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## CAGRDR REPLENISHMENT AND WATER SUPPLIES

### ISSUE STATEMENT

The Central Arizona Groundwater Replenishment District (CAGRDR) provides a mechanism to replenish some of the Assured Water Supply related groundwater use within three Active Management Areas. However, the CAGRDR and its members face long-term uncertainties related to the availability and costs of ~~renewable~~ supplies for replenishment.

- What are the long-term uncertainties for the CAGRDR related to the availability of renewable supplies for replenishment?
- What issues may arise as replenishment supply costs are borne by the CAGRDR and passed on to its members?
- What concerns exist about ADWR's oversight and review criteria of CAGRDR Plans of Operation in relationship to the CAGRDR's long-term viability?

### BACKGROUND

In 1993, the Arizona State Legislature established the framework for a groundwater replenishment authority known as the Central Arizona Groundwater Replenishment District (CAGRDR), to be operated by the Central Arizona Water Conservation District (CAWCD). The CAGRDR provides a mechanism for landowners and municipal water providers in the Phoenix, Pinal and Tucson Active Management Areas (AMAs) to demonstrate one of the assured supply criteria for groundwater under the Assured Water Supply (AWS) Rules, which were adopted in 1995. Without the CAGRDR, some developers and water providers would not be able to meet the AWS Program criterion of consistency with the management goal of the AMA.<sup>1</sup> CAGRDR membership demonstrates consistency with the management goal as required in the AWS Rules by allowing new subdivisions and municipal water providers lacking sufficient renewable supplies or infrastructure to develop using groundwater. The CAGRDR mechanism in particular has facilitated continued economic development in areas of the three AMAs without CAP allocations or with insufficient infrastructure to put their CAP allocation to use. The CAGRDR replenishes the *excess groundwater*<sup>2</sup> pumped by or delivered to its members. In other words, CAGRDR membership allows municipal water providers or landowners to withdraw and use groundwater upfront, while the CAGRDR replenishes the aquifer to offset the volume of excess groundwater withdrawn in an AMA by its members after the fact.

The CAGRDR serves two types of members: member lands (MLs), which are individual subdivisions, and member service areas (MSAs), which are municipal water providers such as cities, towns, districts, or water companies that enroll their water service area. A municipal provider may enroll as an MSA in order to obtain a Designation of AWS if its portfolio of water supplies includes groundwater requiring replenishment. There are currently 24 active MSAs enrolled in the CAGRDR.<sup>3</sup> When applying for a Certificate of AWS, the developer of a subdivision may enroll the subdivision as an ML in the CAGRDR while also demonstrating physical, legal and continuous access to a volume of

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<sup>1</sup> A.A.C. R12-15-722

<sup>2</sup> "Excess groundwater" is any amount of pumped groundwater beyond what is permitted by the AWS rules.

<sup>3</sup> <https://cagrd.com/documents/enrollment/MSA-Enrollment-History-Member-Service-Area-List.pdf>

groundwater equal to 100 years of the projected use by the subdivision.<sup>4</sup> As of November 5, 2020, 1,194 subdivisions have been enrolled as MLs in the CAGR, encompassing over 290,000 lots.<sup>5</sup> A large number of ML subdivisions, particularly in the Pinal AMA, are enrolled in the CAGR but have not yet been developed. The CAGR 2015 Plan of Operation cites approximately 140,000 enrolled but unbuilt lots across the three AMAs served by the CAGR.<sup>6</sup> Although the replenishment obligation of the CAGR is based on the reported excess groundwater use of subdivisions that have been built, the CAGR must plan for the projected build-out obligations of all its enrolled members.

The CAGR is obligated to replenish excess groundwater pumped by its members within three years after the obligation is incurred.<sup>7</sup> As excess groundwater pumping by CAGR members increases<sup>8</sup>, the CAGR must acquire water supplies to meet those replenishment obligations and for its replenishment reserve.<sup>9</sup>

At least every ten years, the CAGR is required by statute to submit a Plan of Operation (Plan) that conforms with the management goals of each AMA in its service area to the Director of the Arizona Department of Water Resources (ADWR) for approval.<sup>10</sup> The Plan must satisfy a list of statutory planning requirements, showing the CAGR's ability to meet projected replenishment obligations for its current and estimated near-term membership. In the Plan, the CAGR is required to show the supplies it plans to use to meet replenishment obligations for 20 years as well as identify potentially available supplies for the subsequent 80 years.<sup>11</sup> The CAGR does not need to demonstrate that its supplies are available for 100 years because the CAGR is not a water provider and the 100-year AWS criteria do not apply to the CAGR. This allows the CAGR to utilize supplies of less than 100 years in duration. This differs from the AWS requirements for obtaining and maintaining a Certificate or Designation of AWS in which physically available supplies must be identified and available during the full 100-year period. Since the CAGR can make use of shorter-term water supplies, its water supply acquisition plans are often described as not competing with other entities, including its own members who seek to acquire long-term supplies for AWS Designations.

Since the CAGR's inception, long-term uncertainty in available supplies has been an issue in part because the CAGR is required to initially identify in each Plan only the water supplies available to the CAGR for replenishment for twenty years and because of the CAGR's early reliance on Excess CAP water<sup>12</sup> to meet its replenishment obligations. Numerous statutory changes as well as policy and rate adjustments by CAWCD have been implemented over time to mitigate this uncertainty. In 2003 and 2005, statutory changes were made to strengthen the ADWR Director's oversight and approval of the CAGR Plans of Operation. Changes included requiring the CAGR to identify water resources potentially available for the subsequent 80 years after the first

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<sup>4</sup> The role of CAGR and groundwater in the AWS Program is discussed in the *Groundwater in the Assured Water Supply Program Issue Brief*.

<sup>5</sup> <https://cagr.com/documents/enrollment/CAGR-Member-Land-Enrollment-Summary.pdf>

<sup>6</sup> 2015 Central Arizona Groundwater Replenishment District Plan of Operation, p. 3-6.

<sup>7</sup> A.R.S. §48-3771(A).

<sup>8</sup> Increases in excess groundwater pumping are projected due to several factors, including the buildout of existing CAGR member demands, the demands of new/future members, the depletion of alternative groundwater supplies such as groundwater allowances, and the restriction on groundwater allowances for Certificates or Designations issued after 2025.

<sup>9</sup> A.R.S. §48-3771.A and A.R.S. §48-3771.C – “Except as provided by title 45, chapter 3.1, the district may replenish groundwater with central Arizona project water or water from any other lawfully available source except groundwater withdrawn from within an active management area.”

<sup>10</sup> A.R.S. §45-576.03

<sup>11</sup> A.R.S. §45-576.02(C)(2)

<sup>12</sup> Excess CAP water is defined as “all Project Water that is in excess of the amounts used, resold, or exchanged pursuant to long-term contracts and subcontracts for Project Water service.” CAP Repayment Stipulation, ¶15(d)(1).

20 years of identified water resources and requiring the development and approval of a revised Plan if the Director determines that there is either an unexpected increase in projected replenishment obligations or an unexpected reduction in water supplies available to meet the CAGRDR's obligations.<sup>13</sup>

The CAGRDR continues to acquire supplies and build a portfolio that CAGRDR projects will be sufficient to meet its annual replenishment obligations until 2050.<sup>14</sup> In its early years, the CAGRDR met its replenishment obligations primarily through the use of Excess CAP water as it was readily available and relatively inexpensive. In recent years, the availability of Excess CAP water has decreased substantially, and it will likely be reduced or entirely unavailable in the future.<sup>15</sup> The CAGRDR has long planned for the reduced availability of Excess CAP water and for future Colorado River shortage impacts to its other supplies. This is evidenced by the establishment of its formal water acquisition program and its requirement to develop a replenishment reserve of long-term storage credits that can be utilized to meet its obligations and enhance rate stability in times of water supply shortage or infrastructure failure. Its acquisition program is guided by principles adopted by the CAWCD Board that seek a 50/50 mix of short-term and long-term supplies in anticipation of projected increases in replenishment obligations.

To date, these efforts have resulted in the CAGRDR acquiring over 250,000 acre-feet of the 764,502 acre-feet targeted amount for the replenishment reserve in the CAGRDR 2015 Plan of Operation. Under its acquisition program, the CAGRDR has acquired a total annual supply of approximately 44,000 acre-feet per year compared to the recent average annual replenishment obligation of approximately 30,000 acre-feet per year.<sup>16</sup> In addition, the CAGRDR has pending a CAP Non-Indian Agricultural (NIA) priority reallocation of 18,185 acre-feet per year and a lease from the White Mountain Apache Tribe for 2,500 acre-feet per year.<sup>17</sup>

The CAGRDR has also made adjustments to its policies and rate structure to mitigate for the uncertainty of supply availability and cost. For example, between 2015 and 2019, activation fees (paid by homebuilders prior to issuance of a building permit for a residence) averaged a 33% increase per year for the Phoenix and Pinal AMAs, and a 27% increase per year in the Tucson AMA. Stakeholders, including homebuilder and developer representatives, agreed to this change during the development of the CAGRDR 2015 Plan of Operation because it generates a more significant portion of funding for future water supplies prior to homes being built and replenishment obligations being incurred. This ensures the CAGRDR has the funds necessary to purchase additional replenishment supplies for the new obligation and provides more equity among the CAGRDR's members (i.e., future members pay more up front for the supplies required to meet their obligations without being subsidized by long-term members).

These incremental changes over the years have served to mitigate the impact of the uncertainties in the CAGRDR's ability to secure renewable supplies to offset its growing replenishment obligations. However, with the expectation of increased competition for limited supplies, rising acquisition costs, increased growth using groundwater supplies requiring replenishment, and the growing risk of Colorado River shortages, it remains important to continue to take steps to mitigate this uncertainty to ensure the viability of the CAGRDR.

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<sup>13</sup> Such a finding can only be made between the second and eighth year of the current Plan of Operation. A.R.S. § 45-576.03(R).

<sup>14</sup> CAWCD Board Information Brief, November 19, 2020, pg. 12, <https://www.cap-az.com/documents/meetings/2020-11-19/1827-111920-WEB-Final-Packet-CAGRDR.pdf>

<sup>15</sup> CAGRDR 2019 Mid-Plan Review, p. 17.

<sup>16</sup> CAGRDR 2019 Mid-Plan Review, p. 18. The annual portfolio of 43,896 AF includes a mix of CAP M&I priority supplies (8,311 AF), an exchange of CAP Indian priority supplies (15,000 AF), effluent (2,400 AF), and a lease of CAP NIA priority supplies (18,185 AF) subject to shortage reduction.

<sup>17</sup> Upon their final approval, the availability of these NIA priority supplies will also be subject to shortage.

## ISSUE DESCRIPTION

The CAGRDR has a unique responsibility to secure water supplies to replenish excess groundwater used by its growing membership. The Post-2025 AMAs Committee has identified three main questions related to the long-term availability and costs of renewable supplies for the CAGRDR and its members to provide a starting point for evaluating opportunities for improvement that would benefit future AMA water management.

### What are the long-term uncertainties for the CAGRDR related to the availability of renewable supplies for replenishment?

One unique aspect that the CAGRDR faces as it seeks to acquire new supplies is that groundwater could theoretically be more plentiful than renewable supplies, such that new AWS determinations that rely on the CAGRDR could continue to be issued based on physically available groundwater, while the CAGRDR is tasked with developing an equivalent renewable supply for replenishment beyond when it is feasible to do so. In other words, if groundwater supplies continue to be available to meet the demands of new MLs and MSAs, there is the potential for a future shortfall in replenishment supplies for the CAGRDR to meet its obligations and maintain consistency with the AMA management goals.

The CAGRDR 2015 Plan of Operation identified substantial supplies as potentially available in the long-term, some of which would be more firm than CAP supplies.<sup>18</sup> Yet, the quantity and accessibility of renewable supplies realistically available in the future are as uncertain for the CAGRDR as for other water users. Fewer available water supplies for acquisition will likely lead to increased competition among the CAGRDR and other entities seeking additional supplies for future use, including large industrial users and municipal and private water utilities.<sup>19</sup> In some cases, these entities are also CAGRDR members or serving CAGRDR member lands. The difficulties of acquiring water supplies beyond 2025 are compounded by the current complexities and contention surrounding the transfer of Colorado River water from the river to Central Arizona. Opposition from On-river interests to these Colorado River mainstem transfers and the increasing cost of such water supplies may also have an impact on future CAGRDR acquisition activities.<sup>20</sup>

As described above, the CAGRDR appears to have sufficient supplies to meet its annual replenishment obligations until 2050.<sup>21</sup> However, if supplies become more limited or entirely unavailable for acquisition by the CAGRDR after 2025, communities that rely on the CAGRDR for new development and economic growth run the risk that they would not be able to comply with the AWS Program. As designed, if the CAGRDR is not successful in acquiring sufficient supplies to support new and existing membership per statute, new development may be limited, and current Designations of AWS that rely on the CAGRDR will likely be in jeopardy. Depending on the amount of the shortfall, it is possible that some excess groundwater use may not get replenished. This would have negative impacts on future development in areas without access to renewable supplies and on the State's economy as a whole.

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<sup>18</sup> CAGRDR 2015 Plan of Operation, p. 4-14.

<sup>19</sup> *Long-Term Water Augmentation Options for Arizona*, Prepared for the Long-Term Water Augmentation Committee of the GWAICC by Carollo Engineers, Montgomery & Associates and WestLand Resources, Inc., <https://new.azwater.gov/sites/default/files/Long-Term%20Water%20Augmentation%20Options%20final.pdf>.

<sup>20</sup> CAGRDR 2019 Mid-Plan Review, p. 2.

<sup>21</sup> CAWCD Board Information Brief, November 19, 2020, pg. 12, <https://www.cap-az.com/documents/meetings/2020-11-19/1827-111920-WEB-Final-Packet-CAGRDR.pdf>.

What issues may arise as replenishment supply costs are borne by the CAGR and passed on to its members?

Since the CAGR has a perpetual obligation to replenish excess groundwater used by its members, it must continually acquire replenishment supplies to meet that obligation. The costs for such acquisitions are anticipated to increase as availability of renewable water supplies decreases. [This will also be true for water providers or other entities looking to acquire renewable supplies.](#)<sup>22</sup> Since the CAGR is not a water provider, its revenue structure is also different from that of a municipal water provider. The CAGR collects revenues through up-front fees paid by the landowner or developer, through annual membership dues, and through either an annual replenishment assessment (on ML property owners) or an annual replenishment tax (on MSAs) based on replenishment obligation volume. As such, long-term replenishment costs ultimately must be borne by the CAGR member homeowners (MLs) or water providers (MSAs). MSA water providers usually roll the total costs of water service and replenishment into the rates their water users pay. For ML homeowners, the CAGR replenishment costs are not directly connected to and are in addition to the monthly water service cost paid to the member's water provider.

For MLs, rising long-term replenishment costs might serve as an incentive to use less excess groundwater. However, after the development of a subdivision, the financial responsibility of CAGR membership is borne by the ML homeowner and paid via property taxes to the county assessor's office. This structure was put in place to create administrative certainty for the CAGR in collecting its revenue streams. But for the homeowner, this structure can create a disconnect between their water use and its full cost. With the true cost of a renewable water supply contained in a property tax bill, often paid through a mortgage, the benefits of conserving groundwater are not readily apparent. For accounting and reporting reasons, there is also a delay of nearly one year between the delivery of excess groundwater to a homeowner and the replenishment assessment appearing on their property tax bill. Further, by the CAGR's replenishment costs being paid by the homeowner, the ML water provider may not have sufficient inducement to conserve water beyond the requirements contained in the management plans for each AMA. Smaller water providers may not have the resources available for water conservation and privately-owned water providers may need to limit conservation activities in order to obtain Arizona Corporation Commission approval on rates. These disconnects between water use and water cost through the CAGR have the potential to add to the replenishment obligation of the CAGR.

The CAGR has the financial authority to meet its replenishment obligations, but further analysis may be warranted regarding the growing fiscal impact to its members over the long-term and how in turn that could stress the CAGR's structure in the future. The CAGR's up-front fees, membership dues and assessment rates increase annually to keep up with costs associated with expanded CAGR requirements, including funding the replenishment reserve and the establishment of the water supply acquisition program, as well as its annual water supply costs. As an example, the CAGR calculated that the 2018 acquisition of water and credits from the Gila River Indian Community and Gila River Water Storage LLC for a 25-year period would increase the CAGR Phoenix AMA members' combined rates by 11-15 percent over the next two to three years.<sup>23</sup> Although the actual rate increase in the Phoenix AMA has been lower than expected since that time, this demonstrates the CAWCD Board will most likely need to consider additional acquisitions with sizable impacts to CAGR rates.

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<sup>22</sup> [Challenges to entities acquiring renewable water supplies are discussed in the \*Groundwater in the Assured Water Supply Program Issue Brief\*.](#)

<sup>23</sup> Central Arizona Water Conservation District Board of Directors Action Brief, *Discussion and Consideration of Action to Approve a Water Supply Acquisition and Association Agreements between CAGR, Gila River Indian Community (GRIC) and Gila River Water Storage (GRWS)*, November 1, 2018.

As replenishment rates increase, some members and large water users are starting to seek ways to reduce CAGR D costs. Since the CAGR D's current rates are bundled and assessed on the volume of reported excess groundwater, some members with larger water demands have pursued temporary avoidance of CAGR D replenishment obligation by acquiring short-term supplies like long-term storage credits (LTSCs) or extinguishment credits (ECs) to offset the amount of excess groundwater they report to CAGR D. This more recent practice can impact CAGR D members because the fixed costs of CAGR D replenishment are redistributed over fewer members. If this practice grows in the future, the CAGR D has concluded it could weaken its ability to financially sustain itself.<sup>24</sup> Overall, increasing water costs are not unique to the CAGR D but the impacts of how those costs are assessed on its members, often as a second charge for water use, and the implications for the CAGR D financial structure in the future are unclear.

*What concerns exist about ADWR's oversight and review criteria of CAGR D Plans of Operation in relationship to the CAGR D's long-term viability?*

Under existing laws, the Director of ADWR must determine whether the CAGR D Plan of Operation is consistent with achieving the management goal of each AMA in the CAGR D's service area.<sup>25</sup> This requirement provides oversight on whether the CAGR D has the water supplies and financial ability to meet its replenishment obligations. With an approved Plan, enrollment in the CAGR D may continue. As described above, the Plan estimates the water supplies required to meet the replenishment obligations of both current and near-term enrollments. If ADWR were to determine that the Plan is not consistent with the management goal, a moratorium would be imposed on the enrollment of new members lands and cause the expiration of Designations of AWS based on CAGR D membership, pursuant to A.R.S. § 45-576.06(A). Such a determination is viewed as a "worst case" outcome, however, and would certainly be detrimental to the state's economy. As has occurred over the past 20 years when the CAGR D's statutory duties were revised and expanded, revisiting ADWR's oversight of the CAGR D, including the criteria used by ADWR to review the Plan, could provide suggestions to improve the long-term sustainability of the CAGR D for the benefit of its current and future members.

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<sup>24</sup> CAWCD Board of Directors Information Brief, Report on and Discussion of Elliott D. Pollack & Co. Impact Report on Third-Party LTSC Sales to CAGR D Member Lands, Feb 16, 2017.

<sup>25</sup> A.R.S. §45-576.03