

State of Arizona

# DEPARTMENT OF WATER RESOURCES

99 E. Virginia Avenue, Phoenix, Arizona 85004



BRUCE BABBITT, Governor  
WESLEY E. STEINER, Director

January 18, 1982

Honorable James Watt  
Secretary of the Interior  
Department of the Interior  
Washington, D.C. 20240

Dear Mr. Secretary:

Shortly after authorization of the Central Arizona Project, Secretary Udall asked the state of Arizona to recommend the allocation of CAP water among competing applicants. The responsibility for developing and forwarding the state's recommendations for the allocation of this important resource among the various potential users was assigned by the Governor to the Arizona Interstate Stream Commission, a predecessor agency of the Department of Water Resources. Before the state's recommendation could be developed, it was necessary for the Secretary to finalize the allocations of waters to the Central Arizona Indian tribes. On October 18, 1976, acting Secretary of Interior Frizzell finalized with minor amendments the allocation to Indian tribes promulgated earlier by Secretary Morton. The Arizona Water Commission then proceeded to develop its recommendations for allocation of the remaining supply among non-Indian users.

On June 22, 1977, the Water Commission sent to Secretary Andrus its recommended allocations of supplies to non-Indian M&I users. On August 31, 1979, the recommended allocation to non-Indian agricultural users was forwarded. At that time we felt that we had fulfilled our commitment to recommend apportionment of CAP supplies among non-Indian users in Arizona.

On August 8, 1980, Secretary Andrus published a proposed allocation to the Indian tribes which differed substantially from that recommended by Secretary Frizzell and thereby invalidated the state's recommended allocations.

On the basis of Secretary Andrus' proposed allocation to the Indians and understandings gained from meetings with the Secretary's staff, we proceeded to develop revised allocations to non-Indian users. Public hearings were held once again by the Arizona Water Commission and recommended allocations were made ready for transmittal to the Secretary. However, the Indian allocation finalized by Secretary Andrus on December 10, 1980 differed from our assumption in its treatment of priorities of Indian water and effluent exchanges, once again upsetting the validity of our proposed allocations.

Think Conservation!

Office of Director 255-1554

Administration 255-1550, Water Resources and Flood Control Planning 255-1566, Dam Safety 255-1541,  
Flood Warning Office 255-1548, Water Rights Administration 255-1581, Hydrology 255-1586.

Your announcement of November 12, 1981, accepting the existing nine Indian contracts and proposing an acceptable process for allocation to the Gila River Indian tribe provided a basis for the Department of Water Resources to again develop state recommended allocations of non-Indian CAP water supplies.

On December 2, 1981, the Department distributed for review and comment its revised recommended allocation. On December 16, 1981, the Arizona Water Commission held a public hearing on the proposed allocation and on January 4, 1982, following minor modification, endorsed the recommended allocation. The Department of Water Resources, for the State of Arizona, advances this allocation for your consideration and urges your approval.

In summary, the Department recommends that:

1. Each of the municipal applicants for CAP water be offered a sub-contract for the water amount shown for that applicant on Table 1. The applicant should be allowed to contract for up to the identified amount at any time during the contract repayment period.
2. Each of the industrial and other applicants shown on Table 2 be offered sub-contracts for the water amounts listed. For each sub-contractor, early year allocations have been identified where the greater quantities indicated may be contracted.
3. Each of the applicants for agricultural water shown on Table 3 be offered sub-contracts for the percentage listed of available agricultural water supplies.
4. Allocations to sub-contractors for municipal and industrial water be conditioned to provide that the sub-contract contain the provision that if the sub-contractor in the future effects a direct exchange of effluent as a substitute for CAP water which has a M&I priority, that their contractual entitlement with the Central Arizona Water Conservation District shall be reduced in like quantity.
5. The conversion of agricultural use to M&I use recognize that in some instances M&I water has already been allocated as a part of the M&I allocation to lands that will, for a period of time, receive a CAP agricultural supply and that no additional allowance be granted for conversions of lands of this character identified on Table 4.

6. The allocation be considered a first offering to potential sub-contractors and that the Department be requested to reallocate all supplies not contracted for.

The Department of Water Resources is recommending that 640,000 acre-feet of CAP supply be allocated to municipal and industrial sub-contractors. This is based on the Department's estimate that the firm water supply from the Central Arizona Project will be 630,000 acre-feet per year under year 2034 conditions and that at least 100,000 acre-feet of effluent will be provided to the Indian contractors as a substitute supply under provisions of their contracts with the Secretary of Interior. Allocation of this quantity also assumes that the users of CAP water, through conjunctive operation with other available supplies, will be able to withstand shortages in delivery of up to 20% of their contracted amount.

The nine contracts which have been entered into between the Secretary and the Indian tribes provide that 90% of the agricultural delivery and all of the tribal homeland allocations have a priority equivalent to non-Indian M&I uses. The proposed allocation to the Gila River Indian tribe grants 75% of the tribal allocation a priority equivalent to non-Indian M&I uses. As a result, a total of 258,323 acre-feet of Indian water will have a priority equal to non-Indian M&I. The contracts with the Indians also set forth the equation under which water supplies are to be allocated in times of shortage. This equation established an Indian allocation of 33.62% of the water supply after non-Indian agriculture has ceased to be supplied.

The recommended allocation of 640,000 acre-feet is derived from the Department's recommendation to distribute 800,000 acre-feet of M&I priority water. With effluent exchanges, the Indian allocation is about 160,000 acre-feet with normal water supply ( $258,323 - 100,000 = 158,323$ ). This leaves only 640,000 acre-feet remaining from the 800,000 acre-feet to be distributed among non-Indian M&I applicants.

The selection of 800,000 acre-feet as the quantity to distribute is based on the Department's belief that the Colorado River water supply system should be stressed, but not to the point that M&I contracts establish delivery requirements that will necessitate extensive withdrawals from storage below minimum power pool in Lake Mead and/or will force substantial reductions below the firm yield of 630,000. The Department's proposal will cause users in year 2034 to be subject to a 20% shortage in supply about 36% of the time. This will occur at a time when users are receiving about 140 gallons per capita per day from all dependable supplies available and will necessitate additional drafts on groundwater and could impinge adversely on safe yield management goals then in effect. Based on these considerations, we question the management prudence, both fiscal and water-supply wise, of imposing a normal M&I demand in excess of 800,000 AF/YR under 2034 conditions.

The proposed exchange of effluent to allow allocation of a larger quantity of water is of vital importance. By the year 2005 it is estimated that approximately 280,000 acre-feet per year of effluent will be available from the Phoenix and Tucson metropolitan areas and that this amount will grow to approximately 460,000 acre-feet per year by year 2034. Less than 200,000 acre-feet of this amount are currently under contract. Hence, the conclusion that ample effluent will be available for exchange after the turn of the century. The Department's preliminary planning studies indicate that at least 100,000 acre-feet of exchange with the Indian tribes will prove engineeringly and economically feasible.

Since the fall of 1980, the Department's allocation of CAP water to M&I interests have been predicated on the assumption that 100,000 acre-feet of effluent exchange would be effected by the time shortages are expected to occur, with the benefits flowing proportionately to all M&I sub-contractors. In water short years, the municipal and industrial supply would be 100,000 acre-feet per year greater with the pooling concept than without. In normal and surplus water years, the supply available to non-Indian agriculture would be 100,000 acre-feet greater than without the pooling concept.

The major cities have objected that the pooling concept is confiscatory and unfair in that it removes from their jurisdiction a valuable resource and returns to the cities actually contributing the effluent for exchange less than an acre-foot for each acre-foot of effluent exchanged. They have expressed an interest in retaining the option to make the exchanges directly with the Indian reservation, with all the benefits rebounding to the entity making the exchange. We are recommending that the cities retain the option to exchange directly with the Indians, provided they pay all of the costs and their CAP contract entitlement is reduced in the amount of the exchange. The allocations are based upon distribution of CAP municipal water on an equal per capita basis to all sub-contractors. Each allocation is based on the anticipated population times a uniform per capita use rate minus all dependable water supplies otherwise available to the applicant. Exchange of effluent for a portion of the Indian's CAP supply would increase the dependable supply available to the applicant who opts to exchange directly rather than through the pool. If the sub-contractor's contractual entitlement with the CAWCD is not reduced by the amount of the exchange, the allocations would be distorted and the city making the exchange would receive more CAP water per capita than the cities and other users unable to effect exchange because of location.

Because the proposed exchange of effluent will require expanded responsibility for the Central Arizona Water Conservation District, the District Board of Directors has been asked to approve the concept. The Board has this matter under review.

Our recommendations allocate about 77% of the total M&I allocations to cities, towns and water service organizations which have currently definable growth patterns and water needs. Approximately 16% of the supply is allocated to the copper mining and electric power industries. The remaining major allocation is the State Land Department for new developments on state lands throughout the project service area. Small allocations are recommended for the Arizona Game and Fish Department for the filling of small impoundments along the alignment of the CAP aqueduct system. A small allocation is also recommended to the Maricopa County Board of Supervisors. This allocation would be used as the water supply for county park developments.

Municipal allocations are based primarily on proration of the amounts determined necessary to supply the populations projected by the Arizona Department of Economic Security for each of the applicant's service areas, at a use rate of 180 gallons per capita per day (gpcd). This rate was applied uniformly to all applicants below an elevation of 3,000 feet. The requirements of applicants with service areas above 3,000 feet were determined at 165. The resulting values were considered the base needs. The dependable supply available to each applicant from sources other than CAP was subtracted from the base need to determine the allocation. Allocations to applicants who must negotiate exchanges with upstream water rights owners to effect delivery of CAP water were increased 20% to accommodate exchange requirements aimed at compensating for water quality differentials.

The CAP need for the power companies was estimated by the Department as the product of projections of anticipated electrical energy use in Arizona and average water use per unit of energy produced less the total amount of existing water supplies available to the companies. Based on this approach, the Department estimates that Arizona Public Service and Salt River Project will have a combined base need of 55,400 acre-feet of water to provide cooling for electrical generating power plants in year 2034. Tucson Electric Company will have a base need for approximately 5,700 acre-feet in 2034.

For the mining industry, the base need was based on current use rates at each of the mines and in some cases was increased to supply anticipated new developments. Allocations to the mines located south of Tucson were based on the assumption that 50% of their need for additional supply could be met from effluent from the city of Tucson. Hence, the allocation of Central Arizona Project water was 50% of the pro rata need.

The base need for the State Land Department was established at 50,000 acre-feet per year. This supply is allocated to provide a water supply for new developments on state lands lying outside the service areas of the cities and private water companies and not included in the allocations for those cities.

The Rio Salado Project Authority requested 21,000 acre-feet of project water. While we recognize the desirability of the Rio Salado Project, we have not included an allocation of M&I water to the project because that allocation would have to come from the already short supplies identified for the cities and the project's needs can be met eventually with treated effluent.

It was necessary to reduce the year 2034 base need for all M&I applicants by 21% to constrain the total M&I allocation to 640,000 acre-feet. This was done uniformly by proration except in situations where the applicant requested less water than the computed base need, where the lesser amount was allocated.

No recommendations have been made for municipalities for the years prior to 2034. Many applicants have indicated a desire to contract in the early years for quantities greater than their base needs as determined by the Department. It is recommended that contractors not be constrained from contracting for amounts up to their maximum allocations during any of the project repayment years.

For industrial sub-contractors, the allocations indicate a maximum early year allocation, tapering off in later years. Because industrial users may have high early year water demands, it is recommended that applicants be offered contracts in the early years for their full base need.

The proposed agricultural allocation is essentially the same as recommended to the Secretary of the Interior on August 31, 1979. One application was deleted, while a small quantity of water is recommended for the U.S. Forest Service to use as an exchange for the rights to develop stockponds in the upper watershed areas.

The agricultural recommendations are shown only as percentages of available supply. Most changes from the 1979 recommendations are the result of new population projections which affect the amount of lands eligible to receive CAP water. In some areas current projections show more urban growth on agricultural land than anticipated in 1979. These projections result in a lesser allocation to affected contractors.

The master contract between the Central Arizona Water Conservation District and the Secretary of Interior provides that "Irrigation water ... may be made available by the Secretary for M&I purposes if and to the extent that such water is no longer required by the sub-contractor for irrigation purposes and shall be made available in all cases where lands receiving project water have been converted to municipal or industrial use." The contract, however, is silent and no policy has been developed to date on the rate of conversion. (The Department of Water Resources is evaluating this matter and will be recommending a conversion policy and rate in the near future.)

Several conversions from agricultural to M&I purposes in the future must take into account the fact that the M&I applicants will be serving water to new urban developments on lands which fall both within their intended service areas and those of irrigation districts allotted CAP agricultural supplies. Absent an adopted policy for conversion from agricultural to M&I contracts and absent the guarantee that all proposed agricultural contractors will sign for a CAP supply, it is not possible at this time to evaluate the extent that conversions will take place and reflect such conversions in the recommended allocations to M&I users. Potential M&I contractors who expand onto adjoining agricultural lands for which they were allotted a CAP supply will receive a disproportionately large supply of CAP water if granted an additional supply through conversion of agricultural supplies. This should not be allowed to happen. Contract provisions should include a mechanism to restrict conversions when M&I service was included in the original M&I allocation. The Secretary has the authority to approve or disapprove conversions. It is recommended that the sub-contracts be negotiated with agricultural contractors where the needs of anticipated populations have already been satisfied through the M&I allocations, contain the provision that the Secretary will withhold approval of conversions on the lands covered by the M&I allocations. The attached Table 3 shows agricultural applicants which are expected to have lands urbanized and served CAP water by municipal contractors and the expected average to be served which have already been accounted for in the M&I allocations.

Population projections used in the allocation process are the official state projections as issued by the Arizona Department of Economic Security. The projections used herein were issued in 1979 and later adjusted to reflect the 1980 census. Other than the allocation to the State Land Department, all municipal allocations were derived from these projections.

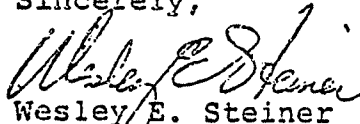
Several of the applicants have complained that the population projections used in the allocation process are out of date and arbitrary, primarily because no population has been officially forecast for several new developments or the population forecasts for existing cities and private water companies are considered too low. Over the past 12 years that the Department, and the Arizona Water Commission before it, have been developing allocations, several different population projections have been utilized without effecting any significant change in distribution throughout the project service area. The differences in our allocations over the years have resulted from the amount of water supply allocated and the fact that each new projection enabled a few new developments to enter the allocation. New Department of Economic Security projections are scheduled to become available in late February. We do not anticipate that the new projections will occasion any significant shift, but rather that population forecasts will generally increase over all of the project service area.

Honorable James Watt  
January 18, 1982  
Page Eight

The Department anticipates that some applicants will not execute project water contracts - particularly those at extreme distances from the project aqueduct or those requiring difficult exchanges. Because of the demand for CAP water, it is recommended that the Secretary, following the initial effort to execute subcontracts, give the Department the opportunity to reallocate the M&I waters not contracted for. We would propose to do so in a manner that would accommodate any discrepancies identified by the new population estimates. We will reallocate based upon the new population forecast, with those entities that have demonstrated an inability to contract for project water excluded. The uncontracted for supply will be distributed to make up discrepancies in this allocation, including recognition of the needs of new developments such as Farmers Water Company and the Vanguard development within the Phoenix Service area.

If there is anything that we can do to assist you in your evaluation of our recommendations, please call on us.

Sincerely,

  
Wesley E. Steiner  
Director

CC: All Applicants  
Bill Plummer  
Ed Hallenbeck  
Attachments



TABLE 1

Recommended Allocations of CAP Water to  
 Cities, Towns, and Water Service Organizations  
 (acre-feet/year)

APPLICANT	ALLOCATION 2034
Avondale	4099
Berneil Water Company	432
Big Valley Water Company	0 <sup>1</sup> / <sub>2</sub>
Buckeye	25 <sup>2</sup> / <sub>3</sub>
Camp Verde Water Company	1443
Carefree Ranch Water Company	954
Carefree Water Company	400
Cave Creek Water Company	1600
Chandler	3668
Chandler Heights Irrigation District	315
Chaparral City Water Company	6978
Clearwater Company	2849
Community Water Company of Green Valley	1100
Consolidated Water Utility	3932
Cortaro-Marana Irrigation District	47
Cottonwood Water Company	1789
Crescent Valley Water Company	2697
Del Lago Water Company	786
Desert Ranch Water Company	139
Desert Sage Water Company	5933
Desert Sands Water Company	768
Eagle Water Company	0 <sup>1</sup> / <sub>2</sub>
Eloy	2171
E & R Water Company	161
Farmers Water Company	0 <sup>3</sup> / <sub>4</sub>
Florence	1641
Florence Gardens	407
Flowing Wells Irrigation District	4354
Foothills Water Company	1652

Table 1 - continued

APPLICANT	ALLOCATION 2034
Gila Bend	0 <sup>4/</sup>
Gilbert	7235
Glendale	14083
Globe	3480
Goodyear	2374
Green Valley Water Company	1900
Harquahala Valley Irrigation District	0 <sup>1/</sup>
Ironwood Water Company	393
Litchfield Park Service Company	5580
Maricopa Mountain Water Company	108
Mayer-Humboldt Water Company	332
McMicken Irrigation District	9513
Maricopa County Municipal Water Conservation District #1	0 <sup>5/</sup>
Mesa	20129
Midvale Farms Water Company	1500
New Pueblo Constructors Water Company	237
New River Water Company	2359
Nogales	3949
North Valley Water Company	393
Palm Springs Water Company	2919
Paradise Valley Water Company	874
Payson	4995
Peoria	15000
Phoenix	116239
Pinnacle Paradise Water Company	0 <sup>6/</sup>
Prescott	7127
Queen Creek Irrigation District	944
Ranch Lands Water Company	393 <sup>7/</sup>
Rio Verde Utilities, Inc.	812
San Tan Irrigation District	236
Scottsdale	19702
Sunrise Water Company	944
Sunshine Water Company	16

APPLICANT	ALLOCATION 2034
Tempe	4315
Trails End Water Service	226
Tucson	151064 <sup>7/</sup>
Turner Ranches	3932
West End Water Company	157
West Phoenix Water Company	91
Williams Air Force Base	833
Youngtown	380
Arizona Water Company	
Apache Junction	6000
Casa Grande	8884
Coolidge	2000
Miami-Claypool	1829
White Tank	968
Citizens Utility Company	
Agua Fria	1439
Rio Rico	2683
Sun City	<u>15835</u>
TOTAL	494744

FOOTNOTES - TABLE 1

- 1/ Insufficient population projected to reside in this area to warrant an allocation.
- 2/ Urbanization of land with a dependable supply causes Buckeye allocation to decrease over the 50-year repayment period. Therefore, it is recommended that the maximum allocation be 434 acre-feet until 2005 then reducing to the recommended amount in the year 2034.
- 3/ At this time there is no population projection for this applicant's service area. However, the applicant has obtained concurrence for its master development plan from Pima County and we anticipate that when the 1982 population projections are released that this applicant will receive an allocation when supplies not contracted for are reallocated.
- 4/ Due to the great distance from the aqueduct to Gila Bend, an alternative local source of water can be developed and treated as necessary at a lower cost than Project water.
- 5/ M&I water will be served by Citizens Utility Company.
- 6/ The City of Scottsdale has purchased the Pinnacle Paradise Water Company and has received an allocation to serve water to this area.
- 7/ It is recommended that during the contracting period the population projections for Pima County be reviewed to determine if new projections modify the distribution of population between the City of Tucson and Ranch Lands Water Company. Substantial changes can be accounted for in the reallocation following initial subcontracting.

TABLE 2  
 Recommended Allocations of CAP water to the  
 Mining Industry, Power Companies, and Other Interests  
 (acre-feet/year)

APPLICANT	ALLOCATION	
	Early Years <sup>1/</sup>	2034
<b>POWER</b>		
Arizona Electric Power Cooperative	0	0
Arizona Public Service-Salt River Project	55400	43218 <sup>2/</sup>
Tucson Electric Power	0	<u>0</u>
Power - Subtotal		43218
<b>MINES</b>		
Anamax-Helvetia	0	0 <sup>3/</sup>
Anamax-Twin Buttes	6105	4444
Asarco-Hayden	833	582
Asarco-Mission	4161	0 <sup>4/</sup>
Cities Service Company	3285	2271
Cyprus-Pima	7263	5339
Duval	11628	8549
Inspiration Copper	4647	2906
Kennecott	28611	22028
Phelps-Dodge	20866	<u>14665</u>
Mines - Subtotal		60784
<b>RECREATION</b>		
Arizona Game & Fish Department	755	324
Maricopa County	852	<u>665</u>
Recreation - Subtotal		988
<b>OTHER</b>		
Phoenix Memorial Park		5
Rio Salado		0 <sup>5/</sup>
State Land Department		<u>39006</u>
Other - Subtotal		39090
<b>TOTAL</b>		144080

FOOTNOTES - TABLE 2

- 1/ These amounts are allocated until such time that all M&I contracts total 640,000 acre-feet.
- 2/ Distribution between the two entities to be effected during contract negotiations.
- 3/ Sufficient local dependable water supply available.
- 4/ Asarco-Mission did not request water in year 2034.
- 5/ While the request for an allocation is valid for the Rio Salado Project, a portion of the CAP water allocated to cities involved in this project can provide the needed water supply in the early years with effluent taking over in later years as the cities need their full CAP entitlements to meet municipal needs.

TABLE 3

Recommended Allocations of CAP Water to  
Agricultural Applicants

(percent of available supply)

APPLICANT	ALLOCATION		
	1985	2005	2034
Arcadia Water Company	0.13	0.14	0.15
Avra Valley Association	3.69	3.84	4.21
Central Arizona Irrigation District	18.01	18.73	20.55
Chandler Heights Irrigation District	0.28	0.28	0.30
Cortaro-Marana Irrigation District	2.14	2.05	1.99
FICO	1.39	1.44	1.58
Harquahala Valley Irrigation District	7.67	7.98	8.75
Hohokam Irrigation District	6.36	6.61	7.25
La Croix	0.04	0.04	0.05
Maricopa-Stanfield Irrigation District	10.48	21.30	23.35
Marley, Kemper Jr.	0.04	0.04	0.05
McMicken Irrigation District	7.28	5.60	2.61
MCMWCD #1	4.66	3.37	2.88
New Magma Irrigation District	4.34	4.52	4.96
Queen Creek Irrigation District	4.83	4.99	5.42
Rood, W.E.	0.04	0.04	0.05
Roosevelt Irrigation District	2.61	2.72	2.98
RWCD	5.98	5.92	4.84
Salt River Project	2.97	3.05	0.00
San Carlos Irrigation District	4.09	4.25	4.66
San Tan Irrigation District	0.77	0.80	0.86
Tonopah Irrigation District	1.98	2.06	2.26
U.S. Forest Service	0.22	0.23	0.25
TOTAL	100.00	100.00	100.00

TABLE 4

Projected Urbanization of Agricultural Lands  
That Have Received M&I Allocations

Agricultural Applicant	Projected Irrigated Acres Urbanized 1985-2034	Affected M&I Applicant
Chandler Heights I.D.	235	Same
Cortaro-Marana I.D.	2,635	Same
McMicken I.D.	23,587	City of Glendale Consolidated Water Co. Litchfield Park Serv. Co.
MCMWCD #1	17,076	Citizens Utility Co. Sun City
Queen Creek I.D.	589	Same
RWCD	8,939	City of Mesa City of Gilbert
San Tan I.D.	187	Same