CENTRAL ARIZONA GROUNDWATER
REPLENISHMENT DISTRICT

2019

MID-PLAN REVIEW

CAGRD
CENTRAL ARIZONA GROUNDWATER
REPLENISHMENT DISTRICT
A Division of Central Arizona Project

www.cagrd.com

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Executive Summary

The Central Arizona Groundwater Replenishment District (CAGRD), a special function of the Central Arizona Water Conservation District (CAWCD), was created in 1993 by the Arizona Legislature. CAGRD members are landowners and water providers in Maricopa, Pima and Pinal counties without sufficient access to renewable water supplies. CAGRD serves its members by replenishing the groundwater they pump, providing a way to comply with Arizona's Assured Water Supply Rules.

Pursuant to Arizona Law, every 10 years, CAGRD must submit a Plan of Operation (Plan) to the Director of the Arizona Department of Water Resources (ADWR) for review and approval. The ADWR Director must determine whether the Plan is consistent with achieving the management goals of the Phoenix, Pinal and Tucson Active Management Areas (AMAs). Among other requirements, the Plan must demonstrate that CAGRD has: 1) made reasonable estimates of its projected replenishment obligations for 100 years; 2) identified sufficient water supplies for current and potential members; 3) developed a replenishment reserve and target; and 4) identified sufficient storage capacity to be used for replenishment.

On August 5, 2015, the ADWR Director found the 2015 Plan to be consistent with achieving the management goals of all three AMAs. At the time of its submittal, the CAWCD Board of Directors committed to the development of a mid-Plan review that would provide a comprehensive look at the mid-term trends in CAGRD operations, as well as an indication of where the trends may lead over the remainder of the 2015 Plan. This document serves as the Mid-Plan Review of the 2015 Plan. It compares projections of member enrollment and replenishment obligation made in the 2015 Plan to actuals, provides a current assessment of supplies and storage facilities available to CAGRD to meet those obligations, and gives an update on CAGRD's financial capability to meet its statutory responsibilities.

The 2015 Plan projected that by 2024, approximately 119,000 new Member Land (ML) housing units would be added to the existing 263,700 enrolled units, bringing the total to 382,700 enrolled ML units. But halfway through the planning period, less than 20% of the projected new enrollment has occurred, with total enrollment nearing 286,000 ML units. Projecting CAGRD's future replenishment obligations for the 2015 Plan involved a number of assumptions about future population growth in the tri-county service area, the location of that growth (inside or outside areas reliant on CAGRD) and the reliance of enrolled members on CAGRD to offset their excess groundwater pumping. CAGRD developed the 2015 Plan in 2013 and 2014, shortly after the end of the Great Recession when there was still a significant amount of uncertainty surrounding the timing and pace of the housing market return. Since the 2015 Plan was approved, growth has steadily returned, but at a lower rate than the official projections used in the planning assumptions. CAGRD still has a large backlog of enrolled but unconstructed lots, though recent development has been working through some of that stock. Still, enrollment continues to be lower than projected in the 2015 Plan, which in turn, contributes to less obligation both now and moving into the second half of the 2015 Plan period.

Lower enrollment has and will continue to result in lower than anticipated future replenishment obligations for CAGRD. The 2015 Plan included a 2020 projection of annual obligation by CAGRD members of 44,800 acre-feet (AF), increasing to 86,900 AF by 2034. The actual 2018 annual obligation was less than 29,000 AF, significantly lower than 2015 Plan estimates. Additional factors identified as likely contributors to lower than projected obligation include members'

temporary avoidance of reporting excess groundwater by using groundwater allowances, long-term storage credits (LTSCs) and/or extinguishment credits and the continued groundwater availability constraints in the Pinal AMA, which limit new enrollment and associated obligation. However, CAGRD remains on track to meet its current replenishment obligations well within the three-year statutory timeframe in which it must complete its obligations.

Historically, CAGRD has relied heavily on excess CAP water to meet the replenishment obligations of its members. In the 2005 Plan of Operation, CAGRD began to plan for a future in which it could no longer continue to rely solely on Excess CAP water to meet its obligations. The CAGRD Water Supply Acquisition Program was established by the CAWCD Board action in 2012 with the goal of acquiring a diverse portfolio of water supplies through voluntary, market-based transactions with willing entities. In the 2015 Plan, CAGRD identified a number of supplies, including CAP water, effluent, Colorado River water, LTSCs and imported groundwater, that it planned to use in the next 20 years, as well as potentially available supplies in the subsequent 80 years. The ADWR Director found these supply estimates sufficiently reasonable to meet the projected needs of current and future members.

Since the 2015 Plan was approved, CAGRD has added additional supplies to its portfolio, including an acquisition of 33,185 AF per year for 25 years (through a combination of lease and exchange) from the Gila River Indian Community, and is well positioned to meet its replenishment obligations, as well as its replenishment reserve target, for the remainder of the 2015 Plan period. CAGRD continues to plan for the potential risks that deep, prolonged shortages and increased future replenishment obligations could pose to current available supplies by focusing on firming existing supplies to increase resiliency and acquiring additional supplies to meet future obligations based on enrollment trends. On-river opposition to Colorado River mainstem transfers and the increasing cost of available water supplies may also have an impact on future CAGRD acquisition activities.

Although there have been minor changes in storage capacity available to CAGRD since the 2015 Plan was approved, there remains sufficient capacity to meet CAGRD's replenishment obligation through 2034. CAGRD has access to CAWCD-owned underground storage facilities (USFs) in the Phoenix and Tucson AMAs and has permits and/or water storage agreements with seven groundwater savings facilities (GSFs) across all three AMAs. Since the development of the 2015 Plan, CAGRD has obtained additional water storage permits to store effluent at Liberty Utilities USF and CAP water at the Gila River Indian Community's Olberg Dam USF.

CAGRD has a great deal of financial flexibility as economic and operational conditions change. The financial mechanisms in place have ensured CAGRD's ability to meet its statutory obligations using funds collected exclusively from its members, and will continue to do so through the remaining 2015 Plan period and beyond. For example, in 2013, CAGRD made a significant change in how it collected revenues by collecting earlier in the membership timeline. This adjustment spread costs out more equitably through time and amongst members, and moved some of the costs from the homeowner to the developer/homebuilder. In the remaining 2015 Plan period, CAGRD will continue to evaluate alternative rate structures that are equitable and based on members' reliance on CAGRD. Rates will continue to be established to ensure CAGRD's financial ability to achieve its responsibilities.

1.0
Introduction

CAGRD is required by law to submit a Plan of Operation for approval by the Director of the Arizona Department of Water Resources (ADWR) every 10 years. The current CAGRD Plan of Operation (2015 Plan), covering the period from 2015 through 2024, was submitted to the ADWR Director on Dec. 29, 2014, after being developed from April 2013 through December 2014.

The development process included numerous Central Arizona Water Conservation District (CAWCD) Board and Committee meetings, stakeholder working group meetings and workshops. After ADWR review, public review and public hearings, the ADWR Director determined on Aug. 5, 2015 that the 2015 Plan, as submitted, was consistent with achieving the management goals of the Phoenix, Pinal and Tucson Active Management Areas (AMAs). The 2015 Plan describes the activities CAGRD proposes to undertake in the Phoenix, Pinal and Tucson AMAs over the next 100 years to meet its replenishment obligations for existing and new members enrolled during the 2015 Plan period.

In addition to its mandatory annual reporting to ADWR, the CAWCD Board committed to enhanced annual reporting and directed staff to develop a Mid-Plan Review halfway through the 2015 Plan period. This Mid-Plan Review provides a comprehensive view of the mid-term trends in CAGRD operations under the 2015 Plan and provides indications of where these trends may lead CAGRD over the remaining years of the 2015 Plan.

In the year leading up to publication of this Mid-Plan Review, CAP staff gave presentations to the CAGRD and Underground Storage Committee (Committee) describing the major findings from the report. The briefings were on CAGRD activities and trends related to Enrollment, Obligation, Water Supplies, Replenishment Reserve, Storage Opportunities, and Financial Capability. Additionally, staff presented quarterly updates on enrollment and activation activity. Through this venue, the Committee and public were given an opportunity to ask questions or give feedback as the report was being drafted. This Mid-Plan Review addresses each of these same topics as individual chapters and provides additional detail on each.

2.0
Enrollment and Obligation

Becoming a CAGRD Member is a voluntary, multi-step process that brings with it a number of benefits, as well as responsibilities. In turn, the characteristics of existing Members, along with the rate and type of new memberships brings significant responsibilities to CAGRD itself. This section describes the CAGRD enrollment and obligation activity since 2015 and how this compares to the projections made in the 2015 Plan.

2.1 Enrollment and De-enrollment Since 2015

Since 2015, the majority of new Member Land (ML) enrollment occurred in the Phoenix AMA (see **Figure 2.1.1**). A total of 21,748 lots enrolled in the Phoenix AMA from 2015 through 2019 YTD, with 58 percent in the West Valley (12,429 lots) and 42 percent in the East Valley (9,319 lots). The new enrollment brought with it a total projected demand of 13,775 AF per year (AF/yr) at full buildout. The Tucson AMA added very little new membership (102 lots) in the same period, with a projected demand of just 79 AF/yr. Only one new ML subdivision enrolled in the Pinal AMA, in 2018, with 151 lots and a projected demand of 64 AF/yr at buildout. Prior to this, there had been no ML enrollment from the Pinal AMA since 2011. Although recent annual ML enrollment increased markedly in 2018 and 2019, it is still far below the peak enrollment years before the Great Recession. See **Figure 2.1.1** full enrollment history inset.

In 2016, one new Member Service Area (MSA) enrolled, in the Pinal AMA. Known as Southwest Environmental Utilities, L.L.C., the MSA has an estimated projected demand of 1,973 AF/yr, though its Designation of Assured Water Supply (Designation) is still pending from ADWR. The MSA remains "inactive" in the CAGRD until the Designation is approved.

Enrolling in CAGRD

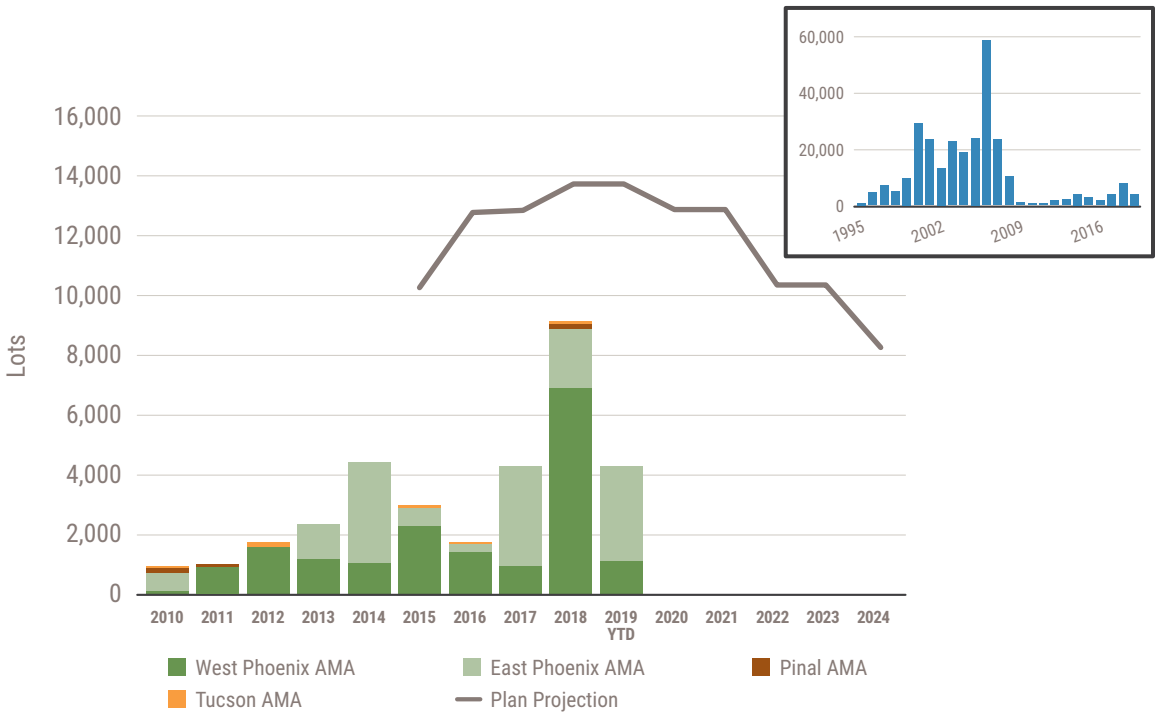
Any water provider or subdivision located in the Phoenix, Pinal or Tucson Active Management Area may voluntarily join CAGRD, so long as it meets the State's requirements, including access to a 100-year physical supply of groundwater.

- A Member Land (ML) is an individual subdivision. An annual replenishment assessment is collected by the county treasurer from each individual parcel based on the amount of "excess groundwater" delivered to that parcel. Enrollment includes an irrevocable declaration of covenants, conditions and restrictions on the land, and an agreement between the water provider and the CAGRD.
- A Member Service Area (MSA) is the water service area of a city, town or private water company. MSAs pay a replenishment assessment directly to CAGRD according to the amount of excess groundwater delivered within their service areas.

On April 9, 2015, House Bill 2325 was signed into law allowing CAGRD MLs to voluntarily de-enroll, subject to all of the following conditions: 1) the land cannot have been sold or leased to a retail purchaser or lessee; 2) no public report for the property has been issued; 3) if the lot or parcel boundaries have been recorded, the planning agency (e.g. county) has vacated them; 4) a declaration with the county has been recorded specifying that the property's CC&Rs have been revoked; 5) the agreement between CAGRD and the municipal provider has been revoked; and 6) if a Certificate of Assured Water Supply has been issued for the property, ADWR has revoked the Certificate.

CAGRD experienced its first de-enrollment activity in 2016, when two Phoenix AMA ML subdivisions representing 57 lots de-enrolled. In 2017, 20 Phoenix AMA ML subdivisions representing 646 lots de-enrolled, though portions of these areas were subsequently re-platted and re-enrolled. In 2018, five subdivisions representing 188 lots de-enrolled.

ML ENROLLMENT, AND 2015 PLAN PROJECTION **FIGURE 2.1.1**



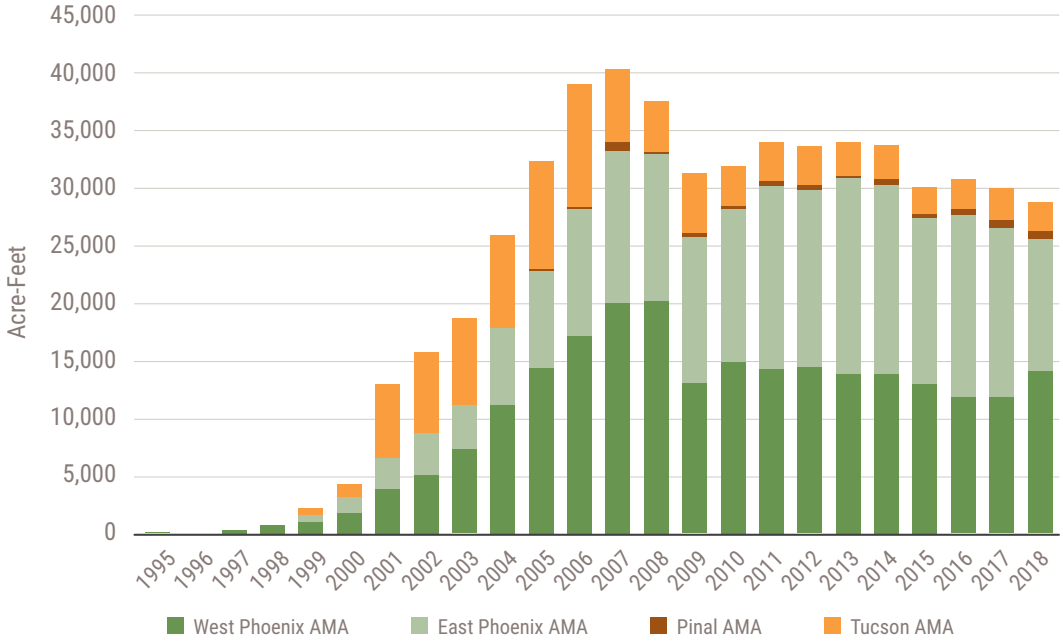
2.2 Replenishment obligation since 2015

As shown in **Figure 2.2.1**, CAGRD's replenishment obligation rapidly increased through the early 2000s, but has remained under 35,000 acre-feet (AF) for more than a decade. The obligation has been concentrated in the Phoenix AMA, and essentially equally divided between the East and West Valley. The lower than anticipated obligation is a result of a number factors, discussed below, and differs from both current and previous CAGRD Plan projections, as well as common perceptions of the level of reliance on CAGRD for groundwater replenishment.

By statute, CAGRD has three years to complete the replenishment of reported use of excess groundwater. **Figure 2.2.2** shows the annual obligation incurred and the annual replenishment activity to satisfy that obligation. For example, the 2016 obligation was 30,992 AF. To satisfy that obligation, 4,884 AF was stored in 2016, 25,563 AF was stored in 2017, and the final 475 was stored in 2018. The figure also shows that a portion of the obligation incurred in 2017 and 2018 is yet to be satisfied. This remaining obligation will be satisfied in 2019.

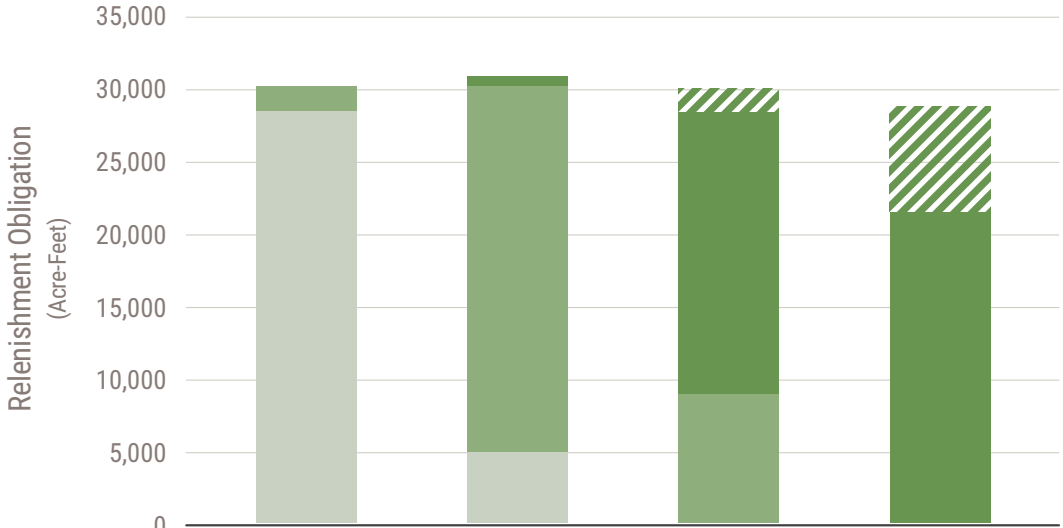
ANNUAL REPLENISHMENT OBLIGATION BY AMA

FIGURE 2.2.1



ANNUAL REPLENISHMENT OBLIGATION BY YEAR OF SATISFACTION

FIGURE 2.2.2

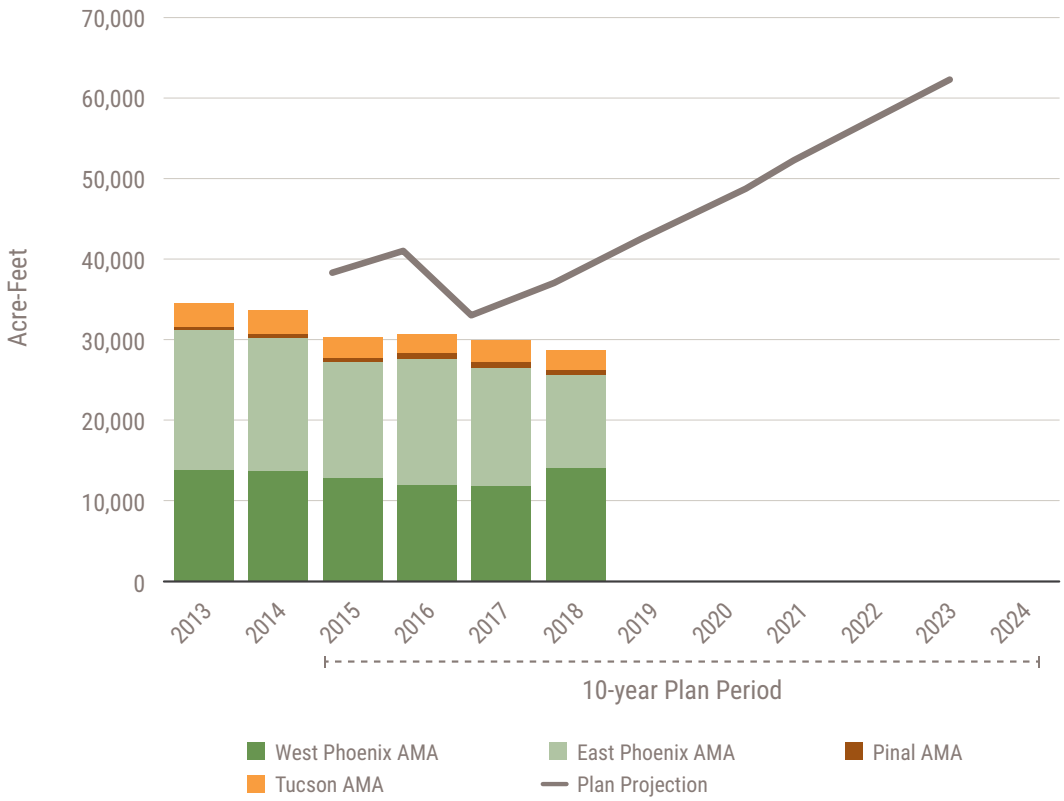


	2015	2016	2017	2018
Remaining	0	0	1,441	7,336
2018	0	475	19,717	21,591
2017	1,713	25,563	9,010	–
2016	28,589	4,884	–	–

2.3 Comparison to 2015 plan projections

As a part of the 2015 Plan, State statute requires CAGRD to develop a single long-range projection of replenishment obligation for current members and those anticipated to be enrolled during the 10-year Plan period (2015 – 2024). This is a complex task that takes into account the best data available. **Figure 2.3** shows the 10-year projection of obligation along with the actual annual obligation by AMA, midway through the 2015 Plan period.

ANNUAL REPLENISHMENT OBLIGATION, AND 2015 PLAN PROJECTION **FIGURE 2.3**



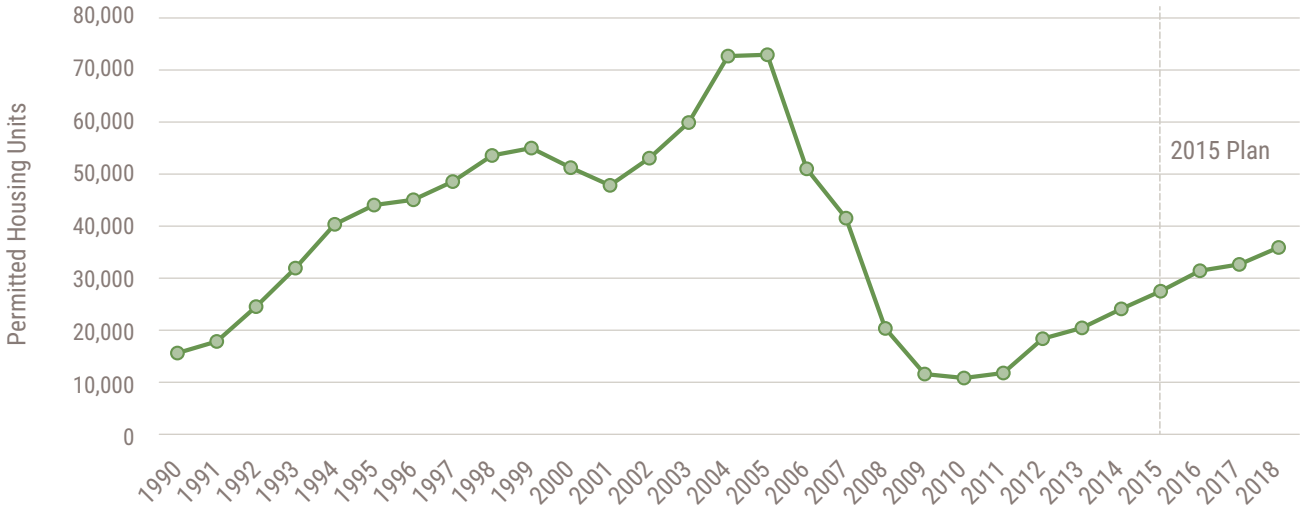
To account for the interplay of water supplies, demands and the regulatory system within the Phoenix, Pinal and Tucson AMAs, CAP staff developed a computer model for the CAP service area known as CAP:SAM. The model makes individualized projections for more than 100 water providers, irrigation districts, tribes and others, and tracks 16 legal and physical water types. The CAP:SAM model is capable of simulating a wide range of future conditions, but to facilitate ADWR's regulatory approval, and to avoid the impression that future obligation was being underestimated, many of the assumptions used for the 2015 Plan were intentionally conservative.

The subsections below address each of the factors that affected the difference between the projections of enrollment and obligation in the 2015 Plan, as well as the actual activity, beginning with the most significant factor.

2.3.1 Rate of growth

The single largest factor affecting CAGRD's future enrollment and obligation is the rate of population and housing growth. The annual number of housing permits in **Figure 2.3.1** shows the dramatic rise and subsequent collapse from the Great Recession. CAGRD developed the 2015 Plan projections in 2013 and 2014 when there was still a significant amount of uncertainty following the Great Recession surrounding the timing and magnitude of future housing activity.

ANNUAL HOUSING PERMITS IN MARICOPA, PINAL AND PIMA COUNTIES **FIGURE 2.3.1**



The Arizona Department of Administration (ADOA) develops official projections of population and housing units (low/mid/high series) by county that are in wide use for regional planning. The mid-series projections were used for the 2015 Plan, calibrated to the decennial census. Since the time the 2015 Plan was approved, growth has steadily returned, but at a lower rate than the official projections. As **Figures 2.3.2** and **2.3.3** indicate, these official projections have been revised downward twice since the 2015 Plan was developed.

OFFICIAL ADOA PROJECTIONS OF TOTAL POPULATION

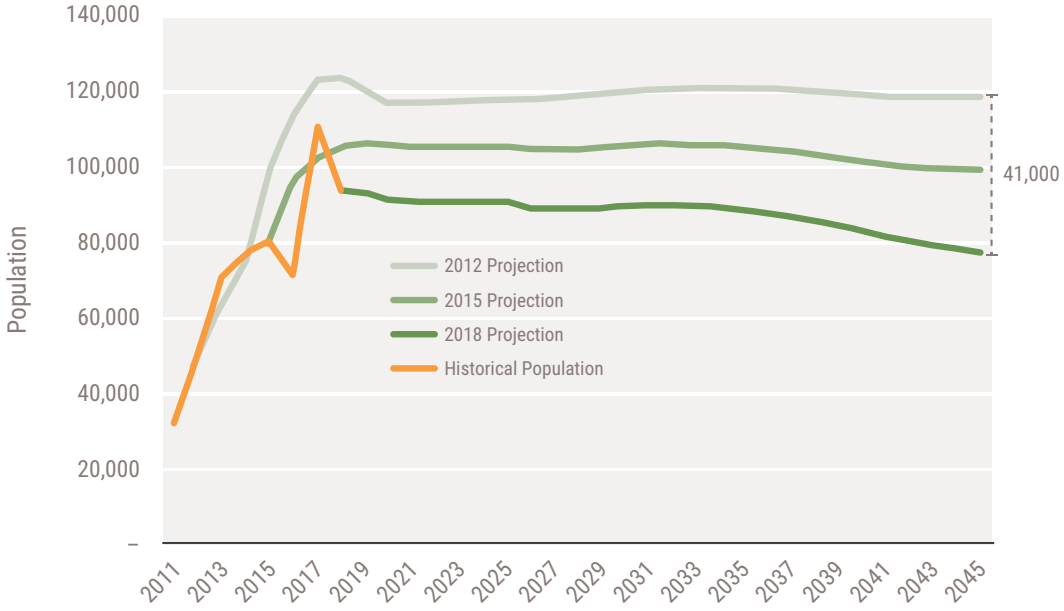
"Mid Series"; Maricopa, Pinal and Pima Counties

FIGURE 2.3.2

OFFICIAL ADOA PROJECTIONS OF ANNUAL POPULATION

"Mid Series"; Maricopa, Pinal and Pima Counties

FIGURE 2.3.3

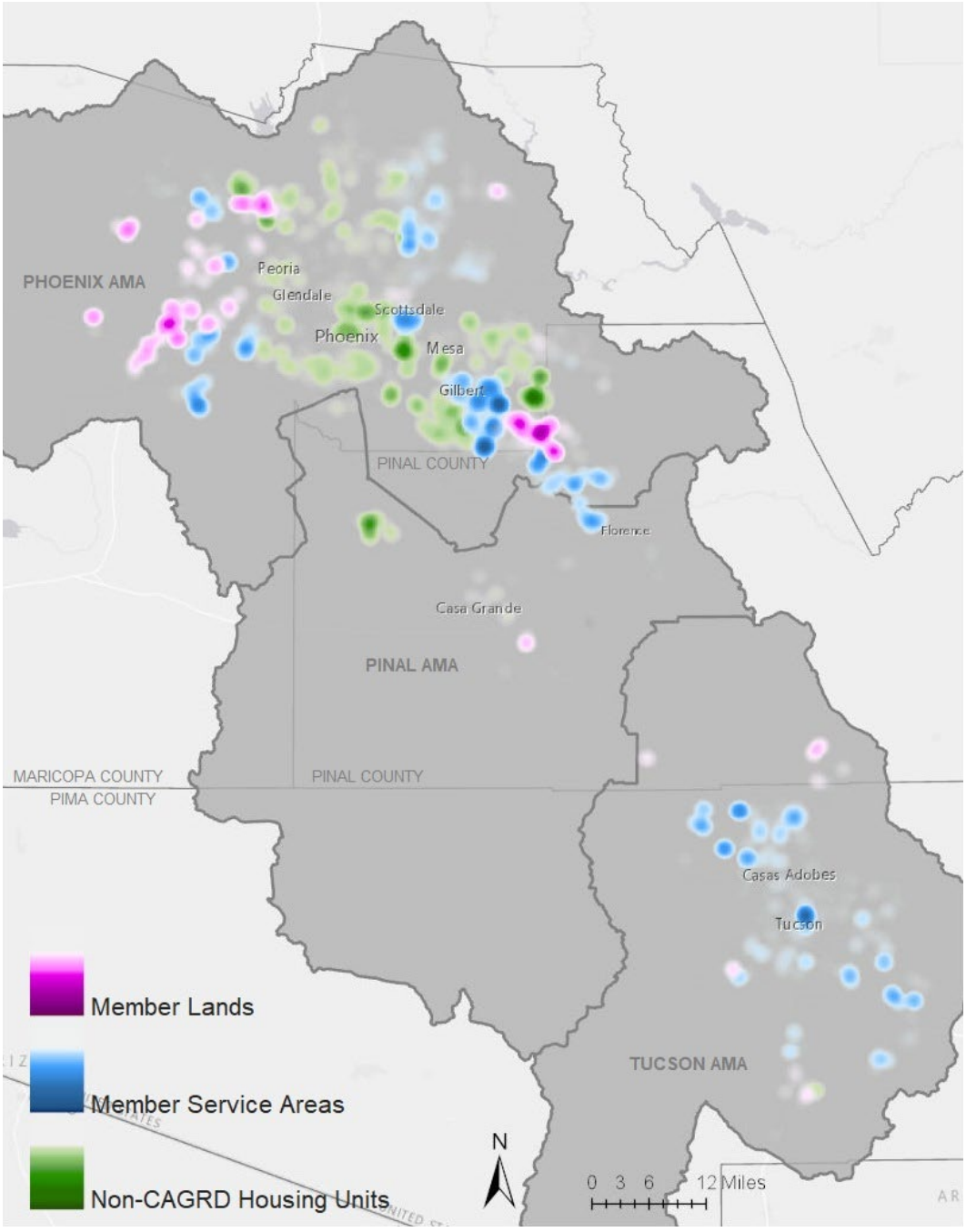


2.3.2 Location of growth

The location of growth was one of the more complex but important aspects of the analysis required in the development of the 2015 Plan. Where a new housing unit is constructed has large implications for the CAGRD, in terms of whether it will be served by a provider designated without CAGRD, an undesignated provider serving it as part of an ML, or a current or future MSA.

DENSITY OF HOUSING UNITS CONSTRUCTED SINCE 2015, BY RELATIONSHIP TO CAGRD

FIGURE 2.3.4

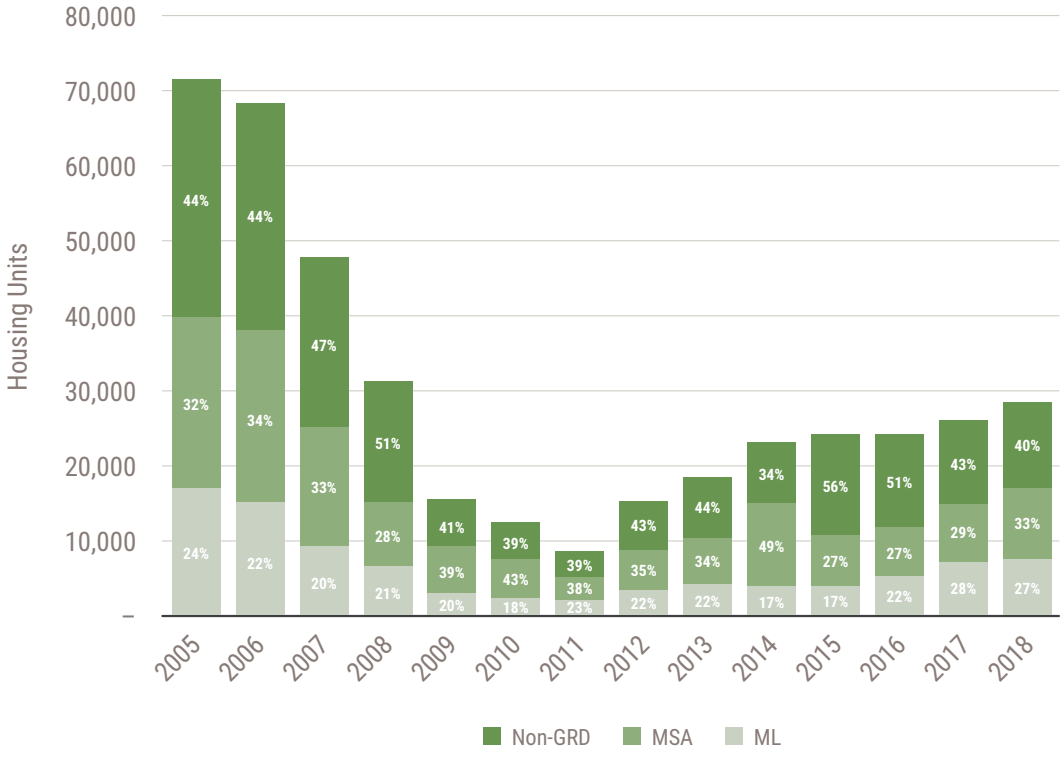


As part of their transportation and regional planning roles, the local Associations of Governments (Maricopa Association of Governments and Pima Association of Governments) develop officially-vetted spatial projections, taking into consideration factors such as zoning, proximity to existing infrastructure, and planned development projects. In general, the models used to generate these patterns of growth show a gradual outward expansion of the urban area. The models are also tied to the State's official growth rates by county.

The spatial models are tied to the official rates of growth, but when growth is slower than projected, it also forestalls some of the expansion into the outer areas. As a result, the slower growth compounds the over-projection of housing units in the exurban areas, where CAGRD members, particularly MLs, are concentrated.

The map of the service area's recent growth (**Figure 2.3.4**) shows there has been a mixture of housing activity, including a significant amount of urban infill, along with more traditional suburban growth and the beginnings of true outward expansion. Through time, that outward expansion is expected to play a larger role in development patterns as available land is constrained and housing is less affordable in the urban core. That trend is reflected in the housing construction data in **Figure 2.3.5**, with the uptick in the percent of ML homes in the last few years.

HOUSING CONSTRUCTION, BY RELATIONSHIP TO CAGRD **FIGURE 2.3.5**



Housing Market Focus

CAGRD monitors greater economic and housing trends to understand how enrollment and replenishment obligations might progress over time. The Homebuilders Association of Central Arizona, in partnership with Elliott D. Pollack & Company, provides periodic overviews on the Arizona economic outlook and housing market. CAGRD also received housing and population projections from the Economic and Business Research Center at the University of Arizona. The following update is based on information received from representatives from both the Homebuilders Association of Central Arizona and the University of Arizona as of May 2019.

ECONOMIC OUTLOOK

The two biggest indicators of Arizona's housing demand are job growth and population migration. Arizona was 6th in 2018 and 5th in 2017 for job growth. The greater Phoenix area is ranked 4th in the top 10 growing metro areas by percentage job growth. Population growth in Phoenix has been 1.4% annually from 2009-2018. Projections show an estimated 1.8% growth in 2020 and 1.7% in 2025. The housing model used at the Economic and Business Research Center predicts that Arizona's population growth will stabilize around 100,000 new residents per year which equates to about 43,000 net new housing permits (assuming 2.5 persons per new housing permit). This is well below the pre-recession peak, but not particularly low. Pre-recession era growth was closer to 3% and crashed during the housing bubble collapse. The rate of growth over the next 10 to 20 years is expected to be lower than what Arizona has experienced historically, indicating that economic recovery and demand for housing is recovering but also lower than expected.

HOUSING MARKET TRENDS

The greater Phoenix area homebuilding market has been strengthening in recent years, but faces some significant supply and demand constraints. On the supply side, the cost of buildable lots and construction costs are increasing. Limited labor supply is also causing longer build times. On the demand side, housing purchases are sensitive to rising mortgage interest rates.

Despite these constraints, pent up demand for housing has led to a strong single family housing market. This is especially true in the entry-level housing sector that the millennial generation, ages 23-38, is entering. Indeed, the millennial generation is expected to drive Arizona housing demand in the next 10 years.

The millennial homebuyer often earns in the 60-120% of median household income and aims to purchase an affordable entry-level home that is 20-30% of their income. This translates to strong demand for houses priced at $180,000 on the low-end and $280,000- $380,000 on the higher-end. These houses can vary from 1,500 square feet to 2,800 square feet and tend to sell quickly. Thus, Arizona homebuilders have seen that demand is high for correctly priced housing.

There may be some affordability issues as interest rates increase, but even combined with the supply- and demand-side constraints, the five-year outlook is positive. Housing permits in Central Arizona have steadily increased year-over-year since 2015 from approximately 15,000 permits to approximately 22,400 in 2018.

Source: Kamps, Spencer. "Current Trends in Home Building." CAGRD and Underground Storage Committee, 16 May 2019, Central Arizona Project, Phoenix, AZ. Guest Presentation, and; Hammond, George. "Arizona's Economy: Still Strong After All These Years." CAGRD and Underground Storage Committee, 20 June 2019, Central Arizona Project, Phoenix, AZ. Guest Presentation.

2.3.3 Reallocation of CAP NIA priority water

In January 2014, ADWR issued its "Recommendation for Reallocation of Non-Indian Agricultural Priority Central Arizona Project Water" pursuant to Section 104(a)(2)(C)(i)(III) of the Arizona Water Settlements Act of 2004. The 2015 Plan included an assumption that the Bureau of Reclamation (BOR) would approve ADWR's recommended reallocation, and that the recipients could use the supply beginning in 2017. The recommendation includes several water providers who serve CAGRD MLs. As such, the availability of an alternative supply to groundwater would have lowered their CAGRD obligation in 2017 and beyond. The magnitude of reduction to obligation depends on supply and demand factors unique to each provider, but the NIA reallocation was projected to reduce the 2017 total annual obligation by approximately 8,000 acre-feet.

The NIA reallocation has not yet been finalized, so the lowering effect on obligation has not occurred. However, when it does occur the initial impact is likely to be less pronounced than projected because of the other factors that have resulted in a lower overall demand.

2.3.4 Change in excess groundwater reporting

MSAs and water providers serving MLs have some discretion regarding the amount of Excess Groundwater they report, particularly for MSAs and MLs that joined CAGRD prior to Jan. 1, 2004. Up until 2015, pre-2004 CAGRD members had minimum Excess Groundwater reporting requirements that for most members ramped up to two-thirds of the total groundwater delivered. Beginning in 2015, the minimum reporting requirement for pre-2004 members became zero.

When developing the 2015 Plan, the CAP:SAM modeling assumed that pre-2004 members would be conservative in their use of the Groundwater Allowances by continuing to report at least two-thirds of their groundwater use as Excess Groundwater. While some providers did continue to report the two-thirds or greater, many ML water providers reported zero or very little Excess Groundwater and relied heavily on the ML Groundwater Allowances instead. The impact on reported CAGRD annual obligation was as follows:

2015	2016	2017	2018
4,655	5,376	7,354	9,551

In other words, in 2018, the obligation reported to CAGRD would have been 9,551 AF greater if water providers continued to report the two-thirds for pre-2004 subdivisions. With recent total CAGRD obligation hovering around 30,000 AF/yr, this represents a significant portion of the difference between the projected and actual obligation.

In general, this reporting strategy accelerates the point in time when a ML's Groundwater Allowance will run out and therefore, any reduction in reported obligation may be temporary. However, some providers, like the Town of Queen Creek, have begun acquiring Extinguishment Credits and Effluent Credits to use in lieu of Excess Groundwater, enabling their ML customers to avoid paying CAGRD assessments even after the Groundwater Allowances are exhausted. In the case of Queen Creek, the Town has made public its long-term plans to obtain a Designation of Assured Water Supply with its own supplies, eliminating future reliance on CAGRD.

2.3.5 New versus existing members

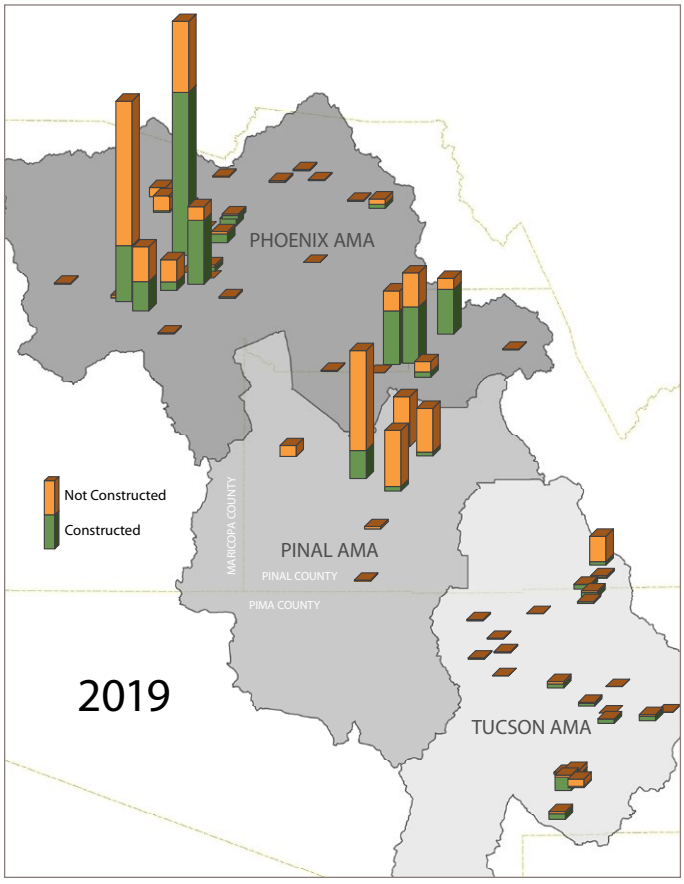
During the 2015 Plan development, it was necessary to make assumptions about how much of the projected ML construction during the 2015 Plan period would occur within MLs that had already enrolled but were not yet built out, versus those that would newly enroll.

The CAP:SAM model addressed this by using ratios of construction by enrollment period that account for the time delays between enrollment and construction. Those ratios change through time. Initially, most of the construction is associated with previously enrolled lots. The proportion attributed to the new members increases through the 10-year Plan period and then the proportion attributed to the current Plan tapers off over several decades.

The premise behind these ratios has tracked relatively well with activity since 2015. As anticipated, most ML construction has occurred in previously enrolled subdivisions rather than within new members enrolled under the 2015 Plan. However, since overall growth has been less than projected, the transition to higher rates of new enrollment and construction on new MLs has been delayed. The delay in transition contributes to the large overestimate of enrollment in the first half of the 2015 Plan and means there is still a large inventory of enrolled, but unconstructed, ML lots. **Figure 2.3.6** shows constructed vs. unconstructed ML lots by geographic area. Predominately located in the Pinal AMA and the West Valley of the Phoenix AMA, unconstructed lots total approximately 140,000 through 2019.

CONSTRUCTED VS. UNCONSTRUCTED ML LOTS, BY WATER PROVIDER

FIGURE 2.3.6

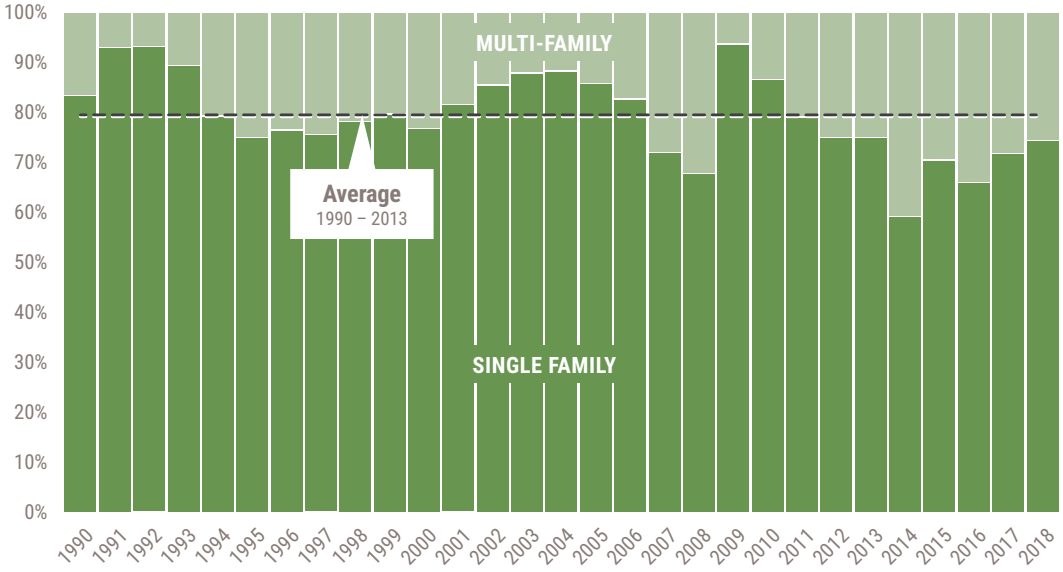


2.3.6 Single versus multi-family housing

The composition of housing stock also influences the ultimate water demand and potential reliance on CAGRD. For the period of time covered by the 2015 Plan, CAGRD assumed recent single-family trends would be consistent with long-term averages. However, since 2015 there was a higher ratio of multi-family to single-family homes as urban redevelopment efforts have intensified and housing affordability has affected the market (see **Figure 2.4.7**). Most of that multi-family construction has occurred in areas served by water providers with no relationship to CAGRD or in CAGRD MSAs with limited reliance on CAGRD replenishment. However, in areas with CAGRD reliance, an increase in the proportion of multi-family housing will generally result in lower average water use, accelerating the observed declines in usage.

PERCENTAGE OF SINGLE FAMILY AND MULTI-FAMILY RESIDENTIAL HOUSING UNITS – MARICOPA, PINAL & PIMA COUNTIES

FIGURE 2.4.7



Source: Census C-40 data, accessed through UofA Economic and Business Research Center

2.3.7 Conversion of member lands to member service areas

In the CAP:SAM modeling work, CAGRD made an assumption that the City of Buckeye would receive its Designation of Assured Water Supply (Designation) from ADWR and become a CAGRD MSA in 2015. That would mean that all the ML and pre-1995 subdivisions in its service area would become part of the new MSA. That conversion in membership would have the effect of increasing reliance on CAGRD over the 10-year Plan period by about 1,270 AF/yr. Since its Designation process is still underway, CAGRD's obligation is reduced, compared to projections, until the Designation is issued and the City transitions to an MSA.

2.3.8 Pinal AMA groundwater availability

The 2015 Plan projection included additional obligation in the Pinal AMA related to new growth and development that was anticipated in the region. But there are ongoing difficulties with satisfying the Assured Water Supply demonstration of physical availability of groundwater in the AMA, which has delayed the issuance of Analyses and Certificates of Assured Water Supply. This has the effect of halting CAGRD enrollment in the AMA and it will continue to reduce obligation in the Pinal AMA, at least temporarily.

2.3.9 Wheeling & recovery of LTSCs by ML HOAs

In 2015, third-party entities began marketing Long-Term Storage Credits (LTSCs) to homeowners associations (HOAs) within CAGRD MLs as an alternative to paying CAGRD assessments. The practice involves individual ML property owners, such as an HOA: 1) obtaining a recovery well permit from ADWR for one of the ML water provider's wells; 2) purchasing LTSCs from a third-party; and, 3) entering into an agreement whereby the water provider would recover the LTSCs on behalf of the property owner and "wheel" the recovered water in place of groundwater that would otherwise be delivered to the property. The recovered LTSCs would be used to reduce or eliminate the property's replenishment obligation and thereby reduce the assessment for that year. To date, though, this practice has occurred in only a few MLs, resulting in a relatively small reduction in CAGRD obligation (about 580 AF/yr in 2017 and 2018).

2.4 Enrollment and obligation summary

Growth in the service area has steadily returned in the past five years, but at a lower than projected rate. New ML enrollment has surpassed 22,000 lots in that time, far less than the 63,600 lots projected to enroll from 2015 through 2019. And low enrollment relative to the 2015 Plan projection, combined with factors like the change in excess groundwater reporting requirements, or MLs' use of alternative supplies, has and will continue to result in much lower replenishment obligation. The actual annual replenishment obligation has stayed well below 35,000 AF for the past decade, even before the start of the 2015 Plan period. Despite the challenges associated with projecting future obligations, CAGRD remains on track to satisfy its current replenishment obligations well within the three-year statutory timeframe in which it must complete its obligations.

BOTTOM LINE

Since 2015, CAGRD enrollment and obligation are lower than the 2015 Plan projections. This is a result of a set of factors including lower than projected growth, differences in the type and location of growth, and changes in member reporting practices. While some of these reductions are temporary, lower enrollment will reduce the overall obligation for CAGRD during the remainder of the 2015 Plan.

3.0
Water Supplies

The 2015 Plan included a description of the CAGRD Water Supply portfolio and listed water supplies available to "the conservation district for groundwater replenishment purposes" during "the 20 calendar years following submission of the plan" and "during the subsequent 80 calendar years." In 2015 CAGRD had sufficient water supplies within its portfolio to meet current obligations, but because some of those supplies were still awaiting final authorization for use, Excess CAP Water remained an important component of the water supply used for replenishment. This section describes how CAGRD has completed additional water supply acquisitions since the 2015 Plan was developed to reduce reliance on Excess CAP Water and includes a brief discussion of the need to acquire additional supplies in the future.

3.1 Current water supply portfolio

At the time the 2015 Plan was developed and approved, CAGRD had a water supply portfolio of 31,081 AF/yr of long-term supplies, plus access to approximately 545,000 LTSCs that could be represented as an annual supply of 5,450 AF/yr for 100 years. The approximate 36,000 AF annual supply was more than sufficient to meet the annual replenishment obligation in 2015 of 30,400 AF/yr. However, more than half of that supply (18,185 AF of NIA Priority CAP water through the 2014 reallocation and 2,500 AF of NIA water leased from the White Mountain Apache Tribe (WMAT)), which was anticipated to be available for use by 2017, has not yet been made available to CAGRD as it is awaiting final approval from BOR. This has meant that during much of the 2015 Plan period, the available long-term supplies were less than obligations and CAGRD remained reliant on Excess Water.

Between 2015 and 2019, CAGRD acquired additional water supplies that will reduce reliance on Excess Water during normal water supply years beginning in 2020. During those years CAGRD acquired 700,000 AF of LTSCs in the three AMA CAP service areas. CAGRD also completed an agreement with the Gila River Indian Community in early 2019 that will provide CAGRD with 15,000 AF/yr. of Indian Priority CAP water and 18,185 AF/yr. of NIA Priority CAP water for 25 years as part of a combined water exchange and lease agreement. This agreement is described in more detail below.

The recently completed Drought Contingency Plan (DCP) does present added challenges to CAGRD operations through its implementation of deeper mandatory CAP water delivery cuts at specified elevations of Lake Mead. The initial drought reductions (Tier 0) have resulted in the loss of Excess CAP water for 2020. Future reductions at lower elevations of Lake Mead will result in reduced delivery of NIA Priority CAP water, which makes up a large portion of the CAGRD water supply portfolio. The NIA water leased from GRIC is expected to be available in 2020 and 2021, but could be reduced by shortage in subsequent years. Much of this water, however, will be mitigated through agreements under Arizona's implementation of DCP. The WMAT leased water will become available after final implementation of the WMAT settlement agreement and the reallocated NIA water will be available after the Department of Interior publishes its final recommendation in the Federal Register. There is no firm date for completion of either of those actions.

As a result of the water supply acquisitions completed in the past five years, CAGRD's water supply portfolio now totals more than 52,000 AF/yr without the NIA supplies awaiting authorization and nearly 73,000 AF/yr if those supplies become available (Table 3.1). At the same time, CAGRD replenishment obligations have trended less than projected in the 2015 Plan (see Section 2.4). Of those totals, 33,185 AF/yr is available until 2044 under the terms of the lease/exchange agreements with GRIC. The remaining supplies are either permanent or available for 100 years (or annualized over 100 years in the case of LTSCs).

Overall, the water supply outlook for CAGRD is optimistic for the remainder of the 2015 Plan period. There are, however, issues that CAGRD will continue to closely monitor, such as: the impact of deep, prolonged shortages on NIA priority CAP water in the portfolio, and; whether a resurgence of growth in the replenishment obligation could cut into CAGRD's water supply portfolio. These instances could require temporary use of LTSCs, including possibly the Replenishment Reserve.

SUMMARY OF CURRENT CAGRD WATER SUPPLY PORTFOLIO

TABLE 3.1

SUPPLY CLASS	VOLUME (AF)	AVAILABILITY	DESCRIPTION
CAP M&I	8,311	Annually	Permanent entitlement* potential reduction under Tier 3 shortage
CAP Indian (GRIC)	15,000	Annually from 2020 to 2044	25 year exchange; potential reduction under Tier 3 shortage
CAP NIA (GRIC)	18,185	Annually from 2020 to 2044	25 year lease, subject to shortage reduction
Effluent (Liberty)	2,400	Annually, began 2017	100 year lease
CAP NIA (WMAT)	2,500	Annually from 2024	100 year lease, awaiting final authorization; subject to shortage
CAP NIA	18,185	Annually from 2024	Permanent, awaiting final authorization; subject to shortage
TOTAL:	**43,896**	**(currently available) / 64,581 (including future supplies awaiting final authorization)**	
Long-term Storage Credits (current)	427,000	As needed	Currently in CAGRD Subaccount** (as of end of 2018); equivalent to 4,270 AF/yr for 100 years
Long-term Storage Credits (future)	390,000	2019-2114	To be acquired under existing purchase agreements; equivalent to 3,900 AF/yr for 100 years
TOTAL (with current and future credits; annualized)	**52,066**	**(currently available) / 72,751 (including future supplies awaiting final authorization)**	

* The entitlement volume is expected to be reduced due to an expected future transfer to the City of Peoria after their acquisition of New River Utility Company. New River Utility Co. had previously assigned their CAP M&I water to CAWCD for CAGRD use.

** Excludes 375,000 LTSCs acquired from GRWS which will be exchanged for GRIC CAP Indian Priority water.

3.2 Available water supplies

The potential risks from future shortages and increased obligation can also be mitigated in the same way that the 2015 Plan suggested that the risk of losing Excess Water could be mitigated – by identifying other water supplies potentially available for acquisition by CAGRD. These water supplies include CAP entitlements, LTSCs, effluent, Colorado River entitlements and imported groundwater. CAGRD provided a summary of these supplies in the 2015 Plan and provided a range of both a low estimate of nearly 500,000 AF potentially available for acquisition by CAGRD over the period 2015 to 2114 and a high estimate of nearly 1 million AF.

In ADWR's "Decision and Order Determining that Plan of Operation is Consistent With Achieving the Management Goal of the Phoenix, Pinal, and Tucson Active Management Areas" (D&O), issued Aug. 5, 2015, ADWR found it reasonable to assume that a minimum total of 372,500 AF/yr of combined LTSCs, effluent, CAP entitlements, and Colorado River entitlements is potentially available for purposes of meeting its projected replenishment obligations. This volume is well in excess of the projected replenishment obligation for current and projected members of 86,900 AF/yr by 2034 and 113,000 AF/yr by 2114.

Additionally, ADWR determined in the D&O that Colorado River supplies could not be considered available for the 20 years after approval of the 2015 Plan because a standard form of wheeling contract had not yet been approved for transport of these supplies into the AMAs. The applicable standard form wheeling contract was completed in 2017 through the development and approval of the System Use Agreement (SUA) between CAWCD and BOR. Implementation of the SUA is still on-going, including the development of the necessary water quality standards and the system improvement projects to move non-project water through the CAP canal. This process should be complete by the time of the development of the 2025 Plan of Operation.

3.3 CAGRD water supply activity, 2015-2019

An agreement between CAGRD, the Gila River Indian Community (GRIC) and Gila River Water Storage (GRWS) was approved in January 2019. The agreement includes a 25-year lease of 18,185 AF/yr of GRIC NIA Priority CAP entitlement and a 25-year exchange of 15,000 AF/yr of GRIC Indian Priority CAP water. CAGRD purchased 375,000 AF of LTSCs located in the Pinal AMA that will be exchanged for the Indian Priority water and an additional 70,375 AF of LTSCs located in the Phoenix AMA from GRWS. The credit transfers were completed in 2019 and the lease and exchange will begin in 2020.

The exchange will be accomplished through an innovative mechanism that will allow Pinal LTSCs, recovered via GRIC wells for use in their farming operation, to be converted into a Phoenix or Tucson AMA water supply, delivered for CAGRD purposes to underground storage facilities (USFs) and groundwater savings facilities (GSFs) in the Phoenix and Tucson AMAs. The GRIC NIA water will be recharged to the aquifer beneath GRIC lands by delivery to its Olberg Dam Recharge Facility, earning LTSCs in the Phoenix AMA for CAGRD use. The 70,375 Phoenix AMA LTSCs have been added to CAGRD's long-term storage account to be used as needed to offset future replenishment obligations.

From 2015 through 2019, new agreements in the Phoenix and Tucson AMAs enabled CAGRD to purchase an additional 138,300 LTSCs, apart from the GRIC/GRWS acquisition. Through previously existing agreements CAGRD acquired another 126,500 LTSCs. Additionally, a single-year lease agreement approved in late 2019 between CAGRD and the Fort McDowell Yavapai Nation will allow CAGRD to deliver 3,933 AF to a recharge facility in the Phoenix AMA in 2020.

In 2017 and 2018, CAGRD sought to acquire supplies of Colorado River water by entering into a 25-year lease for the Town of Quartzsite's 4th Priority entitlement and through an acquisition of farm properties in the Mohave Valley Irrigation and Drainage District (MVIDD) that could have yielded a water supply through a rotational fallowing program within MVIDD. Ultimately, ADWR did not recommend the contract modification necessary for the Quartzsite lease. The MVIDD acquisition was not finalized because of issues encountered during the due diligence period that could not be resolved prior to the closing deadline. While such efforts to work with interested on-river users provide an opportunity for CAGRD to secure a higher-priority, drought resilient water supply, efforts to address local concerns with transfers of Colorado River water into central Arizona will be critical for these types of transactions in the future.

3.4 Water supply assessment and summary

As described above, water supply acquisitions completed since implementation of the 2015 Plan have allowed CAGRD to reduce reliance on Excess CAP Water to meet annual replenishment obligations. In the near-term, CAGRD's portfolio of water supplies is in excess of anticipated replenishment obligations. This will allow additional accumulation of LTSCs in years when the full supply is available. This is one potential strategy for managing Colorado River shortages. Acquisition of other supplies may become a reality if Colorado River shortage becomes a frequent occurrence that limits the availability of the CAP NIA supplies in the CAGRD portfolio.

Even if the CAP NIA supplies remain available in most years, the exchange and lease agreements with GRIC will expire in 25 years and will need to be replaced before then. Most of the water supply acquisition efforts during the past five years and in the future are likely to focus on needs for replenishment in the Phoenix AMA. Future replenishment obligations can be met using available LTSCs in the Tucson and Pinal AMAs for at least the next 20 years.

BOTTOM LINE

Water supply acquisitions completed since implementation of the 2015 Plan have positioned CAGRD's water portfolio in excess of anticipated replenishment obligations in the near term. However, the water supply risks posed by Colorado River shortages mean the acquisition of additional supplies continues to be at the forefront of CAGRD operations.

Arizona Water Market Focus

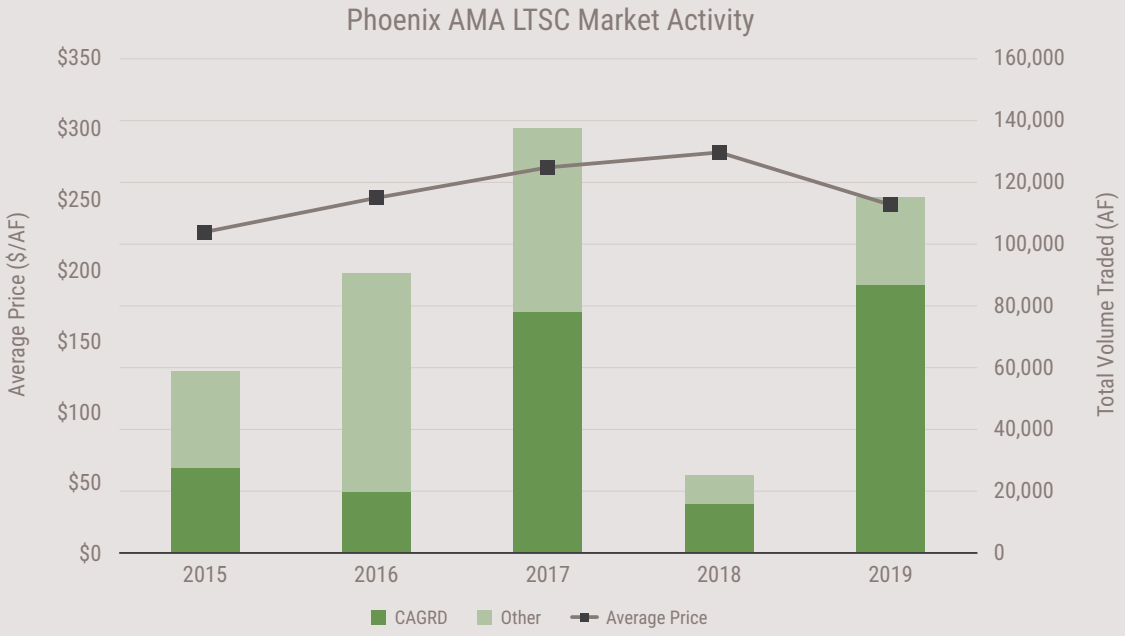
At the request of CAGRD, WestWater Research, L.L.C., gave the following update on Arizona water markets at the August 2019 meeting of the CAGRD and Underground Storage Committee.

LONG TERM STORAGE CREDITS

When eligible water is stored underground for more than one year, LTSCs may be issued. Each LTSC is a one-time right to recover an AF of water stored in a recharge facility in an AMA. They can be stored at a managed or constructed facility or at a GSF. LTSCs are easily tradable with a straightforward regulatory process for transferring intra-AMA. The ability to hold LTSCs indefinitely without cost is also a benefit to the LTSC owner.

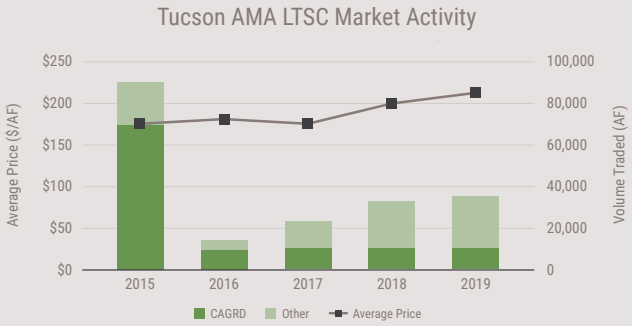
PHOENIX AMA

The market for LTSCs is the most active in the Phoenix AMA. However, it is a relatively small volume in any given year compared to the approximately 7 million acre-feet of total LTSCs. In more recent years, there has been upward pressure on the price/acre-foot beyond the cost to generate the credit due to drought concerns, reduced CAP Excess Water and increased economic development. CAGRD has been active in the market and is responsible for half of the overall volume traded each year since 2015.



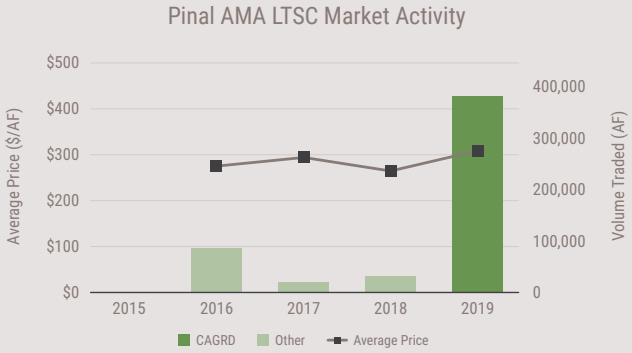
TUCSON AMA

The Tucson AMA market for LTSCs is relatively inactive with few buyers and sellers. Small volume trades occur infrequently. The primary buyers are the Arizona Water Banking Authority and the Town of Marana. The recent legislative change that allows a 95% LTSC accrual rate for effluent at managed USFs will create additional credits and keep the price/AF relatively low.



PINAL AMA

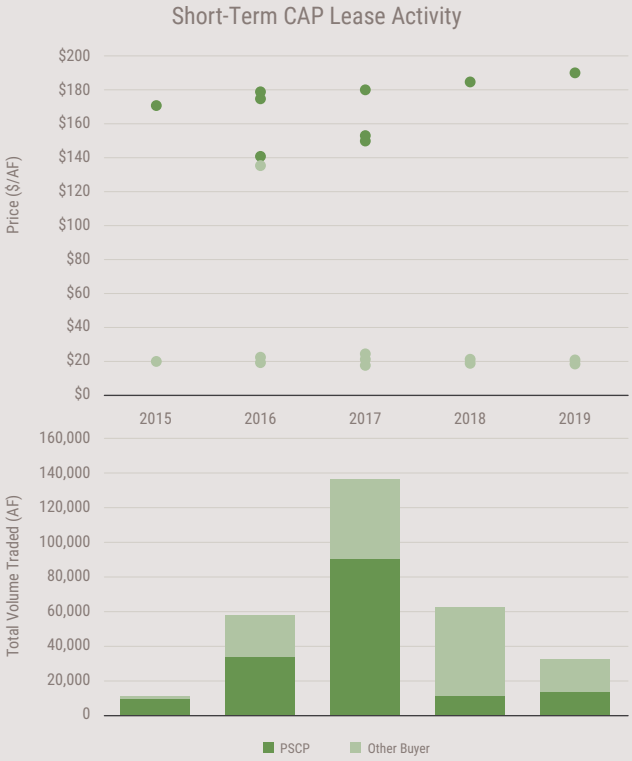
The Pinal AMA LTSC market experienced a spike in activity in 2019 driven by CAGRD's participation in the GRIC GRWS, L.L.C. program. However, recent constraints on groundwater availability creates some uncertainty in the market and may affect the future value of LTSCs in the AMA.



CAP TRIBAL LEASES

A number of tribes receive CAP water as a result of settlements or other agreements that allow water to be leased for off-reservation uses. The duration of these leases are either single-year or 100-year terms. Tribal CAP water is the only type of CAP water that can be marketed directly.

Short term leases have been used either for the creation of LTSCs or as part of the Pilot System Conservation Program (PSCP) where the water remains in Lake Mead as system water. BOR has paid between $170- $190/AF of Tribal CAP water leased and stored in Lake Mead since 2015. Buyers are paying closer to $20/AF for one-year leases outside of the PSCP, generally for water banking purchases. These low-cost leases are not expected to continue because of rising price expectations from the PSCP.



Long-term leases of 100 years occur less frequently, with only a handful issued in recent years. There is hesitancy on the part of tribes to enter into a 100-year term because of the term length. Therefore, prices/acre-foot are high and the payment is often expected to be upfront. Prices have risen by an 8.6% annual growth rate since 2013. The most recent long-term lease agreement of Tribal CAP Water was a 100-year lease from the San Carlos Apache Tribe to the Town of Gilbert in 2019. The Town paid approximately $31.2 million upfront to receive 5,295 AF/yr for 100 years.

COLORADO RIVER ENTITLEMENTS

Colorado River Entitlements (CRE) include on-river Present Perfected Rights with Priority 1- Priority 4. Very few permanent transfers of CRE have occurred. A small number of low volume transfers from one type of use to another took place in the Cibola region, but they were within the county and have not happened recently. With few exceptions, transfers of on river water to central Arizona have not yet been completed and the concept brings political challenges and some regulatory uncertainty.

As in short-term leases of CAP water, CRE holders have been participating in the PSCP. In most instances, the consumptive use of CREs has been reduced to contribute water to Lake Mead through rotational fallowing programs whereby entities agree to fallow a portion of irrigated land for a year in exchange for compensation. This is in contrast to outright farm purchases where the fields are permanently dried up. In rotational fallowing, the entitlement remains with the seller.

There is continued interest in transferring CREs to central Arizona. Municipalities experiencing high growth may pursue CRE purchases to offset groundwater reliance. There is some indication that interest from the PSCP and central Arizona municipalities is increasing the price expectations of interested sellers. There may also be some speculation occurring with buyers purchasing land with CRE with the expectation that transfers to central Arizona may be more feasible in the future. There has been 9.1% annual growth in the price of land with CREs since 2013.

EXTINGUISHMENT CREDITS

There is a very small market for Extinguishment Credits within the CAP service area, due to the limited ways in which the credits can be used compared to LTSCs. CAGRD cannot participate in this market but is affected by it. The Town of Queen Creek for example has recently used Extinguishment Credits to reduce assessment fees to the CAGRD.

Source: Seely, Harry. "2019 Arizona Water Market Update." CAGRD and Underground Storage Committee, 15 August 2019, Central Arizona Project, Phoenix, AZ. Guest Presentation.

4.0
Replenishment Reserve

CAGRD's statutorily mandated Replenishment Reserve is comprised of LTSCs accrued in a Replenishment Reserve subaccount established for each AMA in which CAGRD operates. The purpose of the Replenishment Reserve is to help ensure that CAGRD is capable of meeting its replenishment obligation and to enhance rate stability in times of water supply shortage or infrastructure failure. CAGRD can use LTSCs from the Replenishment Reserve to offset its annual replenishment obligation, rather than acquiring spot-market water supplies, which may be more expensive during shortage or outage conditions.

4.1 Replenishment reserve target

The volume of LTSCs required for the Replenishment Reserve is referred to as the Reserve Target. The Reserve Target calculated for each AMA is based on that specific AMA's projected obligation and the water supplies planned to meet the obligation volume as described in this 2015 Mid-Plan Review. The Reserve Target is re-calculated for each new Plan of Operation. If LTSCs in the Replenishment Reserve are applied to offset obligation, CAGRD is required to accrue replacement credits.

REPLENISHMENT RESERVE CALCULATION

The Reserve Target for each AMA is equivalent to 20% of the difference between the total 100-year replenishment obligation for that AMA and the total volume of long- and intermediate-term water supplies planned for use to meet the obligation. The projected obligation for Category 2 MLs (golf courses) and the obligation associated with the Water Availability Status membership (City of Scottsdale) are excluded from the total 100-year replenishment obligation. Water supplies with less than 20 years of availability are also excluded from the total volume of water supplies when calculating the Reserve Target LTSC volume.

RESERVE TARGET FORMULA = (OBLIGATIONS – SUPPLIES) X 20%

Obligations = CAGRD's total projected groundwater replenishment obligation[1] over the next 100 years;

Supplies = Sum of water supplies identified in CAGRD Plan of Operation that CAGRD plans to use to meet its replenishment obligation in the AMA (adjusted based on availability).

AMA REPLENISHMENT RESERVE TARGETS IN 2015 PLAN (AF) TABLE 4.1

PHOENIX AMA	PINAL AMA	TUCSON AMA	TOTAL
603,866	48,036	112,600	764,502

The Reserve Targets identified in **Table 4.1** remain effective until CAGRD prepares its next Plan of Operation (2025 through 2034), unless a significant change occurs in the currently projected obligation or the water supply acquisition plan. CAGRD does not anticipate and has not experienced a significant change in either of these conditions during the 2015 Plan.

4.2 Mid-Plan review replenishment reserve update

CAGRD has accrued a significant volume of LTSCs in its Replenishment Reserve subaccounts during the first five years (2015-2019) of the 2015 Plan, as shown in **Table 4.2** below. These LTSCs were accrued through a combination of water storage at constructed USFs, GSFs and the purchase of pre-existing LTSCs from CAWCD. The rate of accrual is consistent with achieving the targets of each AMA over the next two decades and has been deemed sufficient by ADWR. The Replenishment Reserve rates are set biennially and based appropriately to meet these targets over this time frame.

REPLENISHMENT RESERVE ANNUAL BALANCE (AF) TABLE 4.2

AMA	2013	2014	2015	2016	2017	2018	2019
PHOENIX	130,914	142,573	155,257	167,330	179,738	179,738	214,038
PINAL	3,243	3,547	3,823	4,021	4,289	4,289	4,933
TUCSON	29,489	31,272	32,543	33,833	34,616	34,635	37,335
TOTAL:	163,646	177,392	191,623	205,184	218,643	218,662	256,306

Note: 2019 LTSC estimate based on anticipated CAGRD water deliveries and the purchase of CAWCD dedicated credits with Replenishment Reserve funds by 12/31/2019.

4.3 Planned replenishment reserve activities

The following sections describe water supplies CAGRD intends to use to meet the Reserve Target for each AMA. In addition to the LTSCs, CAGRD already has accrued in its Replenishment Reserve accounts, as referenced in Table 4.2, a large number of existing credits held by CAWCD dedicated to the Replenishment Reserve. These dedicated credits were accrued by CAWCD in the early to mid-1990s using its own reserve funds as well as using money from the Arizona State Water Storage Fund (also known as State Demonstration funds). On Nov. 3, 2016, the CAWCD Board amended its policy to permit CAGRD to use unencumbered dedicated credits to meet replenishment obligation and/or accrue the replenishment reserve. That same CAWCD Board policy requires CAGRD to pay CAWCD for the LTSCs upon the transfer date at a rate equal to the then-current rate of Excess CAP Water that otherwise could be used by CAGRD to accrue LTSCs. If Excess CAP Water is unavailable to CAGRD to accrue LTSCs when a transfer occurs, CAGRD pays CAWCD an identical rate paid by CAP M&I subcontractors for water delivery, plus the then-current M&I capital charge.

Table 4.3 summarizes the total LTSCs available for the CAGRD Replenishment Reserve in each AMA, including the existing CAGRD Replenishment Reserve credits accrued through calendar year 2019 and the remaining dedicated CAWCD credits available to CAGRD.

AVAILABLE REPLENISHMENT RESERVE CREDITS BY AMA (AF)

TABLE 4.3

AMA	ACCRUED LTSCS	REMAINING DEDICATED LTSCS	TOTAL AVAILABLE LTSCS
PHOENIX	214,038	237,690	451,728
PINAL	4,933	315,572	320,505
TUCSON	37,335	561	37,896
TOTAL:	256,306	553,823	810,129

Table 4.4 provides a summary of the AMA Replenishment Reserve Targets, total available LTSCs and the difference in available credits per AMA.

REPLENISHMENT RESERVE TARGETS COMPARED TO AVAILABLE LTSCS (AF)

TABLE 4.4

AMA	RESERVE TARGET	TOTAL AVAILABLE LTSCS	DIFFERENCE
PHOENIX	603,866	451,728	-152,138
PINAL	48,036	320,505	272,469
TUCSON	112,600	37,896	-74,704
TOTAL:	764,502	810,129	45,627

4.4 Replenishment reserve summary

Sufficient water supplies are available to CAGRD to meet the total Reserve Target through the combination of CAGRD's existing Replenishment Reserve subaccount balance and dedicated CAWCD LTSCs. The CAWCD dedicated credits effectively act as an "insurance policy" that will ensure CAGRD will be able to fully meet and maintain its Reserve Targets regardless of water supply conditions within the CAWCD service area. Additionally, the water supplies CAGRD plans to use during the remainder of the 2015 Plan and beyond are described in Chapter 3. A portion of the water supplies identified could be used to help meet the Reserve Targets established for the Tucson and Phoenix AMAs.

BOTTOM LINE

The 2015 Plan identified a total Reserve Target of 764,502 acre-feet across the Phoenix, Pinal and Tucson AMAs. At the end of 2019, CAGRD has acquired 256,306 acre-feet of LTSCs and CAWCD has 553,823 dedicated LTSCs remaining to meet the Reserve Targets. These dedicated LTSCs effectively provide a secure "insurance policy" that ensures CAGRD will fully meet its Reserve Targets regardless of future water supply conditions within the tri-county service area.

5.0
Storage Facilities Planned For Use

As required by statue, the 2015 Plan includes a description of the storage facilities and storage capacity available to CAGRD for the next 20 years. Existing statutes require CAGRD to replenish within the AMA in which obligations are incurred. In the Phoenix AMA, statute adds that, to the extent reasonably feasible, replenishment should occur in the east and west portion of the AMA in approximate proportion to the obligation attributable to each portion of the AMA. The 2015 Plan analysis of available storage identified more than sufficient USF and GSF capacity in each AMA to fully meet CAGRD's replenishment obligations until 2034.

5.1 Plan assumptions on available capacity to CAGRD

In the 2015 Plan, available storage capacity to CAGRD at CAWCD-owned/operated USF facilities was determined using the 2013 CAWCD Board-approved policy for USF capacity priority that provides a priority list for storage at CAP-owned facilities. GSF storage capacity was determined by subtracting the average storage over the last six years by non-CAGRD GSF partners from the operational capacity and through coordination with GSF operators.

5.2 Mid-Plan description of Description of storage facilities available to CAGRD

The following description provides a 2015 Mid-Plan review of the current available capacity for CAGRD. The same assumptions used in the 2015 Plan were used to determine available storage capacity for this Mid-Plan Review.

5.2.1 Underground storage facilities constructed by CAWCD & CAWCD's USF capacity priority policy

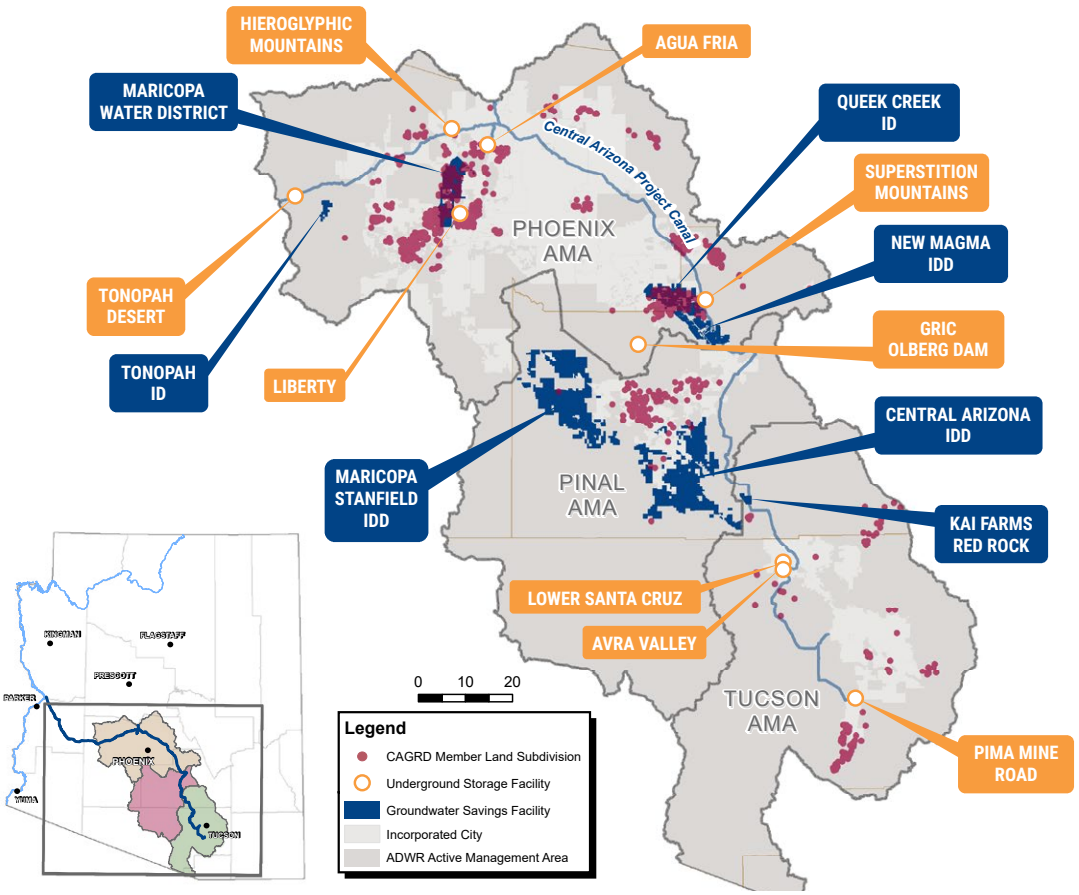
CAWCD owns and operates six direct recharge projects or USFs, four serving the Phoenix AMA and two in the Tucson AMA. The four projects in the Phoenix AMA include: Tonopah Desert Recharge Project (TDRP), Hieroglyphic Mountains Recharge Project (HMRP), Aqua Fria Recharge Project (AFRP) and Superstition Mountains Recharge Project (SMRP) and have a total permitted capacity of 240,000 AF/yr. This total assumes one of those facilities, Agua Fria Recharge Project (AFRP), currently permitted for 100,000 AF/yr will be lowered to an annual permit capacity to 30,000 AF/yr once it is re-permitted in the near future. The largest project in the Phoenix AMA, TDRP with an annual capacity of 150,000 AF/yr, is currently inactive but could be brought into service within a couple of months if needed. In the Tucson AMA, CAWCD facilities have a total permitted capacity of 80,000 AF/yr and include Lower Santa Cruz Recharge Project (LSCRP)and Pima Mine Road Recharge Project (PMRRP). In its entirety, CAWCD's annual USF capacity is 320,000 AF/yr.

In May 2013, the CAWCD Board approved a USF capacity priority policy that provides a priority list for storage at

CAP-owned facilities. Second priority status was given to CAGRD's replenishment and firming obligations. CAGRD's priority is second only to entities that have contractual rights to CAWCD facilities including: City of Peoria's 15% ownership of HMRP and AFRP; City of Tucson's 50% ownership of PMRRP; system reliability of approximately 2,300 AF at LSCRP for the Northwest Providers; and 6,000 AF at PMRRP for the City of Tucson.

Figure 5.1 provides a map of the USFs and GSFs available to CAGRD to meet its members' replenishment obligations.

STORAGE FACILITIES AVAILABLE FOR USE BY CAGRD FIGURE 5.1



5.2.2 Groundwater savings facilities

CAGRD also has permits and/or water storage agreements with seven GSFs: four in the Phoenix AMA, which include Tonopah Irrigation District (TID), Queen Creek Irrigation District (QCID), Maricopa Irrigation District (MID) and New Magma Irrigation and Drainage District (NMIDD); two in the Pinal AMA including Maricopa-Stanfield Irrigation and Drainage District (MSIDD) and Central Arizona Irrigation and Drainage District (CAIDD); and one in the Tucson AMA, Kai Farms. In total, the GSFs have an operational capacity of 377,737 AF/yr with 134,300 AF/yr potentially available

to CAGRD.

5.2.3 Effluent facilities available to CAGRD

The 2015 Plan did not include effluent storage facilities available to CAGRD. In 2017, the first effluent recharge project developed through a public-private partnership was opened in Goodyear by Liberty Utilities (Liberty Aquifer Replenishment Facility). CAWCD contributed $6M to the project and in return received a 100-year lease to 2,400 AF of effluent along with the capacity to store the water at the Liberty facility to earn LTSCs.

5.3 Storage capacity available to CAGRD by AMA

In the Phoenix AMA, CAGRD has storage availability in five USF projects and four GSF projects. In total there is 269,685 AF/yr available to CAGRD in 2020 that increases to 284,680 AF/yr by 2025 (**Table 5.1**). The increase is due to a CAWCD agreement with Salt River Project giving it first right of refusal to 15,000 AF/yr of capacity at SMRP that expires in 2023. In the 2015 Plan, an additional 31,500 AF/yr was assigned to SMRP starting in 2020. The increase was the additional capacity created by completing the Phase 2 expansion of the project. This expansion is no longer planned. In addition to the existing storage in the Phoenix AMA, CAGRD recently obtained a water storage permit at the newly constructed GRIC Olberg Dam USF on the Gila River Indian Reservation. This storage site will also be used for future replenishment by CAGRD in the Phoenix AMA.

In the Pinal AMA, CAGRD has access to two GSFs (MSIDD and CAIDD) with an available capacity of 97,700 AF/yr (**Table 5.2**). In the Tucson AMA CAGRD has capacity at three USFs and one GSF with a combined total of 50,222 AF/yr (**Table 5.2**). One USF, the AVRP, is owned by the Metropolitan Domestic Water Improvement District, but CAGRD does not have an active agreement to store there at this time.

INVENTORY OF AVAILABLE STORAGE CAPACITY IN PHOENIX AMA

TABLE 5.1

			CAPACITY (AF/YR)		STORAGE CAPACITY[3] POTENTIALLY AVAILABLE TO CAGRD (AF/YR)			
	RECHARGE FACILITY	PERMIT NO.	PERMITTED[1]	OPERATIONAL[2]	2020	2025	2030	2034
PHOENIX AMA								
USF	Tonopah Desert Recharge Project	73-593305.0001	150,000	150,000	150,000	150,000	150,000	150,000
USF	Hieroglyphic Mountains Recharge Project[4]	73-584466.0000	35,000	35,000	30,000	30,000	30,000	30,000
USF	Agua Fria Recharge Project[4]	73-569775.0000 73-569776.0000	100,000	27,000↑	23,000↑	23,000↑	23,000↑	23,000↑
USF	Superstition Mountains Recharge Project[5]	73-207702.0000	25,000↓	25,000	10,000↓	25,000↓	25,000↓	25,000↓
USF	Liberty Aquifer Replenishment Facility[6]	73-224000.0200	6,000	4,000	2,400	2,400	2,400	2,400
USF	GRIC Olberg Dam	73-227650.0500 (Phoenix) 73-227650.0600 (Pinal)	20,000	20,000	18,185	18,185	18,185	18,185
GSF	Tonopah Irrigation District	73-534439.0001	17,000	17,000	14,500	14,500	14,500	14,500
GSF	Queen Creek Irrigation District	73-534550.0400	20,000	20,000	7,600	7,600	7,600	7,600
GSF	New Magma Irrigation and Drainage District	73-534888.0101	59,506	59,506	9,000	9,000	9,000	9,000
GSF	Maricopa Water District	73-558246.0800	40,000	40,000	5,000↓	5,000↓	5,000↓	5,000↓
Phoenix AMA Subtotal			472,506	397,506↑	269,685↓	284,685↓	284,685↓	284,685↓

↑↓ Indicates volume is higher or lower than volume in the 2015 Plan of Operation

INVENTORY OF AVAILABLE STORAGE CAPACITY IN PINAL AND TUCSON AMAS

TABLE 5.2

			CAPACITY (AF/YR)		STORAGE CAPACITY[3] POTENTIALLY AVAILABLE TO CAGRD (AF/YR)			
	RECHARGE FACILITY	PERMIT NO.	PERMITTED[1]	OPERATIONAL[2]	2020	2025	2030	2034
PINAL AMA								
GSF	Maricopa Stanfield Irrigation and Drainage District	73-531381.0005	120,000	120,000	57,700	57,700	57,700	57,700
GSF	Central Arizona Irrigation and Drainage District	73-531382.0005	110,000	110,000	40,000	40,000	40,000	40,000
	Pinal AMA Subtotal:		**230,000**	**230,000**	**97,700**	**97,700**	**97,700**	**97,700**
TUCSON AMA								
USF	Lower Santa Cruz Recharge Project[7]	73-561366.0000	50,000	42,000	39,722	39,722	39,722	39,722
USF	Pima Mine Road Recharge Project[8]	73-577501.0100	30,000	30,000	9,000	9,000	9,000	9,000
USF	Avra Valley Recharge Project[9]	73-564896.0000	11,000	8,000	1,000	1,000	1,000	1,000
GSF	Kai Farms (Red Rock)	73-558092.0201	11,231	11,231	500	500	500	500
	Tucson AMA Subtotal:		**102,231**	**91,231**	**50,222**	**50,222**	**50,222**	**50,222**
	Total:		**804,731**	**718,737↑**	**417,607↑**	**432,607↑**	**432,607↑**	**432,607↑**

[1] Permitted capacity represents the maximum annual volume allowable by ADWR.

[2] Operational capacity represents the maximum volume the facility operator has determined can be stored in a given year. Differences between permitted and operational capacity for USFs may vary depending on factors such as infrastructure and infiltration rate limitations.

[3] Storage capacity for CAWCD USF facilities determined to be all available storage after contractual obligations were met; Storage capacity for GSFs was determined by subtracting the average storage over the last six years by non-CAGRD GSF partners from the operational capacity and coordination with the GSF operators.

[4] City of Peoria owns 15% of storage capacity.

[5] Salt River Project has first right of refusal to 15,000 AF/yr of storage capacity until 2023.

[6] The Liberty Aquifer Replenishment Facility permit volume increases over 20 years to the full permitted capacity.

[7] Approximately 2,300 AF/yr of storage capacity reserved as system reliability for Northwest Providers.

[8] City of Tucson owns 50% of annual storage capacity; 6,000 AF/yr of remaining storage capacity reserved for Tucson's system reliability.

[9] Owned by Metropolitan Domestic Water Improvement District (MDWID); Available storage capacity for CAGRD provided per MDWID staff.

5.4 Available storage capacity summary

Although there have been minor changes in available storage capacity used by CAGRD since the 2015 Plan was approved, there remains sufficient capacity to meet CAGRD's replenishment obligation until 2034 (**Table 5.3**). Currently there are no plans to add or build additional recharge facilities, however, in the future, additional facilities may be considered if they 1) decrease costs to CAGRD and/or 2) enable replenishment closer to an area where obligation is incurred.

UPDATED STORAGE CAPACITY AVAILABLE TO CAGRD (AF)

Combined USF and GSF **TABLE 5.3**

		2020	2025	2030	2034
PHOENIX AMA	Capacity Available	269,685	284,685	284,685	284,685
	CAGRD Obligation	37,700	53,300	62,500	68,600
	Remaining Capacity	231,985	231,385	222,185	216,085
	Difference from Plan	(31,415)	(31,415)	(31,415)	(31,415)
PINAL AMA	Capacity Available	97,700	97,700	97,700	97,700
	CAGRD Obligation	1,500	3,500	4,900	5,600
	Remaining Capacity	96,200	94,200	92,800	92,100
TUCSON AMA	Capacity Available	50,222	50,222	50,222	50,222
	CAGRD Obligation	5,600	9,900	12,000	12,700
	Remaining Capacity	44,622	40,322	38,222	37,522

BOTTOM LINE

Although there have been minor changes in storage capacity available to CAGRD since the 2015 Plan was approved, more than sufficient storage facility capacity exists in each AMA to meet CAGRD's replenishment obligation through 2034.

6.0
Financial Capability

Statutes require that all CAGRD operations be funded completely by its members. CAGRD has a number of revenue sources available to fulfill its obligations, including fees, dues and rates (Figure 6.1). Each revenue source contributes to one or more of the four reserve funds, detailed below.

Reserve Funds

- **Administrative** funds are used to pay the administrative costs of CAGRD (including salaries, benefits, overhead, equipment, special services, and implementation of CAGRD conservation program). Annual collections equal approximately next year's annual expenditures.
- **Water & Replenishment (W&R)** funds are used to pay the annual cost to deliver and replenish water to meet annual replenishment obligations. Annual collections equal approximately next year's annual expenditures.
- **Infrastructure & Water Rights (I&WR)** funds are used to pay the cost to acquire rights to water and develop infrastructure necessary for CAGRD to perform its replenishment obligations.
- **Replenishment Reserve** funds are used to pay the cost of establishing and maintaining a replenishment reserve of LTSCs. Annual collections equal approximately next year's annual expenditures.

These financial mechanisms have ensured CAGRD's ability to meet its statutory obligations using funds collected exclusively from its members and will continue to do so through the remaining 2015 Plan period and beyond. Statutes, as well as CAWCD Board policy, dictate how these fees, dues and rates are collected and used.

6.1 Sources & uses of revenue

Each revenue source, and the fund it contributes to, is diagrammed in **Figure 6.1**.

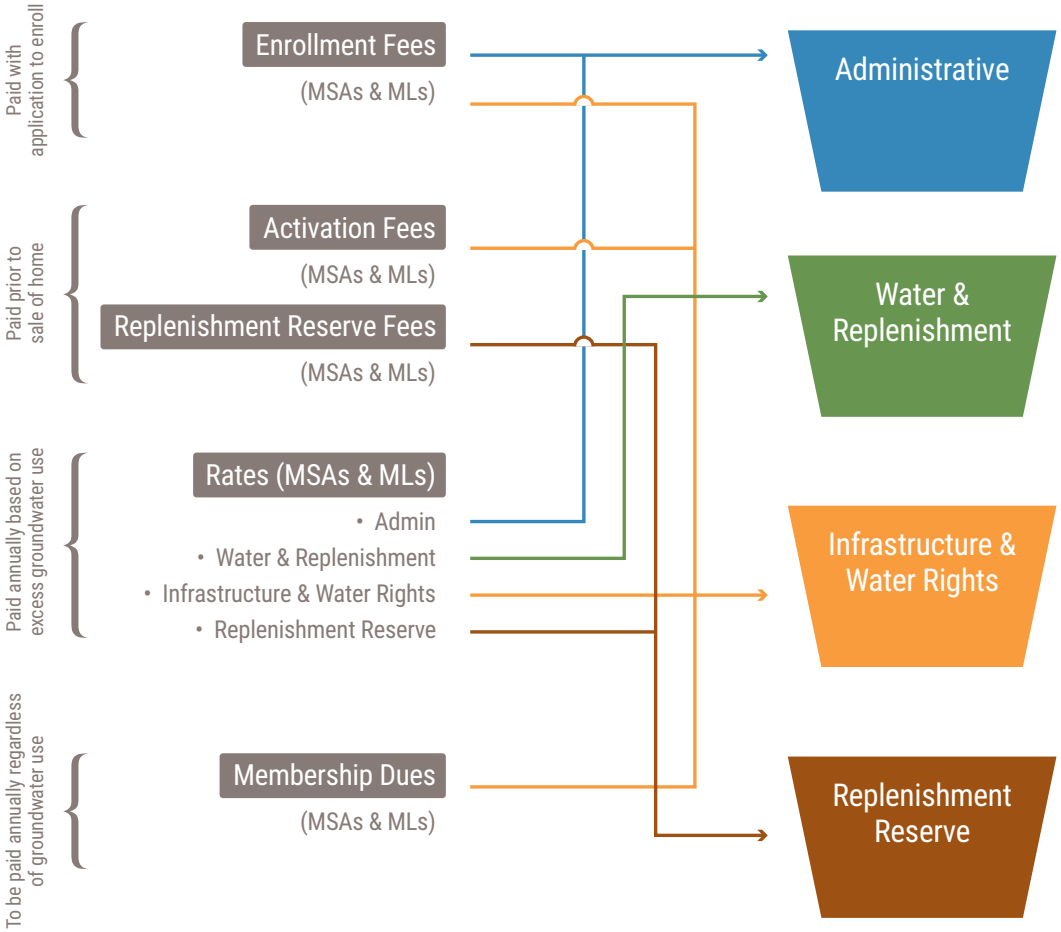
6.1.1 Status of fees

CAGRD collects three different fees from its members: Enrollment, Activation and Replenishment Reserve.

The **Enrollment Fee** is a one-time fee based on the number of housing units in each ML and is paid when an applicant, usually the developer, submits an application to enroll. MSAs play a flat enrollment fee for their entire service area upon enrollment. In 2008, the CAWCD Board adopted the "CAGRD Enrollment Fee and Activation Fee Policy," describing how the Enrollment Fee is established. Initially, Enrollment Fees were dedicated solely to the Infrastructure & Water Rights (I&WR) fund. In response to a CAGRD cost of service study recommendation, the policy was amended in November 2015 to use a portion of Enrollment Fees to cover the administrative costs of enrollment-related activities in addition to I&WR uses. A special Enrollment Fee for commercial subdivisions was also established in the policy update, creating payment equity between residential and non-residential properties.

CAGRD REVENUE STREAMS

FIGURE 6.1



Between 2015 and 2019, the Enrollment Fee experienced only a slight increase from $237 per unit in 2014/15 to $284 per unit in 2019/20. Authorized by the CAWCD Board in November 2015, the Enrollment Fee for commercial subdivisions increased from $500 per unit in 2016/17 to $1,094 per unit in 2019/20.

The **Activation Fee** is also a one-time fee that must be paid, usually by the homebuilder, for all subdivisions within both ML and MSAs before the Arizona Department of Real Estate will issue a public report allowing the sale of parcels within the subdivision. The aforementioned policy also describes how the Activation Fee is established. In 2013, after a number of stakeholder meetings on the development of the 2015 Plan, the CAWCD Board approved an Infrastructure and Water Rights Funding Proposal that increased the amount of the Activation Fee in order to collect a more significant portion of funding for I&WR prior to homes being built and replenishment obligations being incurred and to provide equity amongst CAGRD members. Between 2014 and 2019 Activation Fees averaged a 33% increase per year for the Phoenix and Pinal AMAs, and a 27% increase per year for the Tucson AMA. In March 2019, after reassessing the Activation Fee target, staff recommended slowing the rate of increase in Activation Fees, while retaining sufficient increases to reach a post-2019 Activation Fee target and maintain CAGRD in a financially healthy position. Based on this recommendation and input from stakeholders, the Board approved a staff recommendation to continue increasing the Activation Fees for 2020/21 through 2023/24 in the Phoenix, Pinal and Tucson AMAs by 9% per year.

CAGRD must also levy a one-time **Replenishment Reserve Fee** against Category 1 (non-golf course) MLs and against MSAs. Revenues generated from the Replenishment Reserve Fee are used to accrue LTSCs for use in establishing and maintaining the Replenishment Reserve in the AMA where the fee was levied. The Replenishment Reserve Fee is based on the cost of water or the LTSCs that are anticipated to be used for the reserve.

- The Phoenix AMA Fee has increased from $63 in 2014/15 to $95 in 2019/20
- The Pinal AMA Fee has increased from $70 in 2014/15 to $103 in 2019/20
- The Tucson AMA Fee has increased from $80 in 2014/15 to $102 in 2019/20

6.1.2 Status of annual membership dues

In 2010, legislation was passed that allowed for the collection of Annual Membership Dues (AMDs). The dues are to be collected annually from all enrolled members, regardless of a replenishment obligation, and can be used to pledge toward bonding as they can be a dependable revenue stream regardless of obligation levels. The use of AMDs is dedicated exclusively to the I&WR fund. Statute details a specific relationship between the amounts collected as Membership Dues and the other amounts (Enrollment Fees, Activation Fees and I&WR rate component) that are dedicated to the I&WR fund and how the total amount collected in each year is to be split between MLs and MSAs. Recently, AMDs have been collected at the maximum allowable rate except for the first year under the 2015 Plan, when the dues were collected at 90% to ease the transition to the newly required dues level.

6.1.3 Status of rates

The CAWCD Board is required by law to establish and levy an annual replenishment assessment against MLs and an annual replenishment tax against MSAs. The assessment must be levied on a per-acre-foot rate to replenish groundwater based on contractual replenishment obligations. **Table 6.2** shows the history of replenishment assessment rates through the first half of the 2015 Plan.

Under the CAGRD Assessment Rate Setting Policy, CAGRD establishes four separate rate components:

1. **Water and Replenishment Rate Component** is established at the rate anticipated to fulfill the obligation for each AMA. Through 2019, the rate has been primarily based on the CAP Water Delivery Rates as most of the obligation have been fulfilled through CAP water. Beginning in 2020, the supplies will be using some of the Infrastructure and Water Rights-acquired LTSC inventory, including the GRIC NIA Lease and GRIC Exchange water. The impact is that the Phoenix AMA rate, and to a lesser extent the Tucson AMA rate, will be increasing at a faster pace (10-15% per year) for the next few years.
2. **Administrative Rate Component** is established at a rate based on annual expenditures to cover CAGRD administrative costs (excludes any water acquisition administrative costs). The estimated costs subtract the amount expected to be collected through enrollment fees and is spread over the projected obligation. The rate has been relatively stable at $35-$40 per acre-foot in all AMAs.
3. **Infrastructure and Water Rights Rate Component** is collected in conjunction with other I&WR fees and dues to pay for administrative costs related to acquisition and the direct costs for water acquisition. It has been held stable at $353 per acre-foot in all AMAs since 2015/16.
4. **Replenishment Reserve Rate Component** is similar to the Replenishment Rate. It is established at the rate anticipated to meet the progress toward the Replenishment Reserve target for each AMA. Pinal AMA reserve credits are purchased from LTSCs held by CAWCD that are dedicated to CAGRD. The Phoenix AMA uses a blend of inventory and CAWCD LTSCs, while the Tucson AMA has to use inventory LTSCs as CAWCD does not have access to any additional Tucson AMA dedicated credits after 2020. The sources used for the reserve are similar to those of the replenishment obligation and have been increasing at a similar rate.

REPLENISHMENT ASSESSMENT RATE SCHEDULE

TABLE 6.2

	FIRM RATES ($/AF)					
PHOENIX ACTIVE MANAGEMENT AREA	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**
WATER & REPLENISHMENT COMPONENT	$172	$179	$186	$214	$192	$238
ADMINISTRATIVE COMPONENT	45	45	32	36	40	41
INFRASTRUCTURE & WATER RIGHTS COMPONENT	294	353	353	353	353	353
REPLENISHMENT RESERVE COMPONENT	63	67	89	101	90	95
TOTAL ASSESSMENT RATE ($/AF)	**$574**	**$644**	**$660**	**$704**	**$675**	**$727**
PINAL ACTIVE MANAGEMENT AREA	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**
WATER & REPLENISHMENT COMPONENT	$155	$160	$175	$204	$204	$211
ADMINISTRATIVE COMPONENT	45	45	32	36	40	41
INFRASTRUCTURE & WATER RIGHTS COMPONENT	294	353	353	353	353	353
REPLENISHMENT RESERVE COMPONENT	70	75	96	108	97	103
TOTAL ASSESSMENT RATE ($/AF)	**$564**	**$633**	**$656**	**$701**	**$694**	**$708**
TUCSON ACTIVE MANAGEMENT AREA	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**
WATER & REPLENISHMENT COMPONENT	$196	$202	$213	$238	$221	$242
ADMINISTRATIVE COMPONENT	45	45	32	36	40	41
INFRASTRUCTURE & WATER RIGHTS COMPONENT	294	353	353	353	353	353
REPLENISHMENT RESERVE COMPONENT	80	85	108	131	103	102
TOTAL ASSESSMENT RATE ($/AF)	**$615**	**$685**	**$706**	**$758**	**$717**	**$738**

6.2 CAGRD revenue bonding

Bonds were issued on July 24, 2019 in the amount of $20 million to fund the final portion of a $95 million purchase of LTSCs. CAWCD, on behalf of CAGRD, entered into an agreement with the Gila River Indian Community and Gila River Water Storage for the purchase of 375,000 AF of LTSCs for the Pinal AMA, and 70,375 AF of LTSCs for the Phoenix AMA. The purchase price was $95 million, consisting of an initial payment of $65 million due 30 days after signing, and the remaining payment of $30 million due six months subsequent to the signing. The final bonds will mature in 2025 with each bond carrying an interest rate of 2.45%. CAWCD has the option of paying off the bond liability after three years without penalty.

Infrastructure & Water Rights (I&WR) Reserve

TABLE 6.3

	(in Millions)	2019	2020	2021	2022	2023	2024
	BEGINNING BALANCE	$83.0	$32.7	$48.0	$67.9	$95.0	$112.7
INFLOWS	Enrollment Fees	1.6	2.0	2.7	2.7	2.6	2.8
	Activation Fees	11.6	10.1	11.7	14.3	15.6	17.0
	I&WR Rate	10.2	11.0	12.0	14.3	12.7	13.9
	Annual Membership Dues	9.6	11.3	13.1	12.6	11.1	10.3
	TOTAL REVENUES:	33.0	34.4	39.5	43.6	42.0	44.0
	Proceeds from Debt Financing	19.9	-	-	-	-	-
	Proceeds from Interfund purchases	1.4	0.3	0.3	0.4	-	-
	Interest Income	0.8	0.5	0.5	0.5	0.5	0.5
	TOTAL INFLOWS:	$55.1	$35.2	$40.3	$44.5	$42.5	$44.5
OUTFLOWS	LTSC Purchases	(103.1)	(15.0)	(7.5)	(4.3)	(11.6)	(11.9)
	Acquisition Costs*	-	-	(7.7)	(7.7)	(7.7)	(7.7)
	Admin Costs	(0.6)	(0.9)	(1.3)	(1.4)	(1.5)	(1.6)
	Debt Service	(1.7)	(4.0)	(4.0)	(4.0)	(4.0)	(4.0)
	TOTAL OUTFLOWS:	$(105.4)	$(19.9)	$(20.5)	$(17.4)	$(24.8)	$(25.2)
	ENDING BALANCE:	$32.7	$48.0	$67.9	$95.0	$112.7	$132.0
	LTSC INVENTORY BALANCE (KAF)	819	848	853	841	856	884

SOURCES OF DATA FOR CASH FORECAST:

2019	Based on 2019 2nd Quarter Financial Review
2020	Based on 2020 Budget
2021	Based on 2021 Budget
2022 - 2024	Inflows are based on forecasts provided to BBVA for loan request. Outflows are based on known LTSC purchase agreements; assumption that CAGRD will pay $7.7 million per year for the NIA reallocation starting in 2021; inflation for administrative costs; and debt service estimates.

**starting in 2021 CAGRD pays $7.7M per year for the NIA reallocation*

6.3 CAGRD reserve funds

As detailed in **Figure 6.1**, CAGRD maintains four reserve funds. Various revenue sources are collected annually and spent annually on uses such as administrative costs, meeting annual replenishment obligation and acquiring or developing long-term storage credits for the Replenishment Reserve. I&WR revenues are more complex than other revenues and are used for periodic costs of acquiring water supplies, developing infrastructure, outside professional services and salaries related to the Water Supply Program. The funds can also be pledged toward revenue bonding. **Table 6.3** illustrates CAGRD's current assets and projected balances in the Infrastructure and Water Rights Reserve starting in 2019. In 2019, approximately $103 million were used in part to purchase a significant volume of LTSCs, including the water acquisition between CAGRD and Gila River Water Storage, L.L.C. In the same year, CAGRD acquired its first external loan for $20 million as part of the financing to pay for this water acquisition. Based on its current assets and projected revenues, CAGRD is well suited to meet its statutory obligation through the 2015 Plan.

6.4 Financial capability summary

Starting in 2013, CAGRD made a significant change in its revenue collection timeline by increasing earlier I&WR charges, specifically Enrollment and Activation Fees, rather than collecting them later in the membership timeline. This change shifts costs to be more equitable through time and amongst users and consequently moves some of the costs from the homeowner to the developer/homebuilder. In the next half of the 2015 Plan, CAGRD will continue to evaluate alternative rate structures that are equitable and based on the members' reliance on the CAGRD and rates will continue to be established to ensure CAGRD's financial viability. CAGRD recognizes that much of the revenue stream is based on annual reliance on the CAGRD, which can be variable from year-to-year, and is evaluating alternative rate structures that will help address the issue.

BOTTOM LINE

Based on its current assets and projected revenues, CAGRD is well suited to meet its statutory obligation through the current 2015 Plan. CAGRD will continue to evaluate alternative rate structures that are equitable and based on members' reliance on the CAGRD.

7.0
Conclusion

This Mid-Plan Review demonstrates that the 2015 Plan of Operation remains in good standing and complies with Arizona's water management goals. CAGRD continues to fulfill its statutorily assigned duties effectively, demonstrating fiscal responsibility while securing a diverse water supply portfolio that will be available through the next several decades. CAGRD will continue to be responsive to both opportunities and challenges in the remaining years of the 2015 Plan. Furthermore, the Mid-Plan Review development process has provided opportunities for the CAGRD Committee and the public to ask questions and learn more about CAGRD.

Since the 2015 Plan was approved, growth in the service area has returned to a steady pace, especially in the Phoenix AMA, but at a lower rate than was projected. This trend has and will most likely continue to result in lower than projected enrollment throughout the remainder of the 2015 Plan period. Obligations have held relatively constant over the last 10 years due to a number of factors, including changes in reporting requirements for some members, as well as the use of alternative mechanisms such as extinguishment credits and LTSCs.

With the ongoing drought and future shortages on the Colorado River, water supply challenges will continue; however, CAGRD is well positioned to meet its replenishment obligations for the remainder of the 2015 Plan with a robust water supply portfolio, including a historic water acquisition with the Gila River Indian Community. There will be potential challenges ahead with the start of the DCP in 2020 and possible cuts to CAGRD's NIA Priority CAP supplies in future years, but much of this water will be mitigated under agreements developed during the Arizona implementation of the DCP. Additionally, opportunities such as the 2017 approval of the System Use Agreement have opened up new options to the acquisitions program that weren't available at the time the 2015 Plan was approved.

In 2023, CAGRD will begin to develop its 2025 Plan of Operation. As was the case in 2013, CAGRD staff expects a high level of stakeholder involvement in the development of the next Plan. Recently, discussions regarding CAGRD enrollment and operations have begun in various forums. These discussions include long-standing issues such as limiting CAGRD enrollment and replenishing closer to the location of member pumping. While some of these issues relate specifically to water management, others reflect broader questions about the management and location of growth in Central Arizona and thus have implications well beyond CAGRD. These issues could pose significant financial impacts to CAGRD's members and to Arizona's economy as a whole. CAWCD looks forward to being a contributing member to future water planning conversations that are transparent, fact-based and involve all parties impacted by the issues.