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December 23, 2015

Jeff Tannler, Active Management Area Director
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, Arizona 85012

RE: Draft Tucson Active Management Area Fourth Management Plan

Dear Mr. Tannler;

Pima County appreciates the opportunity to comment on the draft Fourth Management Plan for the Tucson Active Management Area. Below are comments for your consideration.

Chapter 1 – Introduction

Page 1-1, paragraph 2. Recommend the plan be effective 2017 through 2020.

Page 1-4, paragraph 2. Regarding Federal water management activities, the Bureau of Reclamation's trust responsibilities for the effluent allocated under the Southern Arizona Water Rights Settlement Act should be noted.

Page 1-4, last paragraph. The draft Fourth Management Plan identifies reclaimed water as an alternative renewable supply to CAP water that can be used to mitigate CAP shortages and protect against the impacts of drought. The draft plan falls short of recommending consideration of indirect potable reuse or direct potable use. ADWR should take a leadership role in public education and awareness of water reclamation treatment, water quality and advanced treatment of reclaimed water as 4MP guides increased use of reclaimed water to higher recycled use, such as indirect potable water and other recycled uses.

Page 1, last paragraph. Increased utilization of reclaimed water is mentioned as a strategy to reduce groundwater dependency, but its role for habitat maintenance and restoration is omitted.

TAMA total water use was 343,000 af of which 48% was groundwater or 163,000 af (2013). In summation, Safe Yield is long term balance between amount of groundwater pumped and amount of water naturally and artificially recharged in TAMA. Amount of water recharged naturally will never satisfy total water demand within a safe yield balance. Achieving any degree of 4MP goals & Safe Yield will rely on artificial recharge of CAP and Reclaimed water.

Recent occurrences of TAMA Safe Yield balance is due solely to large volumes of CAP replacing groundwater. TAMA progress in reducing groundwater use must be maintained even during drought and shortage. Maintaining continued CAP supply to meet demand and store future volume for growth

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and recovery during shortage is imperative. However, during Tier 1 Shortage, recharge, the principal mitigation action protecting TAMA during reduced CAP supply, will be curtailed. Maximizing CAP and Reclaimed storage, especially AWBA firming goals, ahead of shortage should be TAMA primary goal-bringing additional "wet" water into the TAMA.

Regional efforts should focus attention on AWBA's commitment to store water in the TAMA, meeting its firming goals and engage recovery strategy implementation. It should also focus attention on Non-Project Water Wheeling in the CAP.

Chapter 2 – Hydrology

Page 2-1; paragraph 3. Regarding climate, the cited data is from 2001 which is slightly outdated. The National Weather Service monthly and daily normal (1981-2010) shows the mean daily maximum temperature for January is 65.5°F and the mean daily minimum for January is 39.8°F. The daily maximum temperature for July is 99.7°F, while the mean daily minimum for July is 74.4°F. It is important to cite more recent data, because the National Weather Service recalculates mean temperature data every ten years on a 30-year rolling average and it has changed. See <http://www.wrh.noaa.gov/twc/climate/tus.php>

Page 2-15, Table 2-3. The Ina Road WPCF was activated in 1976. It is inaccurate to say there was zero discharge between 1950 and 1975, because the plant did not exist during that time.

Page 2-25, Section 2.9.1. Change to read "The majority of this reclaimed water was treated at Tres Rios WRF (Ina Road) and Agua Nueva WRF (Roger Road." The discussion omits total reclaimed storage, recovered storage and transfers of long term storage credits.

Chapter 3 – Water Demands and Supply

Page 3-12, Figure 3-5. Does the variation in agricultural demand coincide with temperature or precipitation?

Page 3-13, paragraph 2. "Recently, CMID and Pima County have renewed the reclaimed water contract." Not so. Pima County is cooperating with Metro Water, CMID and the Bureau of Reclamation to deliver Metro Water and SAWRSA water to CMID lands under a groundwater savings facility.

The water demand of the municipal and industrial sector will have the largest impact on meeting safe yield goals. Agriculture is not a major regional economic sector and water demand for agriculture will not be increasing as acreage is reduced and as ag pool water is phased out. Conversion from ag to urban development is the most prominent impact from this sector as the municipal is the largest and growing sector in TAMA and potential extinguishment credits remain unpledged.

The industrial sector has potential for water demand growth with mining dominating TAMA water considerations, more than any other AMA as a percentage. Mining reliance on groundwater and lack of infrastructure and access to renewable water impact TAMA's safe yield.

Chapter 4 – Agricultural

Page 4-2, Figure 4-1. The legend color for Areas of Similar Farming Conditions is not clear and does not correlate well with the figure.

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Page 4-5, paragraph 2. "CMID and Pima County have recently renewed the contract for receiving reclaimed water." Not so. Pima County is cooperating with Metro Water, CMID and the Bureau of Reclamation to deliver Metro Water and SAWRSA water to CMID lands under a groundwater savings facility.

Chapter 7 – Water Quality

Page 7-7, section 7.4.3.3. Change "total fecal coliform" to "fecal coliform or E. coli" to describe the constituents regulated in reclaimed water. Also, add "nitrate" to this list.

Page 7-16, paragraph 5. There is a sentence that starts "Secondary reclaimed water, which is treated to AZPDES permit standards usually contains....". "Nitrate" and "metals" should be removed from this list because newer treatment plants no longer have these pollutants present in quantities that are higher than concentrations in local groundwater supplies. Also, municipal treatment plants now go beyond "secondary" treatment, so I would suggest using the term "tertiary" or "advanced treated."

Page 7-18, section 7.6.2. ADWR's stated long-range goal of implementing incentives to use remediated groundwater is in contrast to ADWR's policy "GW38," which favors recharge and reinjection over direct beneficial use (see page 7-14). ADWR should consider revising their policy because in most instances direct beneficial use is cheaper and more efficient than reinjection. Such strategies should be highest priority so long as they are replacing an existing nearby groundwater use.

Chapter 8 – Augmentation and Recharge

Page 8-3, Section 8.3.1 notes that net natural and incidental recharge offset overdraft and that between 1985 and 2013 there were twelve years where more than 100,000 acre-feet of annual stream channel recharge is estimated to have occurred. With the possibility of increased drought severity, the amount of natural and incidental recharge may decrease impacting overdraft conditions.

4MP focus on additional specific aquifer management strategies (exploring options for managing local aquifer areas) to address impacts of varied local groundwater declines and physical availability challenges is a positive component.

Page 8-4, Section 8.3.2 explains that lowering groundwater levels could reduce well productivity and increase pumping costs. Increased pumping costs will result in higher energy demand. The impacts of energy demand to develop, treat and transport water will have impacts to Arizona residents as well as water demand because water is required to produce energy. Energy to recover and deliver stored water from within the TAMA will also be needed.

Page 8-12, paragraph 2 states the supply of reclaimed water is increasing with population. However, the amount of reclaimed water treated at the regional metropolitan facilities has remained stable or decreased slightly, mirroring the decreased municipal water demand. Likely causes are individual water conservation practices and low indoor water use fixtures. A better approach would be to say there are factors that limit greater reclaimed water utilization to augment the water supply. The Fourth Management Plan should also acknowledge the discharged effluent to the Santa Cruz River has environmental benefits to the effluent dependent riparian ecosystem, especially since the regional metropolitan facilities were upgraded to improve water quality. Another benefit is the increased water quality has increase infiltration rates which result more reclaimed water contributing to the "cut to the aquifer" of the two managed recharge underground storage facilities in the Santa Cruz River.

Page 8-14, Section 8.5 lists a number of ADWR actions proposed to meet the augmentation and recharge program goals and objectives. Adequate funding of ADWR is needed to meet these objectives.

Page 8-23, Table 8-7 should include granting GSF credit for new municipal reclaimed use for parks and schools and for new industrial reclaimed uses that replace groundwater pumping. If the GSF program were expanded to urban reuse options in this regard there would be incentive for expansion of reclaimed water distribution systems in the urban environment.

Chapter 11 – Budget

Section 4.4. 4MP Budget Scenario only posits a Tier 1 Shortage despite opinion that a Tier 2 Shortage could rapidly follow a Tier 1. This scenario, with a Tier 1 shortage of 320,000 ac-ft, indicates that the NIA priority pool will not be impacted through 2040. Regardless, the shortage scenario does not affect the municipal and industrial sector but it is assumed the municipal sector holds sufficient LTSCs to maintain DAWS consistent with management goal.

Chapter 12 – Water Management Strategy

Page 12-5, Section 12.2.2 is discussing Underground Storage and Recovery strategies and makes the following statement:

“The cessation of reclaimed water storage at the managed USFs could affect riparian habitat that has benefited as a result of reclaimed water discharges to the river. However, reducing the cut to the aquifer to 5 percent or less would have an end-result contrary to the Tucson AMA safe-yield management goal. Discussion of this issue may continue during the fourth management period.”

This statement is trying to characterize a proposal that some TAMA stakeholders have offered to ADWR with regard to SAWRSA effluent used in the managed recharge projects. The proposal requested 95-100% credit be established for SAWRSA effluent in the managed recharge projects as an incentive to preserve part of the flowing Santa Cruz River. However, this statement in the 4MP is an incomplete analysis because it does not recognize the reality that ADWR’s credit options vis a vis managed and constructed recharge facilities strongly urge all owners of metropolitan effluent to put that reclaimed water into off-channel constructed recharge facilities, a transition that all owners are now pursuing. While reducing the cut to the aquifer for managed recharge would have an end-result that is contrary to the safe-yield goal, incentivizing exclusive use of constructed recharge facilities has a somewhat more severe end-result because there will be absolutely no cut to the aquifer. Furthermore, the end-result includes a loss of significant riparian habitat.

Page 12-7, Section 12.2.7. Regarding use of septic systems, no mention is made that septic systems are restricted to areas where no nearby sewer system exists, where percolation rates are adequate and to residential developments with a density greater than one residence per acre. These areas tend to be in rural outlying areas where no regional wastewater infrastructure exists.

Page 12-8, Section 12.2.9 mentions two areas of infrastructure needed in the TAMA. A third area for infrastructure development is extension of reclaimed water delivery systems. Municipal providers have solved some of the subarea management issues in TAMA by wheeling water. TAMA could further benefit from wheeling of reclaimed water to more areas. There are parks, golf courses, industrial

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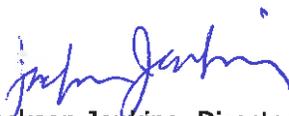
facilities, and even residential recycled water users that could benefit from expansion of the system. ADWR should look into ways to incentivize expansion of the urban reclaimed water distribution system.

Page 12-8, Section 12.2.10 Wheeling and 12.2.12 Policy issues should be removed from challenges as developments described in these paragraphs have offered solutions rather than challenges.

Page 12.10, Section 12.3.2. The draft plan discusses reducing groundwater dependency for the mining sector. ADWR offers the possibility of expanding the authority of CAGR to recharge excess CAP water outside of the AWS program and require replenishment for other sectors, such as agriculture and Industrial by establishing a separate replenishment authority for industrial users. This possibility should be explored in greater detail.

Should you have any questions, please feel free to contact Kathleen Chavez of my staff at (520)724-6588.

Sincerely,



Jackson Jenkins, Director

c: Kathleen Chavez, Water Policy Manager