



2022 ANNUAL OPERATIONS REPORT

SUPPLEMENT TO THE 2022 CONSERVATION DISTRICT ANNUAL REPORT

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Abbreviations and Glossary

TERM	DEFINITION
ADWR	Arizona Department of Water Resources
AF	Acre-feet
AF/yr	Acre-feet per year
AMA	Active Management Area
A.R.S	Arizona Revised Statutes
AWS	Assured Water Supply
Board	The Central Arizona Water Conservation District Board of Directors
CAP	Central Arizona Project
CAGRD	Central Arizona Groundwater Replenishment District
CAWCD	Central Arizona Water Conservation District
CAWS	Certificate of Assured Water Supply
CDAR	Conservation District Annual Report
DAWS	Designation of Assured Water Supply
FMYN	Ft. McDowell Yavapai Nation
GRIC	Gila River Indian Community
GRWS	Gila River Water Storage, LLC
GSF	Groundwater Savings Facility
HOA	Homeowners Association
LARF	Liberty Aquifer Replenishment Facility, now referred to as SEAP
LPSCO	Litchfield Park Service Company
LTSCs	Long-term Storage Credits
M&I	Municipal and Industrial
MDWID	Metropolitan Domestic Water Improvement District
ML	Member Land
MSA	Member Service Area
NIA	Non-Indian Agricultural (CAP Priority Pool)
NMIDD	New Magma Irrigation and Drainage District
PSA	Purchase and Sale Agreement
Reclamation	The United States Bureau of Reclamation, a federal agency overseeing water resource management as it applies to western infrastructure projects
Report Year	The year in which Excess Groundwater was delivered to each ML or withdrawn from each MSA, the year covered by the report as opposed to the year report was issued
SEAP	Sustainable Effluent to Aquifer Project – former LARF site renamed following upgrades
SMCFD	Superstition Mountains Community Facilities District
TON	Tohono O’odham Nation
USF	Underground Storage Facility

Executive Summary

Each year, CAGR D releases its Annual Operations Report (AOR) to supplement the required Conservation District Annual Report (CDAR) submittal to the Arizona Department of Water Resources (ADWR). This report provides additional information on water supplies and administrative actions taken by CAGR D. Like the CDAR, it covers the activity from the previous calendar year. While released in 2023, the AOR represents CAGR D operation in 2022.

Enrollment and Activation Since 2018

YEAR	LOTS ENROLLED	LOTS ACTIVATED
2022	7,102	16,935
2021	7,823	25,506
2020	4,671	14,964
2019	6,499	18,774
2018	8,433	14,004

Enrollment and Activation: Enrollment in 2022 dropped slightly – roughly ten percent – compared to 2021 and activations dropped approximately thirty five percent, but both numbers are in line with recent history. The previous five years reflect a period of increased housing construction, increases in home prices and an active housing market. By the end of 2022, high interest rates and prices of construction materials helped to slow the housing market lowering enrollment and activation in CAGR D.

Replenishment: In 2022, CAGR D incurred a replenishment obligation of 33,716 AF, less than the reported 2021 obligation of over 35,000 AF. Recent replenishment obligation has been between 29,000 and 36,000 AF, lower than 2007's 41,313 AF and the 2015 CAGR D Plan of Operation projection of 53,500 AF in 2022. Factors such as lower than projected enrollment and reporting behavior by water providers have contributed to lower than projected replenishment obligation. CAGR D continues to replenish excess groundwater in accordance with statutory requirements and typically completes most of its replenishment in the year following incurring the obligation.

Replenishment Obligation Since 2018

YEAR	OBLIGATION (AF)
2022	33,716
2021	35,433
2020	35,100
2019	30,405
2018	29,662

Water Supply Program: 2022's August 24-Month study confirmed Tier 2A operating conditions would be in place for Arizona in 2023. Having prepared for this situation, CAGR D continued its focus on firming existing water supplies in preparation for deeper or longer-term shortage conditions. CAGR D acquired almost 40,000 AF of LTSC in 2022 through multiple types of agreements with a variety of partners, ending the year with nearly one million AF in its Long-Term Storage Subaccount. The Replenishment Reserve gained an additional 15,000 AF of credits, ending the year with over 300,000 AF in its account.

Brief Introduction to CAGRD

The Central Arizona Groundwater Replenishment District (CAGRD) was established in 1993 to provide a mechanism for landowners and water providers to demonstrate one of the requirements necessary to secure a 100-year Assured Water Supply (AWS) under Arizona law. CAGRD recharges Central Arizona Project (CAP) water and other water supplies to replenish groundwater used by its members in excess of the limits established by the Arizona Department of Water Resources (ADWR) AWS Rules.

The AWS Rules limit the quantity of mined groundwater that an applicant may use to demonstrate an AWS. This groundwater use limitation prevents new development from relying solely on mined groundwater to satisfy its water demands. If a landowner or water provider has access to sufficient groundwater to demonstrate an AWS, it must also demonstrate its groundwater use will be consistent with groundwater management goals of that area. As a member, the landowner or water provider pays CAGRD to replenish any groundwater pumped for the member which exceeds the pumping limitations (referred to as “Excess Groundwater”) imposed by the AWS Rules.

CAGRD is operated by the Central Arizona Water Conservation District (CAWCD) throughout the portion of CAWCD’s three-county service area that is within an Active Management Area (AMA). It is governed by the CAWCD Board of Directors, yet CAGRD’s finances are completely separate from the rest of CAWCD’s finances, and all costs incurred by CAGRD must be paid by CAGRD members.

Membership

Enrollment in CAGRD is voluntary; however, it is often required to meet AWS Rules, if a landowner or water provider is relying on groundwater to serve a new development. Any city, town, private water company or subdivision located in the Phoenix, Pinal or Tucson AMA may join CAGRD so long as it meets the State’s requirements. CAGRD is comprised of two types of members: Member Service Areas (MSAs) and Member Lands (MLs).

- MSA – The service area of a city, town, district or private water company, including any extensions of the service area. The municipal water provider is required annually to submit a report to CAGRD identifying the volume of total water delivered and the volume of groundwater pumped within the service area and must pay CAGRD replenishment taxes on groundwater volumes pumped in excess of the pumping limitations imposed by the AWS rules. When applying to enroll a service area in CAGRD, the applicant provides a projection of future population, water demands and renewable supplies available to meet those demands. These projections serve as a basis for estimating CAGRD’s long-term replenishment obligation for the service area. Membership in CAGRD enables the water provider to receive a Designation of Assured Water Supply (DAWS), issued by ADWR, for its service area.
- ML – An individual subdivision with a defined legal description. The water provider agrees to annually submit water delivery information necessary to calculate the replenishment assessment for each parcel of land enrolled within the subdivision. A ML water provider does not have a DAWS. Instead, each individual subdivision must receive its own separate Certificate of Assured Water Supply (CAWS) from ADWR, and enrollment in CAGRD enables it to do so.

Replenishment Obligation

CAGRD must replenish in each AMA the amount of Excess Groundwater¹ that has been pumped by or delivered to its members in that AMA. The replenishment may be accomplished through: 1) the operation of underground storage facilities, where water is recharged underground into existing aquifers; 2) through groundwater savings facilities, where water is used directly by irrigation districts in lieu of pumping groundwater; or 3) through the use of long-term storage credits (LTSCs) held by CAGRD. Water used for replenishment may be CAP water or water from any other lawfully available source, except groundwater withdrawn from within an AMA. A.R.S. § 48-3771.A requires CAGRD to “complete” the replenishment of its Replenishment Obligation within three calendar years after it is incurred. By statute, CAGRD Replenishment Obligation is fulfilled or “complete” when CAGRD’s conservation district account has been credited to reflect either the storage of replenishment water or the transfer of LTSCs in sufficient volume to meet the replenishment obligation.

Revenue Sources

All operations of CAGRD must be funded completely by its members. These costs are covered by a combination of up-front fees, annual membership dues, replenishment taxes and assessments. Each type of revenue source is dedicated to specific purposes and helps cover costs associated with replenishment activities, such as development of infrastructure, recharge facility construction, water supply acquisition, operation and maintenance, replenishment reserve accruals and administration. CAGRD also has the authority to issue revenue bonds to develop infrastructure and acquire water rights necessary to perform its replenishment obligation.

MSAs pay CAGRD for replenishment services performed on behalf of their service area, as well as annual membership dues. Individual property owners in MLs each pay a special assessment to CAGRD based on their excess groundwater use, as well as annual membership dues, collected through the annual property tax assessment.



¹ Excess Groundwater (defined in A.R.S. § 48-3701.7) is groundwater delivered to a member in excess of what is consistent with applicable Assured Water Supply rules.

Planning

Plan of Operation - Every ten years, CAGRD is required to submit a Plan of Operation to the Director of ADWR. The primary purpose of the Plan is to document the actions of CAGRD over the past ten years and to describe the activities that CAGRD proposes to undertake in each AMA during the ten-year and 100-year periods following Plan submission. CAGRD's 2015 Plan of Operation ("2015 Plan") was approved by the Director of ADWR on August 5, 2015, and covers the ten-year period from 2015–2024. CAGRD continues to operate under this Plan until the next plan is submitted by 2025. Given the importance of the 2025 Plan of Operation, CAGRD staff began preliminary planning efforts in late 2021 and started work on replenishment obligation projections and water supplies began in mid-2022.

Board Strategic Plan - On December 3, 2020, the CAWCD Board of Directors unanimously adopted the 2022 CAWCD Board Strategic Plan, following a series of planning meetings and collecting stakeholder feedback. The 2022 Strategic Plan carries over many of the strategic issues from the 2016 CAWCD Strategic Plan, albeit with additional emphasis on the relationship between CAGRD member pumping and replenishment and conservation messaging considering potential Colorado River shortages. CAGRD will continue the process of a five-year formal review of its operations, completing an annual operations report and quarterly updates to the CAGRD and Underground Storage Committee under the 2022 CAWCD Strategic Plan.

Mid-Plan Review - The Mid-Plan Review is a comprehensive assessment of the mid-term trends in CAGRD operations under the Plan of Operation. The Mid-Plan Review provides indications of where these trends may lead CAGRD over the remaining five years of the Plan. The first Mid-Plan Review was completed in 2011 during the 2005 Plan of Operation period. CAGRD published its second Mid-Plan review in 2020.

Annual Reporting - The Conservation District Annual Report (CDAR) is submitted to ADWR by August 31 of each year for the previous calendar year (A.R.S. § 48-3775.E). The CDAR details numerical information in a series of tables showing water storage amounts, credit transfers, account balances, groundwater replenishment obligations, contract replenishment obligations and contract replenishment credit accounting.

The Board has directed staff to develop an enhanced annual report, this document, referred to as the CAGRD Annual Operations Report, serving to supplement the CDAR with additional information on CAGRD operations. More specifically, this report provides further details in a narrative format on new enrollment, up-to-date replenishment obligations, water supply and replenishment reserve activities, and any new legislation and administrative activities that occurred in the report year.

The first CAGRD Annual Operations Report was completed in late 2015 for calendar year 2014, which was the final year covered under the 2005 Plan of Operation. This ninth CAGRD Annual Operations Report was completed in fall 2023 for calendar year 2022, the eighth year covered under the 2015 Plan of Operation. Completion of the Annual Operations Report will always follow submittal of the CDAR to ADWR. This report was posted on the CAGRD website (CAGRD.com) in December 2023.

1. Enrollment and Activation

A. Enrollment

Member Land enrollment was fairly consistent between 2021 and 2022. While there was an approximate drop of ten percent in Member Land lots enrolled in 2022, there was one more subdivision enrolled. As typical, most of the enrollment occurred in the Phoenix AMA, with one subdivision of 95 lots enrolling in the Tucson AMA. No enrollment occurred in the Pinal AMA due to ongoing issues with proving physical availability of groundwater. No Member Lands de-enrolled in 2022.

Table 1.1

NEW MEMBERLAND ENROLLMENT IN 2022

AMA	ML Subdivisions	ML Lots*	Projected Demand (AF/yr)
Phoenix	29	7,007	3,769
<i>East Phoenix</i>	12	3,385	1,893
<i>West Phoenix</i>	17	3,622	1,876
Pinal	0	0	0
Tucson	1	95	33
TOTAL	30	7,102	3,802

* ML Lots refers to the total number of lots or homes within all ML Subdivisions.

No Member Service Areas enrolled or de-enrolled in CAGRD in 2022. CAGRD staff met with multiple water providers to discuss potential transitions from a water provider serving Member Lands to enrolling as a Member Service Area.



Comparison of Actual ML Enrollment in 2022 to Projected ML Enrollment in 2022

Enrollment of Member Lands have consistently been lower than projected in the 2015 Plan of Operation. 2022 was no exception, as shown in the table below.

Table 1.2

COMPARISON OF ACTUAL ML ENROLLMENT IN 2021 TO PROJECTED 2021 ML ENROLLMENT

AMA	2022 Enrollment (Lots)	Projected 2022 ML Enrollment (Lots)*
Phoenix	7,007	8,785
Pinal	0	977
Tucson	95	807
TOTAL	7,102	10,569

* From 2015 Plan of Operation, projection methodology described in Section 3.2.2.

B. Activation

The Arizona Department of Real Estate issues a public report allowing the sale and lease of lots within subdivisions. Prior to the issuance of the public report for subdivisions within CAGRD MLs and MSAs, an Activation Fee must be paid to CAGRD for each residential unit offered for sale. Activations dropped by almost a third from 2021 to 2022, due to a combination of increased materials costs and increasing interest rates. More lots were activated in Member Service Areas versus Member Lands (almost 60%) reflecting a recent trend toward increased growth in MSAs.

TABLE 1.3

NUMBER OF LOTS ACTIVATED IN 2022

AMA	MLs	MSAs	Combined
Phoenix	6,378	6,313	12,691
Pinal	335	520	855
Tucson	398	2,991	3,389
TOTAL	7,111	9,824	16,935

2. Replenishment Obligation Incurred and Replenishment Obligation Completed

CDAR and Annual Operations Reports and Updated Data

Each year, CAGRD receives updated information from water providers, developers and homebuilders regarding activities from previous years, necessitating updates to CAGRD records. Corrections sometimes occur after the CDAR is submitted to ADWR or after yearly totals of enrollment and activation occur.

As of December 5, 2022 there was an approximately 8 AF decrease compared to the CDAR submitted to ADWR on August 23, 2023. All updates will be reflected in the 2023 CDAR to be submitted next year.

A municipal water provider serving MLs is required by statute to file an annual report with CAGRD for each ML subdivision that it serves; this report must indicate the volume of total water and the volume of groundwater delivered to each parcel in the subdivision, as well as a calculation of Excess Groundwater delivered. MSAs also are required by statute to file an annual report with CAGRD indicating the volume of total groundwater and the volume of Excess Groundwater pumped within their service areas. These reports must be submitted to CAGRD by March 31st of each year, and the volumes reported represent pumping or deliveries from the previous year ("the Report Year.") CAGRD must complete its Replenishment Obligation within three calendar years after it is incurred. Therefore, at any given point in time there may be one or more years of obligation unfulfilled.

Current CAGRD practice is to complete replenishment the calendar year after groundwater delivery. Depending on operational circumstances, it may be prudent for CAGRD to prioritize replenishment in certain areas or delay its replenishment. CAGRD replenishment has always been completed within statutory time frames.

The replenishment obligation reflects the volume of Excess Groundwater delivered by municipal water providers serving CAGRD ML subdivisions and withdrawn by MSA providers within their service areas. In 2022, CAGRD incurred a replenishment obligation of 33,716 acre-feet (AF). This was approximately a 5% decrease over 2021's obligation and substantially lower than the 53,500 AF projected in the 2015 Plan of Operation. Table 2.1 shows the distribution of obligation between MLs and MSAs by AMA. Factors such as lower than projected enrollment and reporting behaviors by water providers have contributed to lower than projected obligation.

Table 2.1

REPLENISHMENT OBLIGATION FOR MLs AND MSAs In 2022 (AF) by AMA

AMA	MLs	MSAs	Combined
Phoenix	23,894	6,864	30,758
Pinal	44	164	208
Tuscon	1,560	1,189	2,750
TOTAL	25,498	8,217	33,716

Tables 2.2 through 2.4 list the volumes of Excess Groundwater reported from 2019 through 2022 along the top row. The tables also identify the year and extent to which the replenishment obligation resulting from those deliveries has been completed. Recent activity is shown in order to demonstrate CAGRD has met its obligation within the statutory replenishment time frame. In 2022, CAGRD fulfilled 35,105 AF of replenishment obligation as shown in Tables 2.4 and 2.5 (refer to 2022 rows).

The following explanation may assist in interpreting these tables: The top row (green) shows the year in which deliveries of Excess Groundwater occurred. In the Phoenix AMA (Table 2.2) the 2019 column illustrates 26,378 AF of Excess Groundwater was reported to MLs and/or by MSAs in 2019 for the Phoenix AMA. Fulfillment of this obligation occurred over a three-year period: 17,029 AF was replenished in 2019; 9,185 AF in 2020 and the remaining 165 AF in 2021. The bottom row of the table showing the “Amount Unmet to Date” (in orange) reflects the remaining balance of replenishment to be completed.

Table 2.2

COMPLETION OF REPLENISHMENT OBLIGATION – Phoenix AMA

Phoenix AMA		Excess Ground Water Obligation by Report Year (AF)			
		2019	2020	2021	2022
		26,378	31,098	32,094	30,766
Year and Volume (AF) Obligation Completed	2019	17,029	–	–	–
	2020	9,185	–	–	–
	2021	165	31,098	52	–
	2022	–	–	30,673	–
Amount Unmet to Date		0	0	1,369	30,766

*All values rounded to the nearest AF. Totals may vary slightly from yearly component values. Non-rounded quantities available on <https://cagrd.com/operations/cagrd-reports-and-information/>.



East Phoenix AMA and West Phoenix AMA**A.R.S. §48-3772.I compels CAGRD to:**

"In the Phoenix active management area, the district [CAGRD], to the extent reasonably feasible, shall replenish groundwater in the east portion of the active management area and in the west portion of the active management area in the approximate proportion that the groundwater replenishment obligation attributable in a particular year to member lands and member service areas located in the east portion of the active management area bears to the groundwater replenishment obligation attributable in that year to member lands and member service areas located in the west portion of the active management area."

Year-to-year operational decisions, contractual requirements, and availability of recharge locations dictate the amount of replenishment occurring in each portion of the Phoenix AMA. Table 2.3 provides a breakdown on replenishment activities in 2022 of 2021 replenishment between the east and west portions of the Phoenix AMA.

While a small imbalance between East and West Phoenix will remain, CAGRD staff plan to replenish the remaining 2021 replenishment obligation in the West Phoenix AMA in the reporting for calendar year 2023 – well within statutory requirements. A difference between East and West Phoenix obligation and replenishment, reflects a less than ten percent difference for 2022. Historically, CAGRD has maintained more replenishment than obligation in the west portion of the Phoenix AMA in anticipation of future development in the far west valley and readily available space through Groundwater Savings Facilities and Underground Storage Facilities. With CAGRD maintaining an operational practice of fulfilling replenishment obligation the year following it being incurred, the table below details the disposition of 2021 Phoenix AMA replenishment obligation.

Table 2.3

2021 WEST PHOENIX and EAST PHOENIX OBLIGATION and REPLENISHMENT (AF)

West Phoenix		East Phoenix	
Obligation	Replenishment	Obligation	Replenishment
15,961	11,681	16,133	19,044
2021 Remaining Obligation for 2023		1,369	
Anticipated results: Nine percent (2,911 AF) difference between East and West Phoenix replenishment			

While published in calendar year 2023, a [StoryMap regarding subbasin level](#) CAGRD activity is available that goes into more detail on pumping and replenishment by and for CAGRD members throughout the service area.

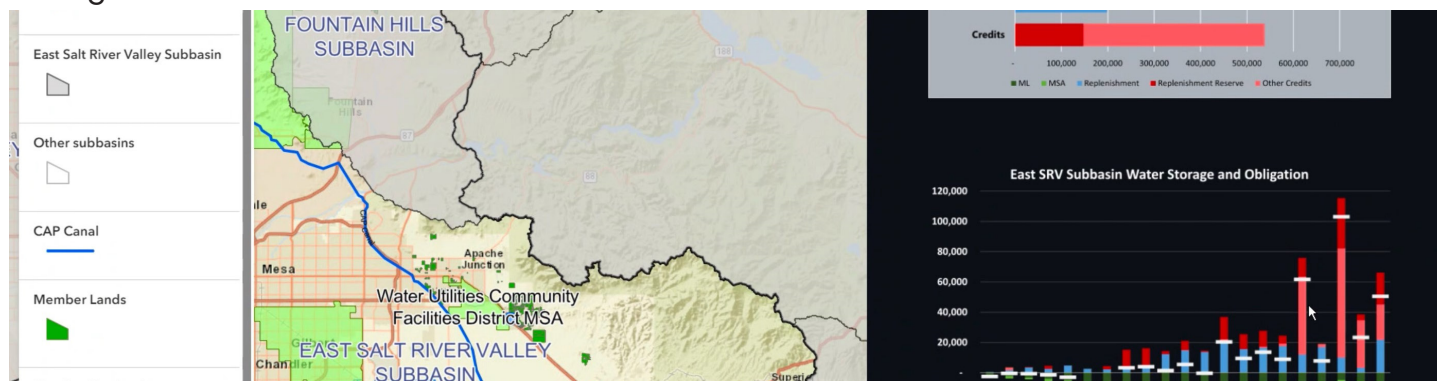


Table 2.4

COMPLETION OF REPLENISHMENT OBLIGATION – Pinal AMA

PINAL AMA		EXCESS GROUNDWATER OBLIGATION BY REPORT YEAR (AF)			
		2019	2020	2021	2022
		899	331	593	208
YEAR AND VOLUME OBLIGATION COMPLETED (AF)	2019	0.3	-	-	-
	2020	899	-	-	-
	2021	-	331	-	-
	2022	-	-	593	-
Amount Unmet to Date		0	0	0	208

*All values rounded to the nearest AF. Totals may vary slightly from yearly component values. Non-rounded quantities available on <https://cagrd.com/operations/cagrd-reports-and-information/>.

Table 2.5

COMPLETION OF REPLENISHMENT OBLIGATION – Tucson AMA

TUCSON AMA		EXCESS GROUNDWATER OBLIGATION BY REPORT YEAR (AF)			
		2019	2020	2021	2022
		2,476	2,913	2,746	2,750
YEAR AND VOLUME (AF) OBLIGATION COMPLETED	2019	-	-	-	-
	2020	2,471	-	-	-
	2021	6	2,913	540	-
	2022	-	-	2,189	-
Amount Unmet to Date		0	0	18	2,750

*All values rounded to the nearest AF. Totals may vary slightly from yearly component values. Non-rounded quantities available on <https://cagrd.com/operations/cagrd-reports-and-information/>.

Comparison of Actual Obligations in 2021 to Projected Obligations in 2021 (as projected in 2015 Plan of Operation)

Much as described in the section on enrollment numbers, the 2015 Plan obligation projections are tied to housing unit growth; thus, actual obligation in 2022 (33,716 AF) is lower than the Plan projection of 53,500 AF (Table 2.5). Beyond a continued per capita drop in residential demand for water, other factors contributed to lower-than-anticipated obligation. Examples include obligation avoidance strategies by certain ML water providers through increased use of groundwater allowance along with the elimination of a contractual minimum reporting requirement for MLs enrolled before 2004.

Table 2.6

ACTUAL VS. PROJECTED REPLENISHMENT OBLIGATION IN 2022

AMA	Member Lands		Member Service Areas	
	Actual Obligation	Projected Obligation	Actual Obligation	Projected Obligation
Phoenix	23,894	34,200	6,864	9,800
Pinal	44	600	164	1,700
Tucson	1,560	4,200	1,189	3,100
TOTAL	25,498	38,900	8,217	14,600

*All values rounded to the nearest AF. Totals may vary slightly from yearly component values. Non-rounded quantities available on <https://cagrd.com/operations/cagrd-reports-and-information/>.



3. Water Supply Program

A description of CAGRD's Water Supply Program for 2022 is provided under two headings: Section A – Water Supply Activity and Section B – Summary of Water Supplies. Section A describes both new and ongoing activity in the program for 2022. Discussion of new activity in 2022 will identify whether new physical supplies became available during the reporting year or will become available at some future date as specified in the associated contract or agreement. Section B serves to show an overall picture of CAGRD's water supplies for 2022, summarizing the volume of water supplies CAGRD had available going into the year, water accrued or acquired during the year and the total volume available at the end of the year.

A. 2022 Water Supply Activity

2022 Long-Term Storage Credits Accrual Acquisitions Activities

In 2022, CAGRD acquired a total of 37,273 AF of long-term storage credits (LTSCs) through several Purchase and Sale Agreements (PSAs), ongoing water leases and the Recovery and Exchange Agreement with the Gila River Indian Community (Community). Table 3.1 found below, details the LTSC transactions, by seller name and Active Management Area (AMA), that CAGRD completed by the seller's name and AMA location in 2022.

TABLE 3.1

LONG TERM STORAGE CREDITS ACQUIRED IN 2022

AMA	LTSCs (AF)
Phoenix AMA	
Tohono O'odham Nation	16,000
City of Peoria	7,182
Gila River Indian Community	1,989
Florence, Town of	1,933
Liberty Utilities	669
Phoenix AMA Subtotal	27,773
Tucson AMA	
Tohono O'odham Nation	5,000
City of Tucson	4,000
MDWID (Metro)	500
Tucson AMA Subtotal	9,500
AMAs Total	37,273

Tohono O'odham Nation

In 2022, CAGRD and the Tohono O'odham Nation (TON) entered into a LTSC PSA under which CAWCD acquired a total of 20,000 LTSCs. This LTSC PSA is part of our continued partnership with TON as CAGRD purchased a combined 50,000 TON LTSCs in the Phoenix and Tucson AMAs in 2020 and 2021. Of the 20,000 LTSCs purchased in 2022, 16,000 LTSCs are located in the Phoenix AMA (Hieroglyphic Mountain Recharge Project) and 4,000 LTSCs are located in the Tucson AMA (Pima Mine Road Recharge Project).

Gila River Indian Community

In 2022, CAGRD acquired a total of 1,989 LTSC from the Gila River Indian Community in accordance with our 25-year (2020 through 2044) CAP NIA Lease Agreement. A majority of the CAGRD's 18,185 AF/year CAP NIA Lease water is delivered and stored annually at the Community-owned MAR-5 USF. The MAR-5 USF primarily discharges water into the Gila River just upstream of the Olberg Dam at the Phoenix and Pinal AMAs boundary. Due to the unique geographic location of the MAR-5 USF, each year a percentage of the water delivery attributed to both the Phoenix and Pinal AMAs, approximately 80% to 20%, respectively. Therefore, each year CAGRD's performs a LTSC transfer whereby CAGRD transfers Pinal AMA LTSCs to the Community for an equal amount of the Community's Phoenix AMA LTSCs.

Town of Florence

In 2016, CAWCD and the Town of Florence entered into an agreement where Florence agreed to sell CAGRD all storage credits accrued by delivering its 2,048 AF/YR CAP M&I subcontract entitlement water to Tonopah GSF, located in the Phoenix AMA, from 2018 through 2022. The agreement consists of a 5-year initial term with three successive 5-year rights of renewal for a total term of 20 years. In 2022, CAGRD purchased 1,933 LTSCs from the Town of Florence. In 2022, CAGRD fully satisfied its 5-year contractual agreement with the Town of Florence and opted not to renew the agreement for the additional 5-year extension.

Litchfield Park Service Company (Liberty)

A 2013 agreement between CAWCD and Litchfield Park Service Company (LPSCO) resulted in the purchase of nearly 18,500 AF of LTSCs accrued by delivering effluent to Roosevelt Irrigation District (RID) from 2013 to 2017. That agreement was superseded in 2017 by the "Agreement for Development of Effluent Recharge Facility, Effluent Disposal and Purchase and Sale of Effluent", completed in 2014 between CAWCD and Liberty Utilities (owner of LPSCO). This agreement provides a separate framework for purchase of LTSCs that Liberty generates at their effluent recharge facility (the Sustainable Effluent to Aquifer Project, or SEAP) for 100 years, starting in 2017. As part of that agreement CAGRD also acquired a lease of 2,400 AF/YR of effluent produced by Liberty and delivered to the effluent recharge facility. If Liberty is unable to fulfill its commitment to deliver 2,400 AF of effluent to the SEAP, they transfer LTSCs earned by delivering effluent to the RID Groundwater Savings Facility (GSF) to CAGRD. In 2021, Liberty delivered 1,730.9 AF of effluent to the SEAP and subsequently, in 2022 transferred 669 AF of LTSCs to CAGRD.

City of Peoria – LTSC PSA and 1,885 AF CAP M&I Transfer and Assignment

In 2020, CAGRD and the City of Peoria (Peoria) executed a LTSC Purchase and Sale Agreement (PSA) under which CAGRD will acquire from Peoria 35,911 LTSCs over five consecutive years from 2021 through 2025 or an annualized total of 7,182.20 LTSCs during the term. The LTSC PSA was the result of extensive negotiations between CAGRD and was contingent upon the successful approval of a transfer and assignment of 1,885 acre-feet of CAP M&I Priority Water from CAGRD to Peoria. The transfer and assignment of up to 1,885 acre-feet of CAP M&I Priority Water is contractual under section 5.5 of CAGRD's Supplemental Contract and a result of Peoria's acquisition and successor in interest status of New River Utility Company (NRUC) since 2016. In December 2020, the parties filed a joint application to ADWR requesting a review of the transfer and assignment. ADWR determined that the proposed transfer was consistent with applicable "Water Management Objectives and Review Criteria of the CAP Subcontract Transfer Policy" and recommended the Bureau of Reclamation initiate the process to assign the 1,885 acre-feet entitlement to Peoria. In April 2022, the parties received their amended M&I subcontracts and began implementation of the 5-year LTSC PSA.

City of Tucson

In 2013, CAWCD and the City of Tucson ("Tucson") entered into an agreement where Tucson agreed to sell and transfer 100,000 AF of Tucson AMA LTSCs to CAGRD. CAGRD has committed to purchasing 4,000 AF of credits each year for 25 years and retains an option to purchase up to an additional 1,000 AF of LTSCs in any given year. Through 2022, CAGRD has acquired 45,000 AF of LTSCs through this agreement.

Metro Water

CAWCD and Metropolitan Domestic Water Improvement District (Metro) entered into a credit purchase agreement in 2015. Under this Agreement, Metro will sell to CAGRD a minimum of 250 LTSCs, up to a maximum of 1,000 LTSCs, each year. The Agreement was amended in 2017 to change the storage facility at which the credits would be accrued. This agreement will be effective until 2061 if the option for two additional 10-year terms is exercised beyond the initial 25-year term. CAGRD has acquired 2,750 AF of LTSCs through 2022 under this agreement.

B. Summary of Water Supplies

In addition to the water supplies described in Section A, CAGRD utilizes the following water supplies to which it utilizes to fulfill its statutory annual replenishment obligations.

CAGRD CAP Entitlement

Since March 14, 2016, CAWCD, for benefit of the CAGRD, holds an annual entitlement to 6,426 AF (as of April 2022) of CAP Municipal & Industrial (M&I) Priority water pursuant to the "Supplemental Contract between the U.S. and CAWCD for Delivery of CAP Water, Contract No. 14-06W-245, Exhibit A, Amendment No. 2, Supplement No. 1 as amended," ("Supplemental Contract"). The Supplemental Contract is for permanent water service for replenishment obligations incurred solely in the Phoenix AMA.

CAGRD Effluent Entitlement

CAWCD acquired 2,400 AF annually of effluent produced at the Palm Valley Water Reclamation Facility in Goodyear as part of the "Agreement for Development of Effluent Recharge Facility, Effluent Disposal and Purchase and Sale of Effluent" completed with Liberty Utilities in 2014. This 100-year lease of the effluent entitlement became effective in 2017 with the completion of the Liberty Aquifer Replenishment Facility (LARF), where the leased effluent is recharged. Approximately 1,410 AF of this effluent supply was recharged at the LARF in 2022, with the balance being recharged at the Roosevelt Irrigation District. Modifications to the facility implemented in 2020 (renamed the Sustainable Effluent to Aquifer Project, or SEAP) have increased recharge rates. It is anticipated that all of CAGRD's effluent entitlement will be recharged there in future years.

CAWCD NIA Allotment

In September 2021, CAWCD, for the benefit of CAGRD replenishment, received the fully executed Non-Indian Agricultural (NIA) subcontract from the Bureau of Reclamation. In 2022, despite a Tier 1 Colorado River shortage, CAGRD ordered and delivered the full subcontract volume of 18,185 AF. Due to the NIA mitigation prompted under the Arizona Drought Contingency Plan (DCP). In 2023, NIA mitigation provisions of the (DCP) limited NIA water available to CAGRD to approximately 75% of the allotment or 14,000 AF.



C. CAGRD Long-Term Storage Subaccount

In 2022, CAGRD began the year with a cumulative AMA (Phoenix, Tucson and Pinal AMAs) LTSC balance of 913,084 LTSCs in the Long-Term Storage Subaccount and ended 2022 with a balance 955,604 LTSCs. Table 3.2 and the narrative below provide an AMA-by-AMA summary of water supply deliveries and LTSC accrual for calendar year 2022.

TABLE 3.2

2022 CAGRD LONG-TERM STORAGE SUBACCOUNT

AMA	2021 Year End Balance	2022 LTSC Accrual Agreements	2022 Net LTSC Activities Storage/Recovery/ Replenishment	2022 Year End Balance
Phoenix	418,000	27,773	18,431	464,303
Pinal	346,989	2,003	-14,889	334,103
Tucson	147,995	9,500	-298	157,197
TOTAL	913,084	39,276	3,244	955,604

*All values rounded to the nearest AF. Totals may vary slightly from yearly component values. Non-rounded quantities available on <https://cagrd.com/operations/cagrd-reports-and-information/>.

Phoenix AMA

As discussed in the previous section subtitled, “2022 Long-Term Storage Credits Accrual Activities” a total of 27,773 LTSCs were accrued in the Phoenix AMA in 2022. These LTSCs were acquired through LTSC PSAs and attributed to CAGRD’s two water supply agreements with GRIC. An additional 18,431 LTSCs were accrued through annual water deliveries and storage at various Phoenix AMA USFs and GSFs. In total, the CAGRD accrued 46,204 LTSCs in the Phoenix AMA in 2022.

Tucson AMA

A total of 9,500 LTSCs were accrued by CAGRD in the Tucson AMA in 2022 via LTSC PSAs. Additionally, 748 LTSCs, were accrued through water storage at the Pima Mine Road USF. A transfer to CAGRD’s Conservation District Account (replenishment account) in the amount of 2,189 AF was completed to fulfill the outstanding replenishment obligations incurred in the Tucson AMA in 2021. In 2022, the net accrual in the Tucson AMA LTSC Sub-Account totaled 9,202 LTSC.

Pinal AMA

In 2022, CAGRD, pursuant to our Recovery and Exchange Agreement recovered 12,900 AF of Pinal AMA LTSCs on behalf of GRIC for tribal irrigation activities. The water CAGRD recovered was then exchanged on a 1:1 acre-foot basis for Indian priority water deliveries to several Phoenix AMA GSFs and 3,000 AF to Pima Mine Road USF in the Tucson AMA.

Additionally, CAGRD, pursuant to our GRIC NIA Lease (18,185 AF total), delivered 14,279 acre-feet to the Community-owned MAR-5 USF. ADWR calculations of cut-to-the-aquifer, evaporation losses and a split between the Phoenix and Pinal AMAs (due to the proximity of MAR-5 to the AMA boundary), resulted in CAGRD’s accrual of 2,003 LTSCs in the Pinal AMA and 11,003 LTSCs in the Phoenix AMA. Upon ADWR’s LTSC certification for the MAR-5 USF each following year, CAGRD and GRIC will complete a LTSC transfer on a 1:1 basis to reconcile the Phoenix and Pinal AMA LTSC accrual split.

In 2022, the reduction of 12,885 LTSCs in the Pinal AMA occurred because of the following activities: 1) recovery of 12,900 LTSCs pursuant to our Recovery & Exchange Agreement, 2) 1,989 LTSCs transferred to GRIC pursuant to the unique Phoenix/Pinal AMA LTSC accreditation ratio of NIA Lease water stored at MAR-5 in 2022 (GRIC transferred 1,989 Phoenix AMA LTSCs to CAGRD), and 3) 2,100 LTSCs transferred to GRIC for the under-recovery (12,900 AF recovered in 2022 vs. 15,000 AF as required per agreement) which resulted in 1,974 Phoenix AMA (after cut-to-the-aquifer applied) LTSCs transferred from GRIC to CAGRD to reconcile the recovery deficit.

4. Replenishment Reserve

The Replenishment Reserve consists of LTSCs that CAGRD accrues in a Replenishment Reserve Subaccount established for each AMA where CAGRD operates. The purpose of the Replenishment Reserve is to help ensure that CAGRD will be able to meet its replenishment obligation and to enhance rate stability. During periods of water supply shortage or infrastructure failure, CAGRD may use LTSCs from the Replenishment Reserve to offset its replenishment obligation rather than purchasing spot market water. Water purchased on the spot market is likely be more costly during shortage or outage conditions.

CAWCD LTSCs Dedicated for CAGRD Replenishment Reserve

The Board has dedicated LTSCs held by CAWCD for exclusive use by CAGRD to meet its legal requirements to establish and maintain the CAGRD Replenishment Reserve Subaccounts for each AMA or to meet its annual replenishment obligations. CAGRD purchased over 14,000 AF of CAWCD LTSC in 2022. Thus, approximately 510,776 AF of CAWCD LTSCs remain reserved for CAGRD purchase and use under CAWCD Board policy. These credits are primarily in the Pinal (311,386 AF) and Phoenix (198,829 AF) AMAs, with a small balance remaining in the Tucson AMA (561 AF).

CAGRD Replenishment Reserve Subaccount

CAGRD accrues LTSCs through a combination of storage in constructed Underground Storage Facilities (USFs), storage at Groundwater Savings Facilities (GSFs), purchases of pre-existing LTSCs, and LTSC transfers from MSAs who wish to offset the replenishment reserve component of their Replenishment Tax. Table 4 provides the Replenishment Reserve balance at the end of 2022, the number of credits accrued during 2022, and the resulting balance of LTSCs in the Replenishment Reserve at year-end, by AMA. Also shown is the percent of the Reserve Target goal achieved through the end of 2022. The volume of LTSCs to be accrued in the Replenishment Reserve is known as the "Reserve Target". A Reserve Target must be identified for each AMA based on that AMA's projected obligation and the water supplies planned to be used to meet that obligation as described in the Plan of Operation (refer to the 2015 Plan for additional explanation and calculation of the Reserve Target).

In 2022, CAGRD began the year with a balance of 297,051 AF in the Replenishment Reserve Subaccounts and accumulated an additional 15,185 AF through the year. CAWCD credits constituted all of the additions to the Replenishment Reserve in the Phoenix and Pinal AMAs while the Tucson AMA additions were from the CAGRD Long-Term Storage Account. These actions resulted in an overall increase of 3% towards achieving CAGRD's Replenishment Reserve target.

TABLE 4

Replenishment Reserve Balance and Target Achieved for 2022 (AF)

AMA	Replenishment Reserve Balance (12/31/21)	Replenishment Reserve Accruals During 2022	Replenishment Reserve Balance (12/31/22)	Reserve Target	% of Reserve Target Achieved (12/31/22)
Phoenix	250,385	13,849	264,234	603,866	44%
Pinal	5,783	290	6,073	48,036	13%
Tucson	40,883	1,046	41,929	112,600	37%
TOTAL	297,051	15,185	312,236	764,502	41%

5. Operational Efforts and Successes

The 2021 August 24-month study indicated shortage conditions on the Colorado River would deepen in 2022 and the Lower Basin States would operate in Tier 1 Shortage Conditions. As described in the Water Supply section above, CAGRD was well-prepared for potential reductions in water supply due to a strategy of working to firm existing supplies.

Shortage conditions also framed CAGRD/CAWCD becoming one of the cost-share partners in support of a feasibility study regarding raising Bartlett Dam to provide potential additional Verde River allocations. Regular updates on the feasibility study were provided to the CAGRD and Underground Storage Committee.

Work began in earnest on the CAGRD 2025 Plan of Operation, with presentations to the CAGRD Committee in August 2022 regarding the approach staff would be taking towards the plan, multiple focus groups with industry experts during the second half of the year and a briefing for stakeholders in November.

2022 saw many improvements to the CAGRD website to align the look and feel with www.cagrd-az.com and provided a home for a CAGRD [Membership Locator](#), allowing visitors to quickly determine if their home was in CAGRD and find information on water conservation and the importance of groundwater replenishment. The Membership Locator was updated to provide estimates of replenishment assessments and other tools to assist in budgeting and planning of households and organizations in CAGRD Member Lands.

Other efforts in improving CAGRD operations were found in policy updates that improved the clarity and readability of CAGRD's rate setting policies and a modification of the enrollment policy that would allow a partial refund for enrollees who are unable to obtain a Certificate of Assured Water Supply. This decision proved prescient in 2023 after groundwater model results were released by ADWR.

6. Conservation Activities

CAGRD's Conservation Program hit its stride in 2022, not only through its efforts as a Regional Campaign Steering Committee Partner with Water – Use It Wisely but also by developing independent messaging on the importance of water conservation and CAGRD's role in groundwater management. The 2006 Conservation Program policy was updated, incorporating recent stakeholder feedback and identifying the program's focus on reducing current replenishment obligation and limiting future replenishment obligation. This focus spurred the development of a Water Efficient Construction Incentive program that was launched in 2023.

7. Legislative Action

No state legislation directly impacted CAGRD or its operations. Bills regarding a ban on the prohibition on artificial grass and the expansion of authorities and funding for WIFA may influence conservation or water supply activities in the future.

8. Other Activity

Third-Party Marketing of LTSCs to ML Homeowners Associations

First described in the 2015 Annual Operations Report, third-party entities began marketing LTSCs to homeowners associations (HOAs) within CAGRD MLs in 2015 as an alternative to receiving excess groundwater and paying CAGRD assessments. The concept involves individual ML property owners, such as an HOA, obtaining a recovery permit for one of their water provider's wells, purchasing LTSCs from a third-party, and entering into an agreement whereby the water provider would recover the LTSCs on behalf of the property owner and "wheel" the recovered water in lieu of groundwater that would otherwise be delivered to the property. The LTSCs may be used to reduce or eliminate the property's replenishment obligation and thereby reduce the CAGRD assessment for that year.

In 2021, the total amount of credits wheeled and recovered within Member Land subdivisions, in order to reduce or eliminate a property's replenishment obligation, was 443 AF within the Phoenix AMA. No wheeled and recovered LTSCs were reported in the Pinal or Tucson AMAs.

Appendix I: 2022 ADWR Determination Letter

CAGRD received notification from ADWR on October 31, 2023 the 2022 CDAR has been reviewed. CAGRD was determined to be in compliance with its groundwater replenishment obligations as required by statute.

A copy of the letter is included on the following page.

KATIE M. HOBBS
Governor



THOMAS BUSCHATZKE
Director

ARIZONA DEPARTMENT of WATER RESOURCES
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October 31, 2023

Via email: lgrignano@cap-az.com

Ms. Laura Grignano, Manager
Central Arizona Groundwater Replenishment District
P.O. Box 43020
Phoenix, Arizona 85080-3020

Re: CAGRD Accounting Status 2022

Dear Ms. Grignano:

The Arizona Department of Water Resources (Department) has reviewed the Central Arizona Groundwater Replenishment District (CAGRD) 2022 Conservation District Annual Report, dated August 23, 2023. As prescribed by A.R.S. § 45-859.01(I), the Department determined in October of 2023 that the CAGRD completed the groundwater replenishment obligation, as specified in A.R.S. §48-3771, for each Active Management Area (AMA). This letter is to inform you of that determination.

If you have any questions regarding this determination, please feel free to contact Shannon Reif at (602) 771-8517 or by email at slreif@azwater.gov.

Sincerely,

David L McKay

David L McKay, Manager
Recharge, Assured and Adequate Supply Programs

cc via email: Tom Buschatzke, ADWR tbuschatzke@azwater.gov
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