,081
		Industrial	0	7	5	0	7	5	7	7	5	5	7	7	5	5	7	7	5	5
		Municipal	0	725	520	0	471	338	725	471	520	338	725	471	520	338	725	471	520	338
		Basin Subtotal	**400,092**	**732**	**525**	**260,302**	**478**	**343**	**400,825**	**260,780**	**400,617**	**260,645**	**386,822**	**251,670**	**386,614**	**251,534**	**372,818**	**242,559**	**372,611**	**242,424**
	PARKER	Non-Indian Agriculture	0	21,575	15,956	0	15,423	11,055	21,575	15,423	15,956	11,055	21,575	15,423	15,956	11,055	21,575	15,423	15,956	11,055
		Industrial	0	60	43	0	60	43	60	60	43	43	60	60	43	43	60	60	43	43
		Municipal	990	13,956	10,003	642	10,657	7,639	14,946	11,299	10,993	8,281	14,946	11,299	10,993	8,281	14,946	11,299	10,993	8,281
		Basin Subtotal	**990**	**35,591**	**26,002**	**642**	**26,140**	**18,737**	**36,581**	**26,782**	**26,992**	**19,378**	**36,581**	**26,782**	**26,992**	**19,378**	**36,581**	**26,782**	**26,992**	**19,378**
	YUMA	Non-Indian Agriculture[1]	709,933	11,283	8,175	418,766	7,082	5,076	721,216	425,848	718,108	423,842	695,973	410,943	692,974	409,008	670,731	396,039	667,841	394,173
		Industrial	465	361	361	329	253	181	826	582	826	510	826	582	826	510	826	582	826	510
		Municipal	83,612	844	629	54,129	844	605	84,456	54,973	84,241	54,734	84,456	54,973	84,241	54,734	84,456	54,973	84,241	54,734
		Basin Subtotal	**794,010**	**12,488**	**9,165**	**473,224**	**8,179**	**5,862**	**806,498**	**481,403**	**803,175**	**479,086**	**781,255**	**466,498**	**778,041**	**464,252**	**756,013**	**451,593**	**752,907**	**449,417**
	Subtotal: Supplies to meet Lower Basin Demands (Except Indian Ag)		**1,195,692**	**158,337**	**114,172**	**734,679**	**106,019**	**75,992**	**1,354,029**	**840,698**	**1,309,864**	**810,671**	**1,314,783**	**816,682**	**1,270,727**	**786,726**	**1,275,537**	**792,667**	**1,231,590**	**762,781**
	BASIN of ORIGIN	**SECTOR**	Diversions (Priorities)			Consumptive Use (Priorities)			Normal Year		Shortage Year		Normal Year		Shortage Year		Normal Year		Shortage Year	
			1,2,3	4	4 Short	1,2,3	4	4 Short	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU
	Lake Mohave	**Tribal Agriculture**	103,535	0	0	55,965	0	0	103,535	55,965	103,535	55,965	103,535	55,965	103,535	55,965	103,535	55,965	103,535	55,965
	Parker		662,402	4,278	3,066	374,238	2,417	1,732	666,680	376,655	665,468	375,971	666,680	376,655	665,468	375,971	666,680	376,655	665,468	375,971
	Yuma		17,197	0	0	12,404	0	0	17,197	12,404	17,197	12,404	17,197	12,404	17,197	12,404	17,197	12,404	17,197	12,404
		Indian Ag Subtotal	**783,134**	**4,278**	**3,066**	**442,607**	**2,417**	**1,732**	**787,412**	**445,024**	**786,200**	**444,339**	**787,412**	**445,024**	**786,200**	**444,339**	**787,412**	**445,024**	**786,200**	**444,339**
	Diversions shown here = consumptive use but may be greater if transferred water use is along the mainstem with return flow.								**Diversion ≥ CU**		**Diversion ≥ CU**		**Diversion ≥ CU**		**Diversion ≥ CU**		**Diversion ≥ CU**		**Diversion ≥ CU**	
	Lake Mohave	***Potentially* Available for Transfer from Mainstem Non-Indian Agriculture to CAP or Other Users[2]**	0	3,504	2,512	0	3,504	2,512	*3,504*	3,504	*2,512*	2,512	*3,504*	3,504	*2,512*	2,512	*3,504*	3,504	*2,512*	2,512
	Lower Gila		12,138	0	0	12,138	0	0	*12,138*	12,138	*12,138*	12,138	*21,248*	*21,248*	*21,248*	*21,248*	*30,359*	*30,359*	*30,359*	*30,359*
	Parker		0	427	306	0	427	306	*427*	427	*306*	306	*427*	427	*306*	306	*427*	427	*306*	306
	Yuma		105,428	621	445	105,428	621	445	*106,049*	106,049	*105,873*	105,873	*120,953*	*120,953*	*120,707*	*120,707*	*135,858*	*135,858*	*135,542*	*135,542*
		Transferable CR Subtotal	**117,566**	**4,551**	**3,262**	**117,566**	**4,551**	**3,262**	***122,117***	**122,117**	***120,828***	**120,828**	***146,132***	**146,132**	***144,773***	**144,773**	***170,148***	**170,148**	***168,718***	**168,718**
	Central Arizona Project CAP	**CAP (For AMAs After 5% System Loss)**	**0**	**1,281,770**	**1,008,170**	**0**	**1,281,770**	**1,008,170**	**1,281,770**	**1,281,770**	**1,008,170**	**1,008,170**	**1,281,770**	**1,281,770**	**1,008,170**	**1,008,170**	**1,281,770**	**1,281,770**	**1,008,170**	**1,008,170**
	Total CR/CAP Supplies to Meet Cultural Demands		**2,096,392**	**1,448,937**	**1,128,671**	**1,294,851**	**1,394,758**	**1,089,157**	**3,545,328**	**2,689,609**	**3,225,063**	**2,384,009**	**3,530,098**	**2,689,609**	**3,209,871**	**2,384,009**	**3,514,867**	**2,689,609**	**3,194,679**	**2,384,009**
Not Available For Cultural Demand Projections	**BASIN of ORIGIN**	**SECTOR**	Diversions (Priorities)			Consumptive Use (Priorities)			Normal Year		Shortage Year		Normal Year		Shortage Year		Normal Year		Shortage Year	
			1,2,3	4	4 Short	1,2,3	4	4 Short	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU	Diversion	CU
	LAKE MOHAVE	**Environment**	41,839	0	0	4,110	0	0	41,839	4,110	41,839	4,110	41,839	4,110	41,839	4,110	41,839	4,110	41,839	4,110
	LOWER GILA		28,000	0	0	17,391	0	0	28,000	17,391	28,000	17,391	28,000	17,391	28,000	17,391	28,000	17,391	28,000	17,391
	PARKER		34,500	0	0	21,429	0	0	34,500	21,429	34,500	21,429	34,500	21,429	34,500	21,429	34,500	21,429	34,500	21,429
		Environment Subtotal	**104,339**	**0**	**0**	**42,930**	**0**	**0**	**104,339**	**42,930**	**104,339**	**42,930**	**104,339**	**42,930**	**104,339**	**42,930**	**104,339**	**42,930**	**104,339**	**42,930**
	CAP 5% SYSTEM LOSS		**0**	**67,462**	**53,062**	**0**	**67,462**	**53,062**	**67,462**	**67,462**	**53,062**	**53,062**	**67,462**	**67,462**	**53,062**	**53,062**	**67,462**	**67,462**	**53,062**	**53,062**
	Total Supply NOT Available For Cultural Demand Projections		***104,339***	***67,462***	***53,062***	***42,930***	***67,462***	***53,062***	***171,801***	***110,391***	***157,401***	***95,991***	***171,801***	***110,391***	***157,401***	***95,991***	***171,801***	***110,391***	***157,401***	***95,991***
	Total Full Use of Colorado River		**2,200,731**	**1,516,398**	**1,181,732**	**1,337,781**	**1,462,219**	**1,142,219**	**3,717,129**	**2,800,000**	**3,382,463**	**2,480,000**	**3,701,899**	**2,800,000**	**3,367,271**	**2,480,000**	**3,686,668**	**2,800,000**	**3,352,079**	**2,480,000**

1. Non-Indian Ag is projected to decline by 7 % by 2060, so the supply was adjusted down for future years and shifted to the volume available for transfer.

2. If this water is transferred from mainstem agriculture to mainstem M&I, to users with return flow infrastructure, diversions might exceed consumptive use. However, if the water is transferred off-river (for example to the CAP) without a return flow, diversions = consumptive use. Also, any water diverted to CAP is expected to lose about 5% volume system loss between the diversion and place of use (AMAs).

WS&D Working Group Issues Submitted

Mohave County Water Authority

- The supply in the Havasu & Mohave basins on the 5/24 spreadsheet increased substantially from 4/27 spreadsheet, e.g. in 2035 normal year Havasu increased from 26,832 to 40,410. Why?
- Why are we again showing groundwater in storage in Havasu & Mohave basins (also issue, probably, at Parker basin) ?
  Grossly overstates water available and, as discussed earlier, it is not groundwater, it is underflow of the Colorado (believe reference is to the 5/26 hydrogeologic characteristics spreadsheet).
- Where is 10,007 a/f of groundwater demand in Mohave basin, doubt it is really groundwater (5/25 currently developed adjusted supply spreadsheet).
- Surprised to see no checkmark re GW/SW interaction in Bill Williams Basin. (Ron's 5/26 Potential Additional… spreadsheet has it checked, corrected?)
- Concerned re treatment of Refuge allocations.
- Concerned re adding infrastructure discussions in areas where no water source has been identified for same.
- Shows groundwater as future supply in Mohave & Havasu yet no infrastructure needed. As noted above do not believe there is groundwater but if there is it is a small amount and high in the hills so infrastructure would be required. Better answer is to not show groundwater as future supply. (5/26 spreadsheet)

City of Scottsdale

- Emphasis in "Identification of Future Supplies" should be on renewable water supplies over groundwater in unmet demand analysis memo.

Other comments on unmet demand analysis memo:

Surface Water (instate) (p.7)

<u>Physical availability</u>

- The surface water/groundwater interaction issue (p.5) cuts both ways. The physical availability of surface water could also be limited by increased groundwater pumping based upon increases in overall demand. Surface water rights might be a controlling factor in limiting this pumping in some parts of the state (i.e. Verde River), but not in others.
- Climate change should also be mentioned as having a potential impact upon the physical availability of all surface water supplies.

<u>Surface water quality</u>

- Surface water definitely requires treatment before use. Another issue is that surface water quality is often highly variable, which can make it difficult and expensive to treat.
- Additionally, Federal SDWA regulations are becoming increasingly stringent which also may affect the ability to treat and cost to treat surface water. These costs may be beyond the means of some water users in some of the smaller basins.

Water rights

- I agree that there are many existing surface water right claims throughout the state and that it would likely be necessary to acquire existing rights in order to use this as a source of supply.
- However, many of the existing claims have not been adjudicated, which makes it difficult for a potential purchaser to justify the purchase if the future ability to use the right is uncertain. There are two surface water basins in the state where adjudications currently are in progress – the Gila River and Little Colorado River basins. These adjudications have been ongoing for more than twenty years without any settlement of water rights, and adjudications have not even begun in the other river basins.
- Another factor in limiting the construction of new dams that should be mentioned is the increased level of environmental regulation that has been put in place over the last several decades. This could increase the cost of dam construction substantially.

Environmental

- Suggest that the language included in the groundwater section be included in this section also – modified to read as follows:
- "Since impacts to surface water resources often result in collateral impacts to environmental resources it is also possible that potential environmental impacts and concerns would be raised that could also limit the diversion of additional surface water supplies from environmentally sensitive and/or protected areas."

Surface water (Colorado River) & CAP (starting on p8)

- It would be useful to include the same info regarding climate change, surface water quality and treatment issues, environmental issues, and tribal water rights claims that is included in the 'instate' surface water right section in these two sections also. The issues apply as much along the Colorado River and the CAP as they do anywhere else. The CAP has an additional vulnerability due to the fact that it has the lowest priority of any supply during shortage on the Colorado River.
- An alternative approach could be to include a section that listed these as issues common to all surface water supplies. This could avoid duplicative language.

Now that I've commented on this, I noticed that there are two paragraphs (Environment and Costs) on page 9 of the report that seem to be in the effluent section, but in fact seem to apply more to surface water supplies. Perhaps these could be moved up as part of the intro to the Surface Water Supplies 'super section'.

Effluent

- It is important to note somewhere that 'new' effluent will be much more useful to meet new demands than 'old' effluent. This is mainly because many existing wastewater treatment facilities are regional facilities, which, in many areas, do not have infrastructure that connects them to areas where effluent may be used directly. New treatment facilities clearly do not have this constraint, because they could be sited locally, closer to end uses.

Environmental Defense Fund

- Would support adding a column that identifies if a basin is mining groundwater. (Hydro… spreadsheet)
- By focusing on basins with unmet demand we may be overlooking basins that have groundwater sustainability issues. Suggest a note be included that indicates these basins have not been analyzed for over-draft related, physical availability, environmental, or surface water right-related issues.
- Page 3, second paragraph: I'd suggest adding the following after the first sentence: "Basins where groundwater use is identified as sustainable for 100 years may still be in "overdraft" (withdrawals exceed recharge over time), and therefore the depth to groundwater and the total volume of groundwater in storage may still decrease over those 100 years."
- Page 5, 1st paragraph: I'd suggest adding something like this sentence to the end of the paragraph: "Depletion of surface water resources may also damage the state and local economies (especially because of impacts to tourism, recreation, and property values) and/or may be otherwise culturally undesirable or unacceptable."
- Page 8, 1st paragraph under "Effluent": I'd add this to the end of the last sentence: "and some may also be diverted by downstream users."
- Page 9, paragraphs labeled "Environment" and "Costs": I was confused about how many of the prior categories these comments applied to; they refer to "surface water," and that terminology sometimes didn't seem to apply to CAP water or effluent
- Page 9, paragraph on "Mine Drainage": this isn't actually a supply that's different from surface water or groundwater, is it? Maybe still include it but note that?
- Page 11, paragraph on "Conservation": I think that given its potential significance, this option should go further up front with the other major sources of supply.

Western Resource Advocates

- <u>Water level data</u>
  It's important to clarify that representative water level data are lacking in a number of basins so that those data shown on the table do not necessarily reflect the mean water level basin-wide or even in some demand centers. Further, they may suggest an inaccurate water availability condition. For example, the mean DTW shown for the Coconino Plateau Basin is 185 feet bls based on 2 wells while wells serving the communities of Tusayan and Williams are over 2,000 feet bls. Perhaps those basins where data are especially limited could be flagged or highlighted.
- <u>Groundwater recharge</u>
  I support including a column showing the relationship between current demand and the current recharge rate to clearly indicate baseline conditions. Only showing physically available water for 100 years, which includes water in storage, obscures the "sustainability" condition of the basin.
- <u>Potential Sources of Additional Water Supplies</u>
  CAP is listed as a potential future supply for the <u>Lower</u> San Pedro Basin; is this accurate?

Colorado River water has been identified as a potential supply for the Coconino Plateau Basin (North Central Arizona Water Supply Study).

Conservation is an important water supply for the future and should not be minimized. While the municipal demand projections have already been adopted, straight-lining gpcd into the future neglects “passive conservation”; i.e. demand reduction due to installation of water efficient fixtures in new homes. A Colorado study estimated a 10% reduction in overall gpcd rates from 2008 to 2050 from this factor alone.
There are still ample opportunities to achieve substantial reductions in existing municipal demand and “low-pain” and inexpensive opportunities to design in significant water conservation features in new development- reducing future demand and the need for expensive imported water supplies that are subject to drought, shortage and legal uncertainties.

Conservation as an alternative water supply is appropriately placed in the 5/26/11 table but needs to be removed from the “other supply” section of the analysis summary paper and placed with the other primary water supplies.

The water supplies of a number of basins have not been analyzed because of insignificant or no projected (municipal, agricultural, industrial) unmet demand in 2035. However, there are issues that could affect supply availability in some basins not expected to have unmet demands. For example there are potential impacts to springs in the Grand Canyon from deep well pumpage in the Coconino Plateau Basin. Effluent discharge in the Santa Cruz AMA supports a rich riparian ecosystem and maintains groundwater levels. Increased mining demand at Bagdad in the Bill Williams Basin would likely mean increased withdrawals from mine wells along the Big Sandy River in the Big Sandy Basin, which could be an environmental water supply issue for that basin. I’m uncertain how these circumstances can best be captured (if at all).

Bureau of Land Management

- Suggest several changes in the first workbook "...unmet demands in 2035..." highlighting potential environmental, water rights, and GW/SW impact issues.

Draft Subject to Revision 5/2611

Draft -- Potential Additional Water Supplies, Technical and Legal Issues and Potential Infrastructure Needs Necessary to Develop and Deliver Additional Supplies to Fully or Partially Offset Projected Unmet Demands in 2035

Note! Basins Highlighted in Light Blue had Insignificant or No Projected Unmet Demand in 2035 (no analysis w as preformed)

	Basin	2035 Supply - Demand (Projected Unmet Demand)		Potential Sources of Additional Water Supplies Sufficient to Offset a Portion of Projected Unmet Demand							Potential Physical, Technical and Legal Issues Related to Acquiring, Developing and Delivering Additional Water Supplies to Offset Projected Unmet Demand [1]																Potential Infrastructure Needs to Develop and Deliver Additional Water Supplies (For New Construction or Expansion, Upgrade, or Replacement of Existing Infrastructure)					
				Groundwater		Surface Water					Groundwater								Surface Water					Effluent	Other	Groundwater		Surface Water		Effluent	Other
		Instate Supply - Low Demand	Instate Supply - High Demand	Within Basin or AMA	Basin or AMA Currently Allowed Some GW Imports From Other Legally Specified Basins	Instate	CR	CAP	Effluent	Conservation	Other	Decreasing Physical Availability or Aquifer Heterogeneity May Limit Actual Well Production In Some Areas	Current or Near-Term GW-WQ Issues May Limit Some Uses in Some Areas	Current or Near-Term Land Subsidence Concerns In Some Areas	Documented or Potential GW/SW Impacts	Environmental Issues	Tribal Rights / Claims	Some Legal Limits or Restrictions on Well Locations and/or GW Withdrawals Exist	Complete or Partial Restrictions On Import/Export Of Groundwater Exist	Physical Availability /Extra SW Storage	SW- WQ Issues	Water Rights (Acquire or Transfer)	Environmental Issues	Tribal Rights / Claims	Environmental Issues	?	Wells & Pipelines	Water Treatment Plants or Disinfection Systems	Dams, Diversion Works, Canals, Wells & Pipelines	Water Treatment Plants	WWTPs	?
	AGUA FRIA	-1,140	-1,256	√		√				√	√	√	√		√	√			√	?	?	√	X		√	?	√	√	√	√		
	ARAVAIPA CANYON	-24	-25												X	X						X	X									
	BIG SANDY	14,519	14,500												X	X						X	X									
	BONITA CREEK	-5	-5												X	X						X	X									
	BUTLER VALLEY	3	3												X	X						X	X									
	CIENEGA CREEK	-554	-806	√		√				√	√	√	√		√	√			√	?	?	√	√		√	?	√	√	√	√		
	COCONINO PLATEAU	936	832		√																											
	DONNELLY WASH	19	19												X	X						X	X									
	DOUGLAS	-1,141	-1,644	?	√				√	√	√	√	√	Y					√								√	√			√	
	DRIPPING SPRINGS WASH	-5	-6												X	X						X	X									
	DUNCAN VALLEY	9,440	9,414												X	X						X	X									
	GILA BEND	-29,849	-36,973	?					√	√	√	√	√	√	X	X	√		√	?	?	√	√	√	√	?	√	√	√	√	√	
	GRAND WASH	-2	-2												X	X						X	X									
	HUALAPAI VALLEY	-4,010	-4,675	?		?			√	√	√	√	√		X	X	√		√			X	X	√			√	√			√	
	LOWER SAN PEDRO	4,228	-11,912	√		√		?	√	√	√	√	√		√	√	√		√	?	?	√	√	√	√	?					√	
	MCMULLEN VALLEY	-501	-555	?						√	√	√	√	√	X	X		√	√			X	X				√	√				
	MEADVIEW	-106	-118																													
	MORENO	-3,209	-39,242	√		√				√	√	√	√		√	√	√		√	?	?	√	√	√	√	?	√	√	√	√		
	PARIA	-9,363	-12,868	√		?				√	√	√	√		X	X			√	?	?	√	√		√	?	√	√				
Instate Water Supplies Only	PEACH SPRINGS	-359	-381	√		?				√	√	√	√				√		√	?	?	√	√	√	√	?	√	√	√			
	PRESCOTT AMA	-10,247	-11,861	?	√		?		√	√	√	√	√				√	√	√					√			√	√		√	√	
	RANEGRAS PLAIN	-48	-55												X	X						X	X									
	SACRAMENTO VALLEY	-15,940	-22,001	√					√	√	√	√	√		X	X			√			X	X				√	√			√	
	SAFFORD	-34,883	-57,224	?		√			√	√	√	√	√	√	√	√	√	√	√	?	?	√	√	√	√	?	√	√	√		√	
	SALT RIVER	-13,329	-29,719	?		√			√	√	√	√	√		√	√	√		√	?	?	√	√	√	√	?	√	√	√		√	
	SAN BERNARDINO VALLEY	-6	-7																													
	SAN RAFAEL	-4	-6																													
	SAN SIMON WASH	-142	-216																													
	SANTA CRUZ AMA	11,750	10,956																													
	SHIVWITS PLATEAU	0	0												X	X		X				X	X									
	TIGER WASH	2	2												X	X						X	X									
	TONTO CREEK	-3,461	-3,808	√		√			√	√	√	√	√		√		√		√	?	?	√	√	√	√	?	√	√	√	√	√	
	UPPER HASSAYAMPA	-1,664	-1,813	√		√			√	√	√	√	√		√	X			√	?	?	√	√		√	?	√	√	√	√	√	
	UPPER SAN PEDRO	-6,044	-17,036	√	√	√		?	√	√	√	√	√		√	X			√	?	?	√	√		√	?	√	√	√	√	√	
	VERDE RIVER	-3,085	-7,610	√		√	?		√	√	√	√	√		√		√	√	√	?	?	√	√	√	√	?	√	√	√	√	√	
	VIRGIN RIVER	598	563												X	X						X	X									
	WESTERN MEXICAN DRAINAGE	0	-1																													
	WILLCOX	-1,213	-3,825	?					√	√	√	√	√	√					√							?	√	√			√	
Instate Subtotals (Non-Highlighted Basins Only)		-135,764	-265,211																													

Note! Basins Highlighted in Light Blue had Insignificant or No Projected Unmet Demand in 2035 (no analysis was preformed)

Basins Which Receive Part of their Supply from the Colorado River or CAP	BASIN NAME	2035 Supply - Demand (Projected Unmet Demand) Instate + Normal Diversions of CR Supply -Low Demands	-High Demands	Instate + Shortage Diversions of CR Supply -Low Demands	-High Demands	Potential Sources of Additional Water Supplies Sufficient to Offset a Portion of Projected Unmet Demand: Groundwater: Within Basin or AMA	Basin or AMA Currently Allowed Some GW Imports From Other Legally Specified Basins	Surface Water: Instate	CR	CAP	Effluent	Conservation	Other
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	-23,023	-64,371	-23,023	-64,371	√		√	√		√	√	√
Instate + CR Lower Mainstem	BILL WILLIAMS	-9,718	-29,766	-9,908	-29,956	√		√	√		√	√	√
	DETRITAL VALLEY	-3	-70	-53	-70								
	KANAB PLATEAU	-946	-1,033	-946	-1,054	√		√	√		√	√	√
	LAKE HAVASU	8,833	7,865	-1,646	-2,619	√			√		√	√	√
	LAKE MOHAVE	14,772	8,841	-7,111	-13,242	√			√		√	√	√
	LOWER GILA	33,243	14,797	33,038	14,590								
	PARKER	-18,264	-20,033	-28,165	-29,934	√			√		√	√	√
	YUMA	238,622	235,680	235,028	232,086								
Instate + CAP	HAROUAHALA INA	-70,615	-70,855	-70,615	-70,855	?				√		√	√
	PHOENIX AMA	-427,492	-519,57	-618,339	-702,944	?	√			√	√	√	√
	PINAL AMA	-314,985	-337,076	-365,181	-387,272	?	√			√	√	√	√
	TUCSON AMA	27,882	18,669	-3,706	-12,918	?	√			√	√	√	√
Colorado River + CAP Basin Subtotals (Non-Highlighted basins Only)		-828,327	-1007,727	-1129,633	-1315,163								
Statewide Total (Non-Highlighted Basins Only)		-964,091	-1143,491	-1394,844	-1580,374								

Basins Which Receive Part of their Supply from the Colorado River or CAP	BASIN NAME	Potential Physical, Technical and Legal Issues Related to Acquiring, Developing and Delivering Additional Water Supplies to Offset Projected Unmet Demand [1]: Groundwater: Decreasing Physical Availability or Aquifer Heterogeneity May Limit Actual Well Production In Some Areas	Current or Near-Term GW-WQ Issues May Limit Some Uses in Some Areas	Current or Near-Term Land Subsidence Concerns In Some Areas	Documented or Potential GW/SW Impacts	Environmental Issues	Tribal Rights / Claims	Some Legal Limits or Restrictions on Well Locations and/or GW Withdrawals Exist	Complete or Partial Restrictions On Import/Export Of Groundwater Exist	Surface Water: Physical Availability (Extra SW Storage	SW-WQ Issues	Water Rights (Acquire or Transfer)	Environmental Issues	Tribal Rights / Claims	Effluent: Environmental Issues	Other: ?
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	√	√		√	√	√	√	√	√	√	√	√	√	√	?
Instate + CR Lower Mainstem	BILL WILLIAMS	√	√		√	√			√	√	√	√	√			?
	DETRITAL VALLEY				X	X						X	X			
	KANAB PLATEAU	√	√		√	√	√		√	√	√	√	√	√	√	?
	LAKE HAVASU	√	√		√	√		√	√	√	√	√			√	?
	LAKE MOHAVE	√	√		√	√	√	√	√	√	√	√	X	√	√	?
	LOWER GILA				X	X						X	X			
	PARKER	√	√		√	√	√	√	√	√	√	√	X	√	√	?
	YUMA															
Instate + CAP	HAROUAHALA INA	√	√	√	√	√		√	√			X	X			?
	PHOENIX AMA	√	√	√	√	√	√	√	√			X	X	√	√	?
	PINAL AMA	√	√	√	√	√	√	√	√			X	X	√	√	?
	TUCSON AMA	√	√	√	√	√	√	√	√	√	√	√	√	√	√	?
Colorado River + CAP Basin Subtotals (Non-Highlighted basins Only)																
Statewide Total (Non-Highlighted Basins Only)																

Basins Which Receive Part of their Supply from the Colorado River or CAP	BASIN NAME	Potential Infrastructure Needs to Develop and Deliver Additional Water Supplies (For New Construction or Expansion, Upgrade, or Replacement of Existing Infrastructure): Groundwater: Wells & Pipelines	Water Treatment Plants or Disinfection Systems	Surface Water: Dams, Diversion Works, Canals, Wells & Pipelines	Water Treatment Plants	Effluent: WWTPs	Other: ?
Instate + CR Upper	LITTLE COLORADO RIVER PLATEAU	√	√	√	√	√	
Instate + CR Lower Mainstem	BILL WILLIAMS	√	√	√	√	√	
	DETRITAL VALLEY						
	KANAB PLATEAU	√	√	√	√	√	
	LAKE HAVASU			√	√	√	
	LAKE MOHAVE			√	√	√	
	LOWER GILA						
	PARKER			√		√	
	YUMA						
Instate + CAP	HAROUAHALA INA	√	√				
	PHOENIX AMA	√	√		√	√	
	PINAL AMA	√	√		√	√	
	TUCSON AMA	√	√		√	√	
Colorado River + CAP Basin Subtotals (Non-Highlighted basins Only)							
Statewide Total (Non-Highlighted Basins Only)							

Inter Tribal Council

- See markup of unmet demand analysis document.

PROJECTED FUTURE UNMET DEMAND ANALYSIS

The **future water demand** (projected for 2035, 2060 and 2110) was compiled for each groundwater basin by adding the individual projected demands from the following sectors:

- Agriculture
- Municipal
- Tribal (in AMA only) Agriculture
- Tribal (in AMAs only) Industrial
- Industrial – hard rock mining (low and high demand)
- Industrial - rock products (low and high demand)
- Industrial - power plants (low and high demand)
- Industrial – turf (low and high demand)
- Industrial – dairy
- Industrial – feedlots
- Industrial – other

Tribal Rights and Claims

Some of the Tribes have quantified rights for all or part of their communities. Those Tribes that have not yet quantified their rights through litigation or negotiation have pending claims. Groundwater is one source of water to meet Tribal entitlements.

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Surface Water (Colorado River)

The development of additional Colorado River surface water supplies is physically possible, but would require the acquisition of existing Colorado River entitlements. The physical delivery of Colorado River surface water would currently be limited to potential users who are located along the main-stem of the Colorado River, and perhaps to potential in-state users who could acquire entitlements, and receive deliveries from the CAP canal.

Comment [R1]: Should read "Tribal Agriculture in AMAs only (per Central Arizona Water Demand Model – WRDC Scenarios)"

Comment [R2]: Should read "Tribal Industrial in AMAs only (per Central Arizona Water Demand Model – WRDC Scenarios)"

Comment [R3]: Should read "Many Indian Tribes have currently quantified their water rights through decrees, settlements or other processes. Some settlements specifically quantify rights to groundwater. Other Tribes have yet to quantify their water rights through settlements or litigation. All Tribes have a legal right to groundwater under their tribal lands. The use of groundwater from aquifers underlying tribal lands by non-Tribal users is restricted by these legal rights."

Comment [R4]: Should read "Many Indian Tribes have currently quantified their water rights through decrees, settlements or other processes. These currently quantified rights frequently involve in-state surface water. Other Tribes have yet to quantify their water rights through settlements or litigation. All Tribes have a legal right to surface water flowing across or adjacent to their lands. The use of such surface water by non-Tribal users is restricted by these legal rights."

Comment [R5]: Insert after first sentence "A significant amount of the water in these entitlements, particularly Priority 1 entitlements, is water to which Indian Tribes have rights. Such entitlements are not subject to purchase by or transfer to other users."

Potential Source of Supply	Potential Issues	Potential Infrastructure Requirements
Groundwater (Within Basin)	Available GW in Storage Current GW Basin Overdraft Aquifer heterogeneity/productivity Water Quality Land Subsidence and Earth Fissures GW/SW Impacts Colorado River Accounting Surface Impacts Environmental Tribal Rights/Claims Groundwater Right and Well Drilling Rules Costs to Drill Wells and to Pump, Treat and Transport Groundwater	Wells Pipelines Storage Facilities Treatment Facilities
Groundwater (Import)	Same as Above Plus Inter-basin GW Transfer Restrictions	Same as Above
Surface water (In-state)	Physical Availability of SW Physical Availability of New Dam and Reservoir Sites Costs to Construct and Operate New SW Diversion and Transport Infrastructure Water Quality Environmental Costs to Treat SW SW Rights (Acquisition) Tribal Rights/Claims	Dams Diversion Works Pipelines Canals Treatment Facilities
Surface water (Colorado River)	Physical Availability of CR Water Water Quality Costs to Treat CR Water Environmental Tribal Rights/Claims Colorado River Entitlements (Acquisition)	Diversion Works Pipelines Canals Treatment Facilities
CAP	Physical Availability of CAP Water Proximity to CAP Canal Tribal Rights/Claims	Diversion Works Pipelines Canals

Comment [R6]: Include "Tribal Rights'

Comment [R7]: Include "Tribal Rights"

Comment [R8]: Include "Tribal Rights"

	Costs to Treat CAP Water	Treatment Facilities
Effluent	Water Quality Treatment and transport costs	Pipelines WWTPs
Other Supplies:		
Mine Drainage	GW/SW Impacts Water Quality Treatment and transport costs	Same as for GW
Agricultural Drainage	GW/SW Impacts Water Quality Treatment and transport costs	Same as for GW

Comment [R9]: Include "Priorities in Times of Shortage"