Historical Economic & Fiscal Impacts of Development Facilitated by the Central Arizona Groundwater Replenishment District on the State of Arizona

Prepared for:

HBACA

Home Builders Association of Central Arizona

Home Builders Association of Central Arizona

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Report Highlights

- The Central Arizona Groundwater Replenishment District ("CAGRD") is a critical water resource management tool that has facilitated economic growth in Maricopa County, Pima County, and Pinal County over the last 28 years by allowing new development to comply with Arizona's Groundwater Management Act. The district manages over 13,300 square miles (8.6 million acres) in growth areas throughout central and southern Arizona.

- Over 460,000 homes that would not otherwise have been built in these regions, equating to a population of over 1.2 million residents, has created demand for goods and services and helped sustain economic growth in the state. Construction activity has generated over $135.7 billion in economic impact throughout the State of Arizona and thousands of jobs in the construction industry. As of 2022, residents within CAGRD regions support over 178,000 jobs, over $9.2 billion in wages, and $24.9 billion in annual economic impact by their spending in the economy.

- Over the last 28 years combined, new residents within CAGRD regions have spent $182 billion in the local economy, generated nearly $95.6 billion in wages, and created $253.6 billion in economic activity.

- Construction and resident spending has already provided over $35 billion in state and local taxes over the last 28 years and these figures continue to grow each and every year. In 2022 alone, nearly $3.1 billion in state and local taxes was generated by construction and resident spending as new homes were built and the population grew. These figures do not include impact or permit fees collected as part of the construction process.

- From an economic perspective, the sudden and drastic measures announcing no new certifications of assured water supply from groundwater created uncertainty and risk, an effective deterrent to potential investors in our state's economy. The damage by media coverage has already been done, though it is nearly impossible to measure the impacts of investments that never materialize. What is known is that it is much harder to "un-ring" the bell that Arizona is out of water.

- If the current policy holds, the Greater Phoenix MSA is at risk of not achieving previously forecasted growth in population and employment by substantially reducing the number of affordable homes that can be built. Many of the affected areas are both actively growing regions as well as some of the last remaining locations that homeowners could find a new home for under $400,000.

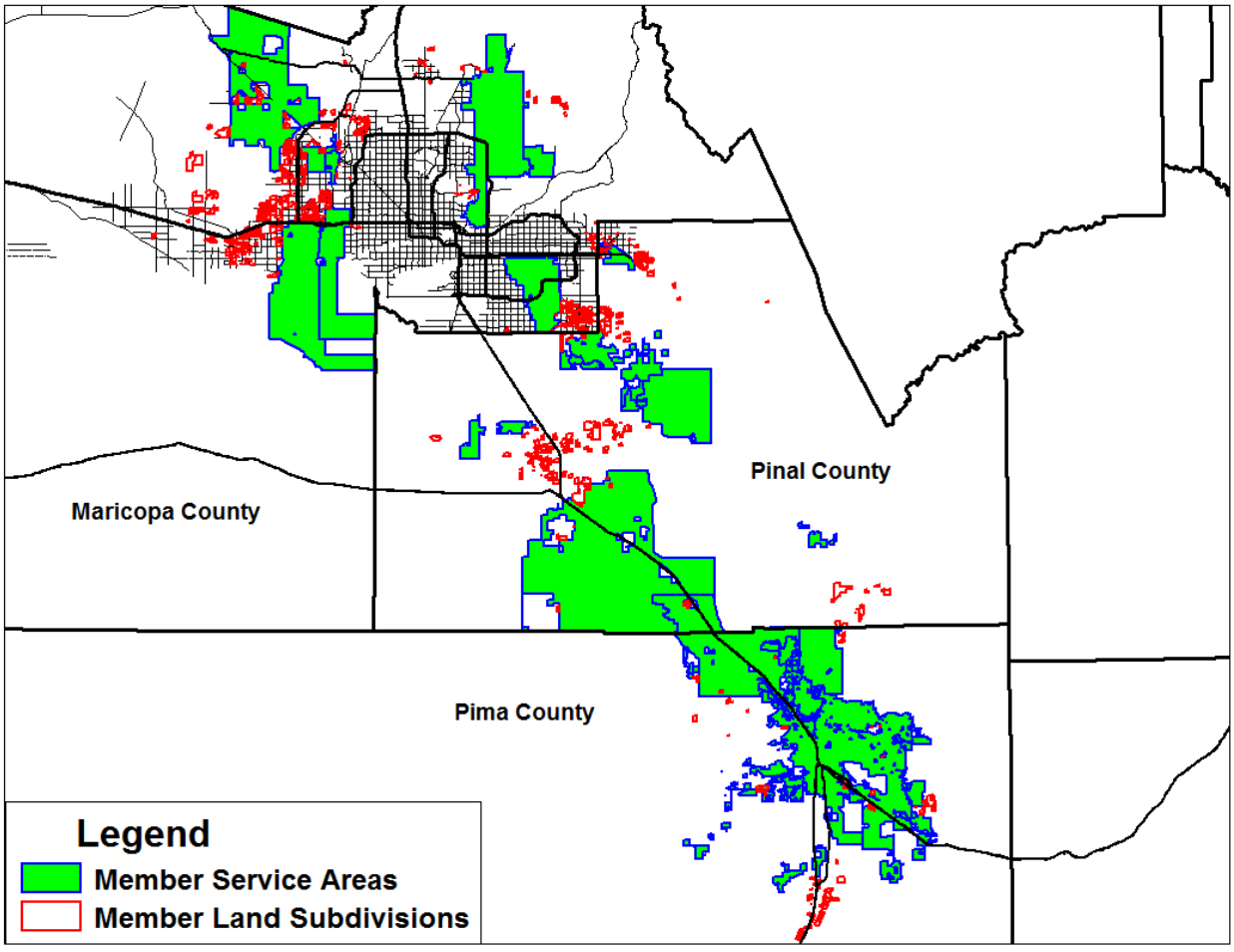
- By 2030, the Maricopa Association of Governments projected that one out of every seven homes built in Greater Phoenix would be in the City of Buckeye and is forecasted to capture an even larger share of newly built homes in subsequent decades. Nearly 14% of all projected growth over the next 40 years was slated for Buckeye, equating to between 3,200 and 3,700 new homes per year (9,000 to 10,000 new residents annually). This will not materialize under current policy. Other affected areas will also fall short of their long-term forecast, effectively suppressing statewide economic activity.

Executive Summary

The following report estimates economic and fiscal impacts of the development activity that has been facilitated by the Central Arizona Groundwater Replenishment District ("CAGRD") in many regions throughout Maricopa County, Pima County, and Pinal County.

In 1993, the Arizona Legislature provided the Central Arizona Water Conservation District ("CAWCD") with replenishment authorities within its three-county service area (Maricopa, Pinal and Pima counties). CAWCD's replenishment authorities are known collectively as the CAGRD. Subsequently, in 1995, the Arizona Department of Water Resources adopted new Assured Water Supply Rules that allowed enrollment in CAGRD to meet the obligation in the rules of demonstrating that the proposed use of groundwater is consistent with achievement of the management goal of the AMA.

Since 1995, a significant number of areas have enrolled in CAGRD in order to be able to facilitate growth. The following map illustrates the wide encompassing areas that have benefitted from CAGRD membership, many in high growth areas of the State. It is estimated that over 460,000 homes have been built in these regions, equating to a population of over 1.2 million residents.



Without the creation of CAGRD, a significant percentage of the land within the regions that were not developed by 1995 (when the new Assured Water Supply Rules became effective) could never be developed because water providers or landowners would have to buy and store a 100-year renewable water supply up front at prohibitive expense.

The development within CAGRD member lands and member service areas has generated enormous benefits in terms of job creation and additional tax revenues to the State of Arizona, its counties and municipalities from construction and the spending of new residents which has supported local industry. The following are key findings resulting from the analysis.

Economic Impacts

- **Construction activity has generated over 1.1 million person years of employment, nearly $50.4 billion in wages, and over $135.7 billion in economic impact throughout the State of Arizona.** This equates to an annual average of 40,245 jobs each year over the last twenty-eight years with annual wages of $1.8 billion and over $4.8 billion in annual economic output.

- New residents within CAGRD regions have spent over $180 billion on goods and services in the local economy since 1995. Their spending supported hundreds of thousands of jobs each year, generated nearly $95.6 billion in wages, and created $253.6 billion in economic output. **As of 2022, resident spending supports nearly 178,600 jobs, over $9.2 billion in wages, and $24.9 billion in annual economic activity.** These figures are expected to continue to grow each year as new development occurs.

Economic Impact Summary
Development Facilitated by CAGRD

Construction	Total (28 years)	Annual Average
Person years of employment	1,126,866	40,245
Wages ($bil)	$50.4	$1.80
Economic Output ($bil)	$135.7	$4.85
Jobs Spported by Resident Spending	**Historical Total**	**Latest Year (2022)**
Jobs		178,601
Wages ($bil)	$95.6	$9.2
Economic Output ($bil)	$253.6	$24.9

Sources: CAGRD; Elliott D. Pollack & Co.; IMPLAN; Arizona Department of Revenue

Fiscal Impacts

- Residential construction that has occurred on CAGRD member lands and within member service areas produced an estimated **$7.8 billion** in revenues for the State of Arizona and its local governments. Nearly $3.9 billion was generated through construction sales taxes. Employee generated taxes by construction workers and state shared revenues totaled an estimated $3.9 billion. These estimates do not include impact or permit fees, which would be substantial.

- The State and local governments have collected **OVER $27 billion** from tax revenues generated by residents of CAGRD regions. Significant sources of revenue include sales tax ($8.7 billion), income tax ($6.7 billion), and property tax ($5.1 billion). Residents have also contributed through vehicle license taxes, utility taxes, the highway user revenue fund, and unemployment insurance taxes.

- All totaled, the impacts attributable to CAGRD membership have reached **over $35.1 billion** in collected tax revenue.

Fiscal Impact Summary
Development Facilitated by CAGRD

Construction				
	State	**County**	**Local**	**TOTAL**
Construction Sales Tax	$2,398,047,600	$326,539,400	$1,166,423,500	$3,891,010,500
Secondary Total	$1,821,681,200	$1,185,749,100	$908,492,000	$3,915,922,300
Total Impact from Construction	**$4,219,728,800**	**$1,512,288,500**	**$2,074,915,500**	**$7,806,932,800**
Resident Supported Impacts				
	State	**County**	**Local**	**TOTAL**
Sales Tax	$4,801,650,000	$972,115,400	$2,965,738,300	$8,739,503,700
Utility Tax	$547,988,800	$76,457,600	$234,521,100	$858,967,500
Income Tax	$5,730,795,500	N/A	$1,011,316,800	$6,742,112,300
Unemployment Tax	$1,227,431,400	N/A	N/A	$1,227,431,400
Vehicle License Tax	$356,202,000	$750,367,100	$687,245,300	$1,793,814,400
Highway User Revenue Fund	$470,308,400	$270,259,200	$324,997,300	$1,065,564,900
Property Tax	N/A	$3,949,664,800	$1,132,219,000	$5,081,883,800
State Shared Revenues	N/A	$1,105,430,200	$682,195,900	$1,787,626,100
Total Impact from Residents	**$13,134,376,100**	**$7,124,294,300**	**$7,038,233,700**	**$27,296,904,100**
GRAND TOTAL				
	State	**County**	**Local**	**TOTAL**
GRAND TOTAL	**$17,354,104,900**	**$8,636,582,800**	**$9,113,149,200**	**$35,103,836,900**

NOTE: All of the above figures are representative of the major revenue sources for various levels of government. The figures are intended only as a general guideline as to how the various levels of government have been impacted. The above figures are based on historical and current economic structures and tax rates.

Sources: CAGRD; U.S. Census; Elliott D. Pollack & Co.; IMPLAN; Arizona Department of Revenue

- In just the last year alone, the development that occurred provided **nearly $493.8 million** to state and local governments while existing residents generated **over $2.6 billion** in tax revenue for the State of Arizona and various government jurisdictions.

Annual Fiscal Impact Summary - 2022
Development Facilitated by CAGRD

Construction				
	State	**County**	**Local**	**TOTAL**
Construction Sales Tax	$157,890,000	$22,202,000	$81,744,400	$261,836,400
Secondary Total	$101,665,500	$71,412,300	$58,850,700	$231,928,500
Total Impact from Construction	**$259,555,500**	**$93,614,300**	**$140,595,100**	**$493,764,900**
Resident Supported Impacts				
	State	**County**	**Local**	**TOTAL**
Sales Tax	$423,194,500	$89,005,400	$275,329,900	$787,529,800
Utility Tax	$40,606,800	$5,962,100	$18,719,600	$65,288,500
Income Tax	$622,060,100	N/A	$109,775,300	$731,835,400
Unemployment Tax	$87,617,400	N/A	N/A	$87,617,400
Vehicle License Tax	$27,413,800	$57,749,400	$52,891,400	$138,054,600
Highway User Revenue Fund	$34,468,600	$19,807,100	$23,818,800	$78,094,500
Property Tax	N/A	$425,283,200	$130,243,700	$555,526,900
State Shared Revenues	N/A	$96,710,300	$59,683,000	$156,393,300
Total Impact from Residents	**$1,235,361,200**	**$694,517,500**	**$670,461,700**	**$2,600,340,400**
GRAND TOTAL				
	State	**County**	**Local**	**TOTAL**
GRAND TOTAL	**$1,494,916,700**	**$788,131,800**	**$811,056,800**	**$3,094,105,300**

NOTE: All of the above figures are representative of the major revenue sources for various levels of government. The figures are intended only as a general guideline as to how the various levels of government have been impacted. The above figures are based on the current economic structures and tax rates.

Sources: CAGRD; U.S. Census; Elliott D. Pollack & Co.; IMPLAN; Arizona Department of Revenue

Potential Impacts of Suspending New Certifications of Assured Water Supply

Over the last 18 months, three ADWR studies related to future groundwater availability within designated Active Management Areas (AMAs) have been released. The studies include the Pinal AMA in September 2022, the Hassayampa sub-basin study in January 2023, and the Phoenix AMA study in May 2023.

As with any study of this nature, conclusions are reliant upon models that produce a forecast of future conditions. These models are informed by available historical data and rely on forecasts by formulating assumptions. These models are technically oriented and are not designed to be easily understood by the public. Even impacted stakeholders (landowners, developers, builders,

investors, and the broader business community) or local governments who understand our water situation at a very high level still cannot effectively review the inner workings of the modeling.

From reviews of the studies, along with subsequent interviews with water experts and regional stakeholders, it appears that several key assumptions in these studies were not examined to determine their reasonableness and applicability to the affected areas by the broader community of impacted stakeholders prior to the release of the reports. For example, assumptions that were used regarding water usage per household conflict with the latest data available. Instead, the assumption uses extrapolations of long-term historical water use patterns which are now clearly outdated. That is just one issue that potentially could have changed each report's conclusion from a shortage of groundwater to a surplus.

When each study was released, local and national media headlines consistently reported that, according to these studies, populated areas of Arizona were running out of water and could not support new development. Even if it were unintentional, these are the moments when a technical groundwater study designed mainly to inform long term water planning becomes an economic development red flag for Arizona.

In our opinion, there is a critical need to remedy this process. Potential economic damage could have been avoided by simply investigating the assumptions embedded in the model internally through stakeholder engagement before their public release. When it is understood that some of the assumptions in the model are essentially extrapolations of past decades' activities, it is clear that adjustments are warranted. It is not reasonable to predict water demand today using extrapolations from one hundred years ago. Just accounting for water efficiency factors achieved in the recent past would materially affect model outcomes. Moreover, the model makes no effort to assume more efficient water usage in the future with technological advances or changes in consumer preferences.

Proper water usage is only one factor. The model's improper placement of wells was simply uncalled for. In addition, the model does not take into account the elasticity of demand (the more you charge, the less you use), potential savings from xeriscape landscaping (at least 60% of single-family water usage is outside the house), the mandate that housing developments reclaim water back into the ground even though that ability already exists, and reclaiming brackish water, just to name a few. The model either had no flexibility to make informed adjustments because it was constrained by policies or current legislation, or did not receive the benefit of stakeholder reviews, which would have included third-party water experts.

Numerous landowners, investors, and developers now have stranded investments that were made based on the previous decades of established policy. Successful residential communities throughout the affected areas now cannot proceed with their next phase of development on a neighboring property, the most logical next places to continue to develop, with all the available infrastructure in place. By contrast, a substantial number of "available" lots with certificates are not financially feasible. CAGRD data of unbuilt homes with certificates confirms that the vast

majority of certificates were issued 15 or more years ago. The lack of development activity on these certificates over the past two decades indicates that they are likely not reflective of the current market for homes or have burdensome infrastructure requirements that make projects not feasible.

Summary of Available Lots by Enrollment Year

	Phoenix AMA		Pinal AMA		Pima AMA		TOTAL CAGRD	
Enrollment Period	**Lots**	**% Total**	**Lots**	**% Total**	**Lots**	**% Total**	**Lots**	**% Total**
Enrolled 0-5 Years Ago	24,235	30%	0	0%	2,431	21%	**26,666**	**18%**
Enrolled 6-14 Years Ago	6,930	9%	262	1%	229	2%	**7,421**	**5%**
Enrolled 15+ Years Ago	50,240	62%	51,376	99%	9,066	77%	**110,682**	**76%**
Total	**81,405**		**51,638**		**11,726**		**144,769**	

Source: CAGRD

There are also owners of agricultural land in the immediate path of development with readily available infrastructure that are willing to sell to home builders which would substantially decrease water demand when converted from an agricultural use.

If the current policy holds, it will negatively impact the region's home supply crunch and worsen affordability conditions which puts at risk previously forecasted growth in population, employment, and economic activity. Many of the affected areas are actively growing regions as well as some of the last remaining locations that homeowners could find a new home for under $400,000. Nearly every new home under that price point was built in the West Valley and over 27% were built in the City of Buckeye. Centrally located municipalities with a Designation of Assured Water Supply simply do not have enough available or affordable land for the range of housing options needed to support a growing workforce.

At current mortgage interest rates, the required household income in affordable areas such as Buckeye is still at least $100,000 (and at least $85,000 if interest rates decline back to 5%). The current policy will substantially reduce the number of homes that can be constructed under this price point. For households earning an income in this price range, they will either choose to remain in the state in a housing option that is not their preference, or it will drive them to choose lower-cost housing out of the state. Recent U.S. Census data of net out-migration from the State of Arizona indicates that most residents leaving Arizona are locating to places where housing is more affordable.

By 2030, the Maricopa Association of Governments projected that one out of every seven homes built in Greater Phoenix would be in the City of Buckeye and is forecasted to capture an even larger share of newly built homes in subsequent decades. Nearly 14% of all projected growth over the next 40 years was slated for Buckeye, equating to between 3,200 and 3,700 new homes per year (9,000 to 10,000 new residents annually). Apart from Pinal County, there

are very few remaining locations that can build a home under $400,000 in the region. Without an alternative at this price point, the region is at risk of losing this potential growth.

As illustrated in previous tables, new resident population generates substantial economic benefits for the state and local economy. They attract new employers as a growing workforce. They support local businesses and job creation by spending their disposable income which creates demand for goods and services. Significant tax revenue is also generated.

For every 10,000 residents lost, the state's economy loses out on the opportunity for 10,800 construction related jobs and $2.1 billion in construction related economic activity each year, and nearly $118.7 million in construction related taxes on an annual basis.

Those residents would have additionally supported over 1,500 jobs in the local economy and created $213.9 million in economic output through $143.8 million in spending, resulting in a loss of $22.4 million in state and local taxes. These figures double and triple each year that growth underperforms its potential.

Commercial development is also impacted. Retail development requires a critical mass of households before locating new stores. The policy is restricting the ability for these areas to build to that required threshold. This impacts current residents who must drive greater distances for shopping needs and decreases the amount of local tax revenue for the municipality.

From an economic perspective, the sudden and drastic measures that were announced created uncertainty and risk, an effective deterrent to potential investors in our state's economy. The damage by media coverage has already been done, though it is nearly impossible to measure the full extent of the impacts of investments that never materialize. The prevailing sentiment that Arizona is out of water is now a significant hurdle that requires educating all future potential investment in our State. Housing affordability is already a pressing issue, and this policy is another blow to finding solutions going forward.

The results of these studies and the subsequent policies restricting new residential growth, if left unexamined, will significantly inhibit new economic growth in our state due to the way they were presented through the media. This could mean fewer jobs, less real income growth, less economic opportunity, higher housing costs, and a generally worsening economic environment.

1.0 Introduction

1.1 Purpose of Study

Elliott D. Pollack & Company was retained to perform an economic and fiscal impact analysis of the development that has been able to occur due to membership in the Central Arizona Groundwater Replenishment District ("CAGRD"). The areas affected by this organization span the three-county area of Maricopa County, Pinal County, and Pima County.

Economic impact analysis examines the regional implications of an activity in terms of three basic measures: output, earnings and job creation. Fiscal impact analysis, on the other hand, evaluates the public revenues and costs created by a particular activity. In fiscal impact analysis, the primary revenue sources of a city, county or state government are analyzed to determine how the activity may financially affect them.

1.2 Limiting Conditions

This study prepared by Elliott D. Pollack & Company is subject to the following considerations and limiting conditions.

- It is our understanding that this study is for the client's due diligence and other planning purposes. Neither our report, nor its contents, nor any of our work were intended to be included and, therefore, may not be referred to or quoted in whole or in part, in any registration statement, prospectus, public filing, private offering memorandum, or loan agreement without our prior written approval.

- The reported recommendation(s) represent the considered judgment of Elliott D. Pollack & Company based on the facts, analyses and methodologies described in the report.

- Except as specifically stated to the contrary, this study will not give consideration to the following matters to the extent they exist: (i) matters of a legal nature, including issues of legal title and compliance with federal, state and local laws and ordinances; and (ii) environmental and engineering issues, and the costs associated with their correction. The user of this study will be responsible for making his/her own determination about the impact, if any, of these matters.

- This study is intended to be read and used as a whole and not in parts.

- This study has not evaluated the feasibility or marketability of any site for planned uses.

- Estimates regarding specific land use, construction costs and operating data were provided by reputable market resources as specified in the tables within this report. Data has been reviewed and verified to determine its reasonableness and applicability to the analysis.

- This economic and fiscal impact study evaluates the potential "gross impacts" of construction and operations activities. The term "gross impacts" as used in this study refers to the total revenue, jobs and economic output that would be generated by construction and commercial activity.

- The analysis is based on the current and historical tax structure and rates imposed by the State, counties, and local governments. Changes in those rates would alter the findings of this study.

- Our analysis is based on currently available information and estimates and assumptions about long-term future development trends. Such estimates and assumptions are subject to uncertainty and variation. Accordingly, we do not represent them as results that will be achieved. Some assumptions inevitably will not materialize and unanticipated events and circumstances may occur; therefore, the actual results achieved may vary materially from the forecasted results. The assumptions disclosed in this study are those that are believed to be significant to the projections of future results.

2.0 Background, Assumptions & Methodology

2.1 Background

In 1980, the Arizona legislature enacted a comprehensive groundwater code known as the Groundwater Management Act (GMA). The GMA imposed new regulations on groundwater use within Active Management Areas (AMAs), including limits on new groundwater users and the drilling of new wells. It also mandated water conservation measures and, through its Assured Water Supply Program, required all new developments within an AMA to prove access to a reliable water supply for a 100-year period.

By the early 1990s, it became clear that the GMA's Assured Water Supply Program needed to be strengthened to further protect dwindling groundwater supplies, particularly in those AMAs that were experiencing historically high rates of population growth. As a result, the Arizona Department of Water Resources (ADWR) proposed a strict new set of Assured Water Supply Rules that created the need for a replenishment authority that could provide protection of groundwater resources while still allowing for continued development in the AMAs.

In 1993, the Arizona legislature provided the Central Arizona Water Conservation District (CAWCD) with replenishment authorities within its three-county service area (Maricopa, Pinal and Pima Counties). CAWCD's replenishment authorities are known collectively as the Central Arizona Groundwater Replenishment District or CAGRD. Subsequently, in 1995, ADWR adopted new Assured Water Supply Rules that allowed enrollment in CAGRD to meet the obligation in the rules of demonstrating that the proposed use of groundwater is consistent with achievement of the management goal of the AMA.

Without the creation of CAGRD, a significant percentage of the land within the AMAs that were not developed by 1995 (when the new Assured Water Supply Rules became effective) could never be developed because water providers or landowners would have to buy and store up front a 100-year renewable water supply at prohibitive expense.

Under CAGRD's authorizing legislation, a water provider may voluntarily enroll its service area as a "Member Service Area" of CAGRD. Landowners who desire to subdivide land that is located in a water service area that has not been enrolled as a Member Service Area may enroll the proposed subdivision as a "Member Land" of CAGRD. Enrollment in CAGRD allows for continued growth of service areas and subdivisions through the use of groundwater that would not otherwise be possible under the 1995 Assured Water Supply Rules.

To ensure its continued operational and financial viability, CAGRD is required by statute to prepare a Plan of Operation (Plan) at least every ten years for review and approval by the Director of the Arizona Department of Water Resources (ADWR).[1] For each AMA in which CAGRD operates, the Plan describes CAGRD's operations over the prior ten years, projects

[1] The most recent Plan of Operation was approved by the Director of ADWR on August 5, 2015 and covers the 10-year period from 2015 through 2024. The 2015 Plan is available for review at www.CAGRD.com.

future enrollment and replenishment obligations for the subsequent twenty and one-hundred years, and demonstrates CAGRD's ability to meet all future obligations, including its financial capability.

2.2 Membership Enrollment in CAGRD

The following tables show membership enrollment by year and cumulatively within each AMA. As Table 2.2-1 illustrates, a large majority of CAGRD Member Lands are located within the Phoenix AMA. The east and west Phoenix AMA areas combined represent 79% of the total number of subdivisions and over 71% of the total number of homes within Member Lands. The west valley has been particularly active, representing nearly half of all homes within CAGRD Member Lands. Nearly 1,300 subdivisions, representing nearly 313,900 homes, have been enrolled as Member Lands of CAGRD.

Table 2.2-1 CAGRD Member Land Enrollment

Year	Phoenix AMA - West		Phoenix AMA - East		Pinal AMA		Tucson AMA		Total		Cumulative	
	Sub-divisions	Homes	Sub-divisions	Homes	Sub-divisions	Homes	Sub-divisions	Homes	Sub-divisions	Homes	Sub-divisions	Homes
1995	1	132	1	16	-	-	2	35	4	183	4	183
1996	9	3,019	18	1,830	1	11	7	522	35	5382	39	5,565
1997	17	2,528	25	2,657	5	394	16	1,275	63	6854	102	12,419
1998	10	1,784	36	2,630	5	359	2	354	53	5127	155	17,546
1999	19	4,565	35	3,830	10	780	5	664	69	9839	224	27,385
2000	22	5,803	31	3,935	17	12,989	6	6,435	76	29162	300	56,547
2001	29	13,340	11	2,041	13	5,098	8	3,358	61	23837	361	80,384
2002	29	6,363	10	4,378	5	490	6	2,259	50	13490	411	93,874
2003	75	17,006	18	2,882	6	1,333	14	1,720	113	22941	524	116,815
2004	91	12,740	8	1,785	9	2,609	11	1,809	119	18943	643	135,758
2005	98	13,886	25	5,363	14	3,502	11	1,731	148	24482	791	160,240
2006	47	26,895	34	6,892	25	23,833	10	2,178	116	59798	907	220,038
2007	25	9,502	12	3,929	13	8,029	10	1,382	60	22842	967	242,880
2008	11	5,766	19	1,579	10	3,085	4	602	44	11032	1,011	253,912
2009	3	1,121	2	85	1	56	2	34	8	1296	1,019	255,208
2010	2	149	2	524	2	116	3	70	9	859	1,028	256,067
2011	1	852	-	-	1	7	-	-	2	859	1,030	256,926
2012	3	1,266	-	-	-	-	2	126	5	1392	1,035	258,318
2013	3	1,105	6	1,078	-	-	-	-	9	2183	1,044	260,501
2014	8	986	7	3,153	-	-	-	-	15	4139	1,059	264,640
2015	9	2,191	6	528	-	-	1	55	16	2774	1,075	267,414
2016	9	1,343	5	233	-	-	1	10	15	1586	1,090	269,000
2017	9	886	9	3,083	-	-	-	-	18	3969	1,108	272,969
2018	21	6,375	10	1,870	1	151	1	37	33	8433	1,141	281,402
2019	17	3,337	14	3,081	-	-	1	81	32	6499	1,173	287,901
2020	20	4,494	1	63	-	-	1	114	22	4671	1,195	292,572
2021	11	3,487	16	4,042	-	-	3	294	30	7823	1,225	300,395
2022	17	3,622	12	3,385	-	-	1	95	30	7102	1,255	307,497
2023	3	1,024	4	566	-	-	3	1928	10	3518	1,265	311,015
Pending	10	2,247	4	592	-	-	-	-	14	2839	1,279	313,854
Total	**629**	**157,814**	**381**	**66,030**	**138**	**62,842**	**131**	**27,168**	**1,279**	**313,854**	**1,279**	**313,854**

Source: www.CAGRD.com

According to the most recently available publications, there are 24 municipal water service areas enrolled as Member Service Areas of CAGRD.

Table 2.2-2 CAGRD Member Service Area Enrollment

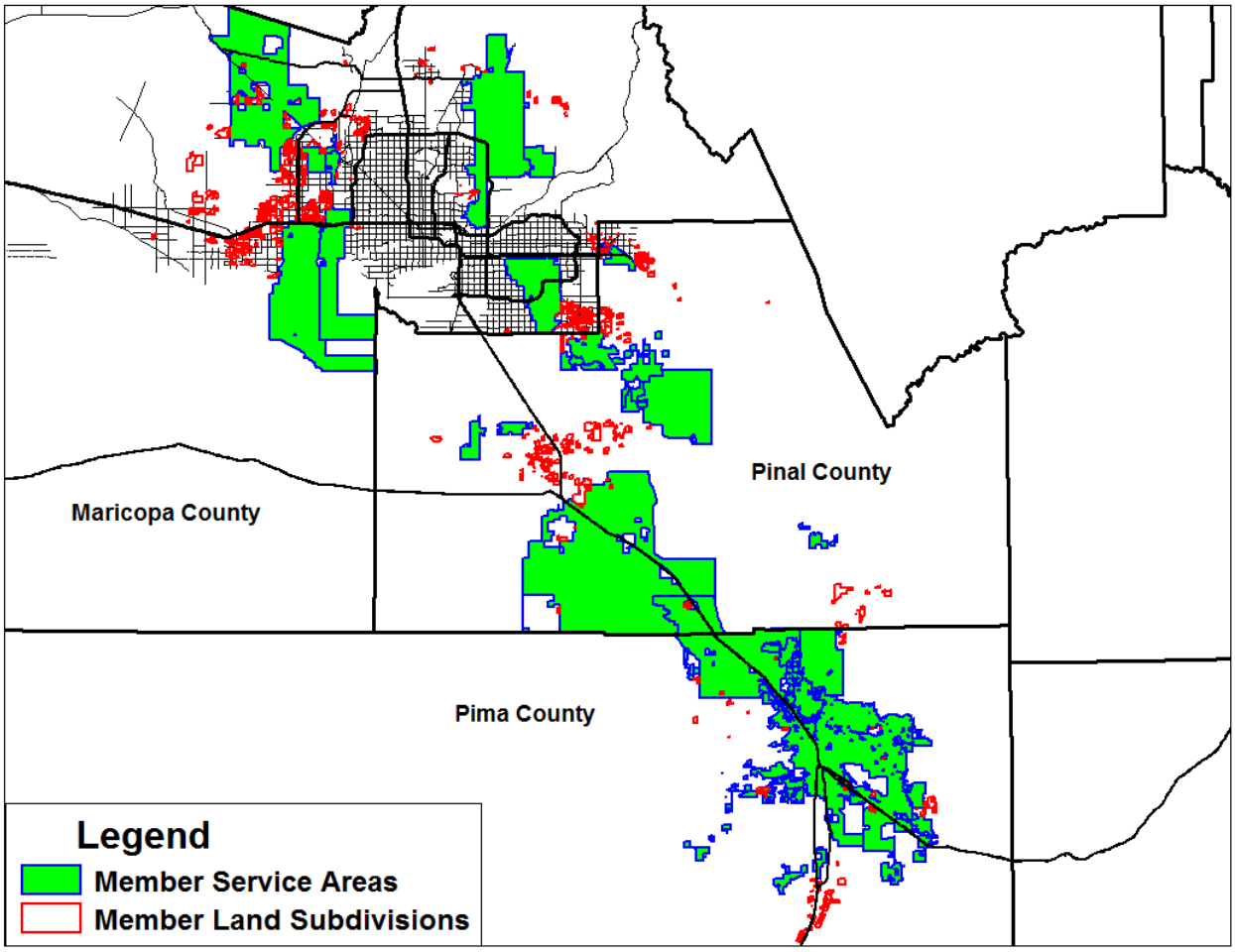
Member Service Area	County	AMA	Date
Apache Junction WUCFD	Maricopa	Phoenix (East)	2/15/1996
City of Avondale	Maricopa	Phoenix (West)	1/16/1998
Chaparral City Water Company	Maricopa	Phoenix (East)	4/7/2004
City of Casa Grande (Copper Mountain Ranch CFD)	Pinal	Pinal	6/20/2002
City of El Mirage	Maricopa	Phoenix (West)	8/23/1999
City of Eloy	Pinal	Pinal	2/3/2000
Town of Florence	Pinal	Pinal	1/11/1999
Flowing Wells Irrigation District	Pima	Tucson	5/27/2008
Town of Gilbert	Maricopa	Phoenix (East)	4/17/2007
City of Goodyear	Maricopa	Phoenix (West)	10/4/2001
EPCOR San Tan	Pinal	Phoenix (East)	5/18/2000
EPCOR San Tan - Anthem	Pinal	Pinal	5/18/2000
Town of Marana	Pima	Tucson	12/12/1995
Metropolitan Domestic Water Improvement District-West	Pima	Tucson	12/19/2005
Metropolitan Domestic Water Improvement District-Diablo	Pima	Tucson	2/20/2014
Town of Oro Valley	Pima	Tucson	3/18/1997
Sahuarita Water Company	Pima	Tucson	7/26/1999
City of Scottsdale	Maricopa	Phoenix (East)	11/21/2001
Spanish Trail Water Company	Pima	Tucson	12/14/1997
Southwest Environmental Utilities LLC	Pinal	Pinal	Pending
City of Surprise	Maricopa	Phoenix (West)	7/21/1998
City of Tucson	Pima	Tucson	12/19/1996
Vail Water Company	Pima	Tucson	11/20/1995
Willow Springs Utilities, LLC	Pinal	Tucson	10/22/2006

Source: www.CAGRD.com

It is notable from these tables that membership differs significantly by AMA. Membership in the Tucson AMA is dominated by Member Service Areas, while membership in the Phoenix and

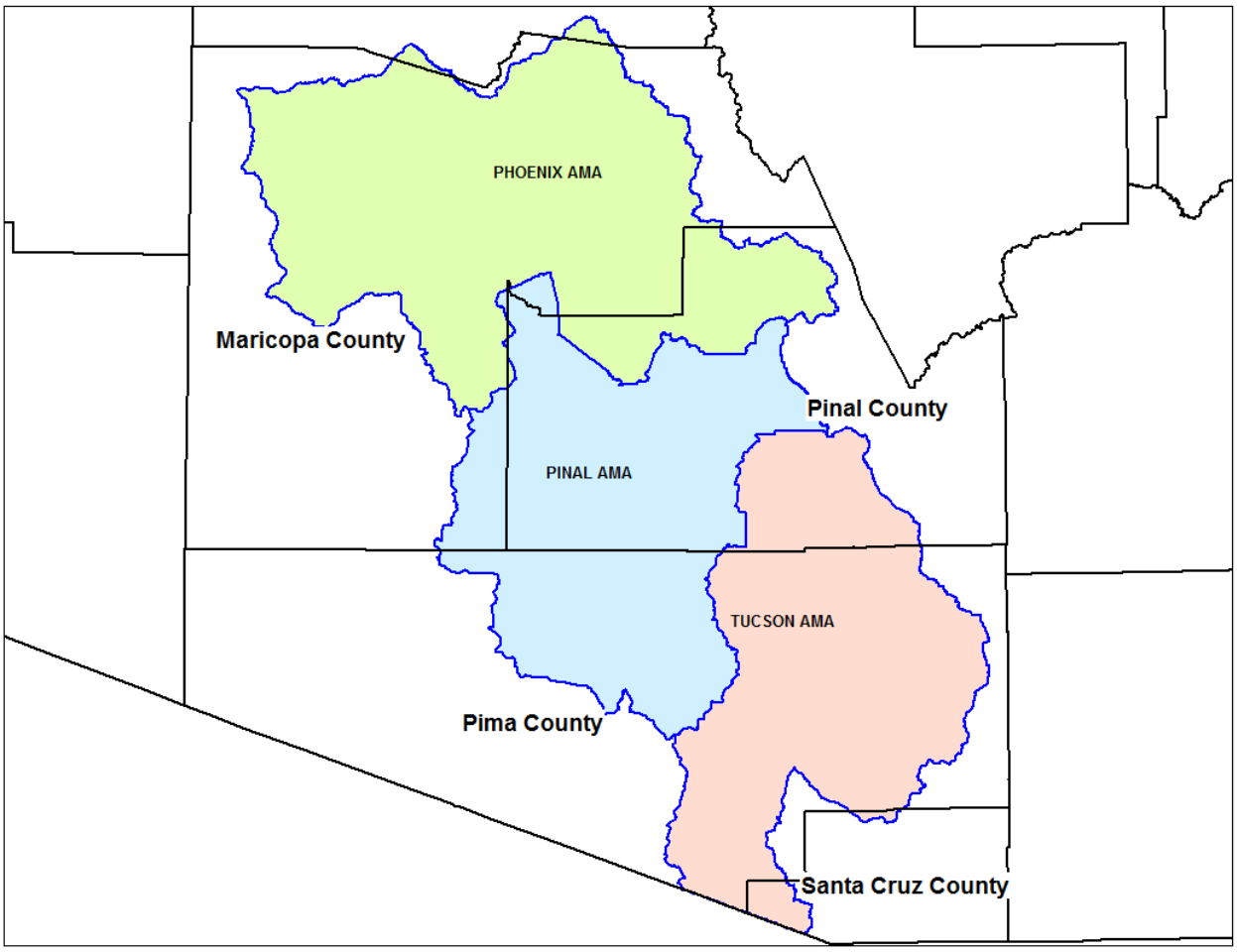
Pinal AMAs is dominated by Member Lands. Figure 2.2-1 shows the locations of the CAGRD members within CAWCD's three-county service area.

Figure 2.2-1 Map of CAGRD Member Lands and Member Service Areas



The following map helps to illustrate the AMAs within the context of the three-county region. While each AMA is named for the area that it significantly represents, there is some overlap of AMA boundaries and county boundaries.

Figure 2.2-2 Map of Active Management Areas (AMAs)



2.3 Historical Replenishment Obligations

As described above, CAGRD was created by the state legislature in 1993 in anticipation of the adoption of new Assured Water Supply rules. Once these new rules were adopted in 1995, CAGRD began enrolling members and incurring replenishment obligations. In the 22-year period from the enrollment of its first member in 1995 through 2016, CAGRD incurred replenishment obligations totaling more than 492,000 acre-feet.

2.4 Assumptions

The primary inputs of the economic and fiscal impact model are based on (1) historical home construction supplied by both CAGRD and estimates from the U.S. Census American Community Survey (2) basic economic source data such as the Consumer Expenditure Survey to determine spending patterns of employees and residents.

Assumptions specific to construction costs and resident spending used to estimate the economic and fiscal impacts of development within CAGRD regions were developed for this

analysis. This included historical new home prices and home values by region, median household income over time, utility usage, and other metrics.

2.5 Economic Impact Methodology

Economic impact analysis examines the economic implications of an activity in terms of output, earnings, and employment. For this study, the analysis focuses on the impact during construction as well as the ongoing impact of new residents once residential homes are sold and occupied.

The different types of economic impacts are known as direct, indirect, and induced, according to the manner in which the impacts are generated. For instance, direct employment consists of permanent jobs held by construction employees or supported by resident spending. Indirect employment is those jobs created by businesses that provide goods and services essential to the direct business operations. These businesses range from manufacturers (who make goods) to wholesalers (who deliver goods). Finally, the spending of the wages and salaries of the direct and indirect employees on items such as food, housing, transportation and medical services creates induced employment in all sectors of the economy, throughout the state. These secondary effects are captured in the analysis conducted in this study.

Multipliers have been developed to estimate the indirect and induced impacts of various direct economic activities. The IMPLAN Group, LLC, a nationally recognized provider of local multipliers, developed the multipliers used in this study. The economic impact is categorized into three types of impacts:

(1) **Employment Impact** – the total wage and salary and self employed jobs in a region. Jobs include both part time and full time workers.

(2) **Earnings Impact** – the personal income, earnings or wages, of the direct, indirect and induced employees. Earnings include total wage and salary payments as well as benefits of health and life insurance, retirement payments and any other non-cash compensation.

(3) **Economic Output** – also referred to economic activity, relates to the gross receipts for goods or services generated by a company's operations or by spending activity.

Economic impacts are by their nature regional in character. Such impacts are best illustrated when not assigned to a specific city or locality, although clearly the primary impact of job creation would be on the city where the project is located. However, many other communities in Greater Phoenix would also benefit from the construction and operations of the project. People working at the development would commute to work from their homes in all parts of the region. Therefore, the economic impact of the development project is expressed in this report as a regional benefit.

2.6 Fiscal Impact Methodology

Fiscal impact analysis studies the public revenues associated with a particular economic activity. The primary revenue sources of local, county, and state governments (i.e., taxes) are analyzed to determine how an activity may affect the various jurisdictions. This report will evaluate the impact of the historical development on the State of Arizona, the counties in Arizona, as well as cities and towns throughout the state.

The fiscal impact figures cited in this report have been generated from information provided by a variety of sources including the U.S. Bureau of the Census; the U.S. Department of Labor; the Internal Revenue Service; the State of Arizona; various county assessors' offices; and the U.S. Consumer Expenditure Survey. Elliott D. Pollack & Company has relied upon the estimates of construction cost and household spending assumptions outlined in this study.

Fiscal impacts are categorized by type in this study, similar to economic impact analysis. The major sources of revenue generation for governmental entities are related to the construction that occurred and ongoing resident expenditure impacts.

Construction impacts relate to the revenues generated from construction within CAGRD regions and include state and local sales taxes levied on construction materials. These are the "primary" revenues generated from the construction. In addition, the direct, indirect and induced employees supported by the construction activity also generate revenues to local and state governments. For instance, employees will spend part of their salaries on retail goods (thereby paying sales taxes), pay property taxes on real estate they own and contribute to the other revenue sources that are shared by the State with counties and local cities. In addition, part of the State's collection of sales taxes on construction materials is also shared with counties and local cities. They are referred to in this report as "secondary" impacts.

The ongoing household spending of new residents also creates beneficial fiscal effects for a community. The primary source of revenue for this analysis would be generated from retail sales taxes, income taxes, and property taxes. Households will spend a significant portion of their salaries on local goods and services. This spending will contribute to revenues collected by state and local governments. Additionally, counties and municipalities will benefit in terms of state shared revenue that they receive from state sales taxes, state income taxes, and other fees as outlined below.

The following is a description of the applicable revenue sources that were considered for this analysis.

- Construction Sales Tax

  The State, counties and cities levy a sales tax on materials used in the construction of buildings and land improvements. That tax is calculated by State law under the assumption that 65% of the construction cost of the facility and its land improvements

are related to construction materials with the remaining 35% as a deduction for labor. The sales tax rate is then applied to the 65% materials figure.

The sales tax on construction materials is a one-time collection by the governmental entity. The State currently levies a 5.6% sales tax on construction activity (a portion of which is shared with local governments). The local sales taxes have been applied utilizing estimates of the share of development that occurred in those areas. In some cases, weighted average tax rates were used if specific locations were not known.

- Sales Tax

The State, counties, and local cities in Arizona charge sales tax on retail goods, leases and utility usage. The sales tax rate for the State is 5.6%. Portions of this tax are redistributed through revenue sharing to counties and cities throughout Arizona based on population.

These tax rates are applied to retail sales and utility usage for all regions where development occurred and relate to the spending of residents and employees.

Based on data from the U.S. Consumer Expenditure Survey, the projected extent of retail spending by new residents and the resulting sales tax receipts was calculated. In addition, the employees supported by construction activity spent money at retail and restaurant establishments or purchased other local goods.

- State Shared Revenues

Each county and municipality in Arizona receives a portion of State revenues from four different sources - State sales tax (see description above), State income tax, vehicle license tax and highway user tax. The formulas for allocating these revenues are primarily based on population. Counties also share in the revenue sources of the State, with the exception of income tax.

State Income Tax

The State of Arizona collects taxes on personal income. The tax rate used in the analysis averages about 1.6% for earnings. This percentage is based on the most recently available income tax data from the Arizona Department of Revenue. The factor is applied to the projected wage levels of direct, indirect and induced employees supported by the construction and operations of the project. Portions of this tax are redistributed through revenue sharing to cities throughout Arizona based on population.

HURF Taxes

The State of Arizona collects specific taxes for the Highway User Revenue Fund (HURF). Both the registration fees and the motor vehicle fuel tax (gas tax) are

considered in this analysis. The motor vehicle fuel tax is $0.18 per gallon and is calculated based on a vehicle traveling 12,000 miles per year at 20 miles per gallon. Registration fees average $66 per employee in the State of Arizona. These factors are applied to the projected direct and indirect employee count. Portions of these taxes are distributed to cities and counties throughout Arizona based on a formula that includes population and the origin of gasoline sales.

Vehicle License Tax

The vehicle license tax is a personal property tax placed on vehicles at the time of annual registration. This factor is applied to the projected direct, indirect and induced employee count. The average tax used in this analysis is $325 and portions of the total collections are distributed to the Highway User Revenue Fund. The remaining funds are shared between cities and counties in accordance with population-based formulas.

The above tax categories represent the largest sources of revenues that would be generated to city, county, and State governments. This analysis considers gross tax collections and does not differentiate among dedicated purposes or uses of such gross tax collections.

3.0 Impacts of Construction

Construction phase impacts are generally short-term effects related to onsite and offsite construction employment as well as other supporting industries. However, this analysis includes ongoing construction activity that has occurred over the last 22 years. As such, cumulative totals as well as average annual impacts or most recent year impacts will be displayed for added context.

The long-term benefits of a project are typically referred to as operational phase impacts. These include employment, earnings and expenditures that recur over the long-term after a project is built out (Section 4.0). In this case, the primary impact will result from new resident spending.

3.1 Economic Impacts of Construction

This portion of the report will outline the economic impact of the construction of homes and other developments within CAGRD regions on the State of Arizona. The economic impacts of construction include total economic output, job creation and wages. The results presented are based on the assumptions of historical construction activity by county.

Since the impacts represent the entire construction phase, which spans decades, employment impacts are expressed as person years of employment. Person years of employment are the aggregate of each construction job that is recreated each year throughout the construction period. To derive the respective annual averages, employment, wages, and economic output have been divided by the total number of years that were analyzed (1995-2022).

As the following table illustrates, an estimated $75.7 billion in hard cost of construction over the last 28 years generated 619,600 direct person years of employment earning an estimated $28.3 billion in wages. Over this 28-year period, an average annual impact of 22,100 direct construction jobs with wages of $1.1 billion was created in these CAGRD regions.

An additional 507,300 indirect and induced person years of employment was also created by the ripple effects of construction throughout Arizona. These employees earned $22.1 billion and created $60.0 billion in economic activity.

In total, an estimated 1.1 million person years of employment was created during the last 28 years of construction in CAGRD member lands and member service areas. Total wages are estimated at $50.4 billion with total economic activity of over $135.7 billion. This equates to an annual average of 40,245 jobs each year over the last 28 years with annual wages of $1.8 billion and $4.8 billion in annual economic output.

Economic Impact of Construction Development Facilitated by CAGRD State of Arizona

Impact Type	Person Years of Employment	Wages	Economic Output
Direct	619,607	$28,297,858,000	$75,713,461,000
Indirect	225,902	$10,320,186,000	$24,867,319,000
Induced	281,357	$11,758,177,000	$35,121,450,000
Total	**1,126,866**	**$50,376,221,000**	**$135,702,230,000**
Average Annual Impact (28 years)			
Direct	22,129	$1,010,638,000	$2,704,052,000
Indirect	8,068	$368,578,000	$888,119,000
Induced	10,048	$419,935,000	$1,254,338,000
Total	**40,245**	$1,799,151,000	$4,846,508,000

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: CAGRD; U.S. Census; Elliott D. Pollack & Company; IMPLAN

3.2 Fiscal Impact of Construction

The table included in this section summarizes the revenues that will ultimately flow to the State of Arizona, its counties and municipalities from construction activity.

Some revenues are more direct and definable than others. Revenues have been defined in this analysis as either primary or secondary, depending on their source and how the dollars flow through the economy into government tax accounts. For instance, some revenues, such as construction sales taxes, are definable, straightforward calculations based on the value of construction. These revenues are described in this study as primary revenues.

Secondary revenues flow from the wages of direct, indirect and induced employees who are supported by the construction activity as well as revenues distributed by the State from various tax categories. Revenue projections are based on typical wages of the employees working in the project, their spending patterns, projections of where they might live, and other assumptions outlined earlier in this report.

State of Arizona

The State of Arizona has received an estimated $4.2 billion in tax revenues generated by the construction of homes within CAGRD areas. This includes primary revenues of $2.4 billion generated by the State's construction sales tax. In terms of secondary revenues, an estimated $1.8 billion in State tax collections was produced from the construction employees through spending, income taxes, and other taxes and fees.

Fiscal Impact of Construction Development Facilitated by CAGRD State of Arizona

Impact Type	Primary	Secondary					Total Revenues
	Construction Sales Tax	Employee Spending Sales Tax	Peronsal Income Tax	Unemployment Tax	Vehicle License Tax	Highway User Tax	
Direct	$2,398,047,600	$407,619,100	$415,162,700	$117,105,800	$32,017,700	$43,983,400	**$3,413,936,300**
Indirect	N/A	$148,641,600	$151,409,200	$42,695,400	$11,673,300	$16,035,800	**$370,455,300**
Induced	N/A	$175,143,200	$172,506,200	$53,176,500	$14,538,900	$19,972,400	**$435,337,200**
Total	**$2,398,047,600**	**$731,403,900**	**$739,078,100**	**$212,977,700**	**$58,229,900**	**$79,991,600**	**$4,219,728,800**

1/ The figures are intended only as a general guideline as to how the State could be impacted by the project. The above figures are based on the current economic structure and tax rates.

Source: CAGRD; Elliott D. Pollack & Co.; IMPLAN; AZ Dept. of Revenue; AZ Tax Research Association

Arizona Counties

Arizona counties have benefited by construction activity within CAGRD regions by over $1.5 billion. This includes over $326.5 million generated by construction sales taxes and an estimated $1.2 billion in county sales tax collections, property taxes, and state shared revenues resulted from construction employees and their ripple effects.

Fiscal Impact of Construction Development Facilitated by CAGRD Arizona Counties

Impact Type	Primary	Secondary			Total Revenues
	Construction Sales Tax	Employee Spending Sales Tax	Employee Property Tax	State Shared Revenues	
Direct	$326,539,400	$77,468,900	$406,335,500	$180,887,300	**$991,231,100**
Indirect	N/A	$27,753,900	$140,675,500	$61,879,000	**$230,308,400**
Induced	N/A	$37,740,700	$177,825,300	$75,183,000	**$290,749,000**
Total	**$326,539,400**	**$142,963,500**	**$724,836,300**	**$317,949,300**	**$1,512,288,500**

1/ The figures are intended only as a general guideline as to how the counties could be impacted by the project. The above figures are based on the current economic structure and tax rates of the counties.

Source: CAGRD; Elliott D. Pollack & Co.; IMPLAN; AZ Dept. of Revenue; AZ Tax Research Association

Arizona Cities & Towns

The cities and towns throughout the state have collected direct construction related taxes and state shared revenue estimated at nearly $2.1 billion. This includes primary revenues of nearly $1.2 billion generated by city-level construction sales taxes. In terms of secondary revenues, an estimated $908.5 million in city sales tax collections, property tax collections, and state shared revenue from the construction employees accrued to municipalities throughout the state.

Fiscal Impact of Construction Development Facilitated by CAGRD Arizona Cities & Towns

	Primary	Secondary			
Impact Type	Construction Sales Tax	Employee Spending Sales Tax	Employee Property Tax	State Shared Revenues	**Total Revenues**
Direct	$1,166,423,500	$244,048,800	$113,661,200	$155,580,200	**$1,679,713,700**
Indirect	N/A	$87,736,800	$38,683,600	$51,696,000	**$178,116,400**
Induced	N/A	$104,384,800	$49,675,300	$63,025,300	**$217,085,400**
Total	**$1,166,423,500**	**$436,170,400**	**$202,020,100**	**$270,301,500**	**$2,074,915,500**

1/ The figures are intended only as a general guideline as to how municipalities could be impacted by the project. The above figures are based on the current economic structure and weighted average tax rates of the affected municipalities.

Source: CAGRD; Elliott D. Pollack & Co.; IMPLAN; AZ Dept. of Revenue; AZ Tax Research Association

4.0 Impacts of New Residents

Operational phase impacts are examined in this section of the report. As construction occurred and residential units were occupied, the state and local governments benefitted in terms of new resident spending which supported local industries and produced ongoing annual tax revenues.

4.1 Economic Impact of Resident Spending

As new residents moved in to their homes within CAGRD regions, they began to spend a significant portion of their disposable income in the community and support a substantial number of jobs in the industries that the spending occurs in. This includes retail goods such as furniture, electronics, appliances, groceries, and clothing. Spending on services by residents includes maintenance and repairs, transportation, telecommunications, insurance, banking, medical care and other personal services. Residents also support local restaurants and bars as well as other entertainment venues.

The following table displays the results of the economic impact analysis from the most recent available year of resident spending (2022). In total, new residents within the Central Arizona Groundwater Replenishment District regions spend over $16.7 billion annually on goods and services in the local economy. **This is enough to support 178,600 jobs, $9.2 billion in wages, and $24.9 billion in annual economic activity.**

Annual Economic Impact of Resident Spending Development Facilitated by CAGRD State of Arizona

	Impact Type	Jobs	Wages	Economic Output
Retail	Direct	17,925	$852,657,000	$1,991,505,000
	Indirect	5,177	$328,519,000	$1,018,778,000
	Induced	6,203	$380,625,000	$1,168,593,000
	Total	**29,306**	**$1,561,801,000**	**$4,178,876,000**
Services	Direct	57,672	$3,026,396,000	$6,886,470,000
	Indirect	16,831	$1,239,996,000	$4,489,856,000
	Induced	22,411	$1,374,803,000	$4,220,891,000
	Total	**96,914**	**$5,641,195,000**	**$15,597,217,000**
Entertainment	Direct	20,821	$493,768,000	$1,195,828,000
	Indirect	1,688	$120,668,000	$381,922,000
	Induced	3,227	$197,998,000	$607,894,000
	Total	**25,736**	**$812,434,000**	**$2,185,644,000**
Restaurants & Bars	Direct	18,935	$706,548,000	$1,457,843,000
	Indirect	2,917	$206,238,000	$571,675,000
	Induced	4,793	$294,140,000	$903,069,000
	Total	**26,645**	**$1,206,926,000**	**$2,932,587,000**
GRAND TOTAL	Direct	115,354	$5,079,369,000	$11,531,646,000
	Indirect	26,613	$1,895,421,000	$6,462,231,000
	Induced	36,634	$2,247,566,000	$6,900,447,000
	Total Impact[1/]	**178,601**	**$9,222,356,000**	**$24,894,324,000**

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

Over the last 28 years combined, new residents within CAGRD regions have spent $182 billion in the local economy, supported hundreds of thousands of jobs each year, generated nearly $95.6 billion in wages, and created $253.6 billion in economic output.

4.3 Fiscal Impact of Operations

Similar to the fiscal impact of construction, the ongoing effects of new residents within the CAGRD regions have contributed significantly to taxes at all levels of government. This includes retail sales taxes, utility taxes, income taxes, vehicle license taxes, and gasoline taxes, and state shared revenue.

State of Arizona

The State of Arizona has received an estimated $13.1 billion in tax revenues generated by the households within CAGRD areas. Retail sales taxes from household spending and personal income taxes comprise the majority of the state's tax revenue.

In 2022, households in CAGRD regions generated over $1.2 billion in state taxes and fees for Arizona.

Fiscal Impact of Residents from Development Facilitated by CAGRD State of Arizona

	Historical Cumulative Total	Most Recent Year (2022)
Sales Tax	$4,801,650,000	$423,194,500
Utility Tax	$547,988,800	$40,606,800
Personal Income Tax	$5,730,795,500	$622,060,100
Unemployment Tax	$1,227,431,400	$87,617,400
Vehicle License Tax	$356,202,000	$27,413,800
Highway User Revenue Fees	$470,308,400	$34,468,600
Sub-Total	**$13,134,376,100**	**$1,235,361,200**

1/ The total may not equal the sum of the impacts due to rounding. All of the above figures are representative of the major revenue sources for the State. The figures are intended only as a general guideline as to how the State has been impacted. The above figures are based on historical and current economic structures and tax rates of the State.

Source: CAGRD; Elliott D. Pollack & Co.; ADOR; ATRA

Arizona Counties

Arizona counties have benefited by CAGRD household spending in the amount of $7.1 billion since 1995. This includes over $3.9 billion generated by county property taxes, and another $2.1 billion in various state shared revenues. Household spending also generated significant tax revenue, including an estimated $972.1 million in county sales tax collections and nearly $76.5 million in utility taxes.

In 2022, households in CAGRD regions generated over $694.5 million in county taxes and fees.

Fiscal Impact of Residents from Development Facilitated by CAGRD Arizona Counties

	Historical Cumulative Total	Most Recent Year (2022)
Sales Tax	$972,115,400	$89,005,400
Property Tax	$3,949,664,800	$425,283,200
Utility Tax	$76,457,600	$5,962,100
State Shared Revenues	$2,126,056,500	$174,266,800
Sub-Total	**$7,124,294,300**	**$694,517,500**

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1/ The total may not equal the sum of the impacts due to rounding. All of the above figures are representative of the major revenue sources for the counties. The figures are intended only as a general guideline as to how the counties have been impacted. The above figures are based on historical and current economic structures and tax rates of the affected counties.

Source: CAGRD; Elliott D. Pollack & Co.; ADOR; ATRA

Arizona Cities & Towns

The cities and towns throughout the state have collected household related taxes and state shared revenue estimated at over $7.0 billion over the last 28 years. This includes nearly $3.0 billion generated by municipal sales taxes and over $2.7 billion in various state shared revenues. Property taxes of over $1.1 billion and over $234.5 million in utility taxes accrued to municipalities throughout the state.

In 2022, households in CAGRD regions generated nearly $670.5 million in municipal taxes and fees.

Fiscal Impact of Residents from Development Facilitated by CAGRD Arizona Cities & Towns

	Historical Cumulative Total	Most Recent Year (2022)
Sales Tax	$2,965,738,300	$275,329,900
Property Tax	$1,132,219,000	$130,243,700
Utility Tax	$234,521,100	$18,719,600
State Shared Revenues	$2,705,755,300	$246,168,500
Sub-Total	**$7,038,233,700**	**$670,461,700**

1/ The total may not equal the sum of the impacts due to rounding. All of the above figures are representative of the major revenue sources for the municipalities. The figures are intended only as a general guideline as to how the municipalities have been impacted. The above figures are based on historical and current economic structures and tax rates of the affected municipalities.

Source: CAGRD; Elliott D. Pollack & Co.; ADOR; ATRA

Section 5.0 Suspending New Certifications of Assured Water Supply

5.1 Background

Over the last 18 months, three ADWR studies related to future groundwater availability within designated Active Management Areas (AMAs) have been released. The studies include the Pinal AMA in September 2022, the Hassayampa sub-basin study in January 2023, and the Phoenix AMA study in May 2023.

When each study was released, local and national media headlines consistently reported that, according to these studies, populated areas of Arizona were running out of water and could not support new development.

As with any study of this nature, conclusions are reliant upon models that produce a forecast of future conditions. These models are informed by available historical data and rely on forecasts by formulating assumptions. These models are technically oriented and are not designed to be easily understood by the public. Even impacted stakeholders (landowners, developers, builders, investors, and the broader business community) or local governments who understand our water situation at a very high level still cannot effectively review the inner workings of the modeling.

5.2 Supply Analysis

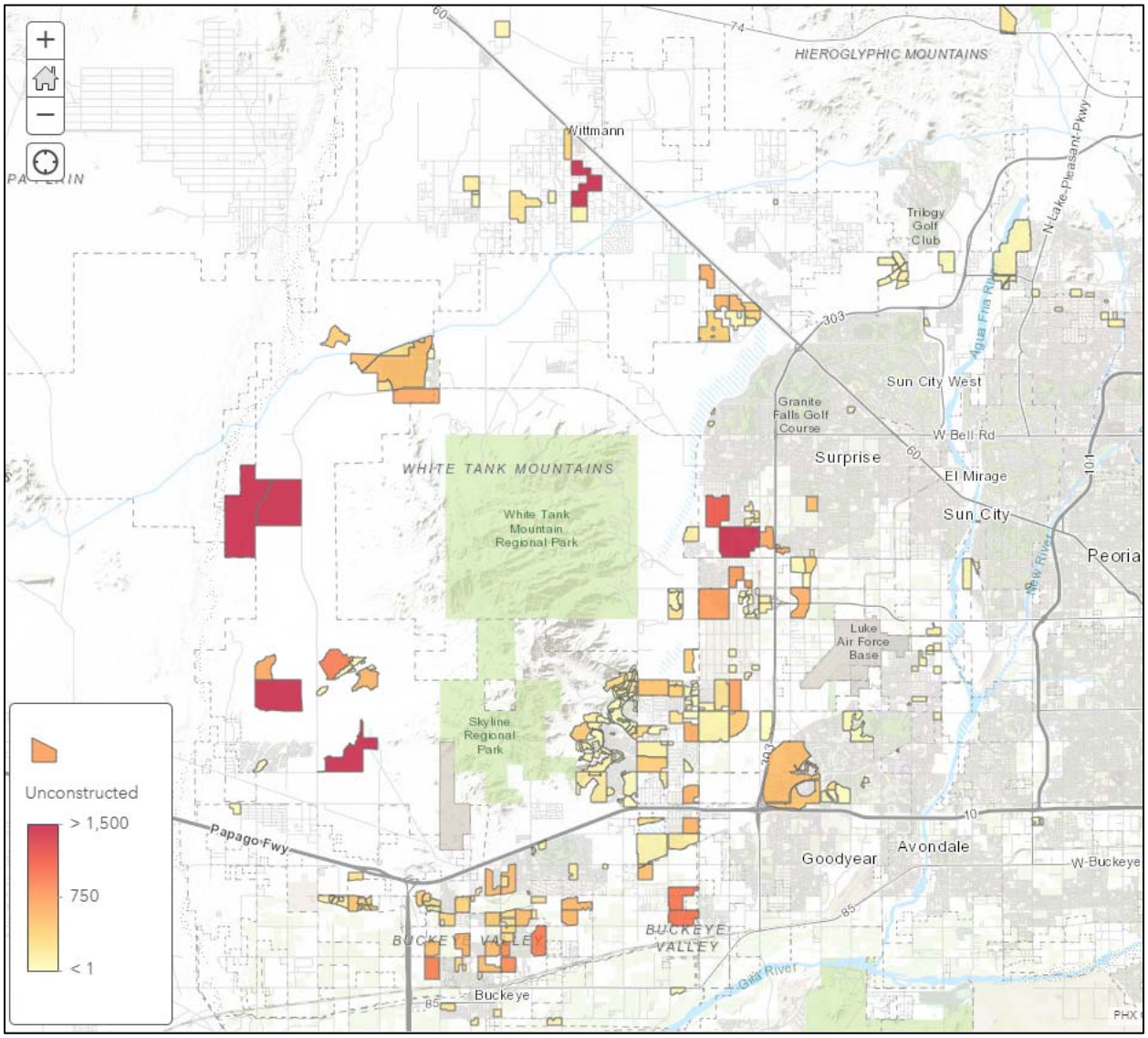
There is a widely publicized figure that 80,000 potential homes have been approved with certificates of assured water in the Phoenix AMA. The following table and maps illustrate the locations of these unbuilt homes based on information provided by CAGRD.

As illustrated, over half of the remaining unbuilt homes with certificates are located in the City of Buckeye (51.7%), followed by Surprise (13.2%), Queen Creek (12.3%), San Tan (6.1%), Glendale (5.6%), and Goodyear (5.2%).

Remaining Unbuilt Homes CAGRD Member Lands - Phoenix AMA		
Apache Junction	372	0.5%
Buckeye	42,085	51.7%
Carefree	108	0.1%
Cave Creek	112	0.1%
Glendale	4,589	5.6%
Goodyear	4,229	5.2%
Paradise Valley	138	0.2%
Peoria	1,129	1.4%
Phoenix	251	0.3%
Scottsdale	14	0.0%
Surprise	10,723	13.2%
Queen Creek	10,036	12.3%
Unincorporated Maricopa County	771	0.9%
Unincorporated Pinal County		
Queen Creek/San Tan	5,001	6.1%
Gold Canyon	1,847	2.3%
Total	**81,405**	

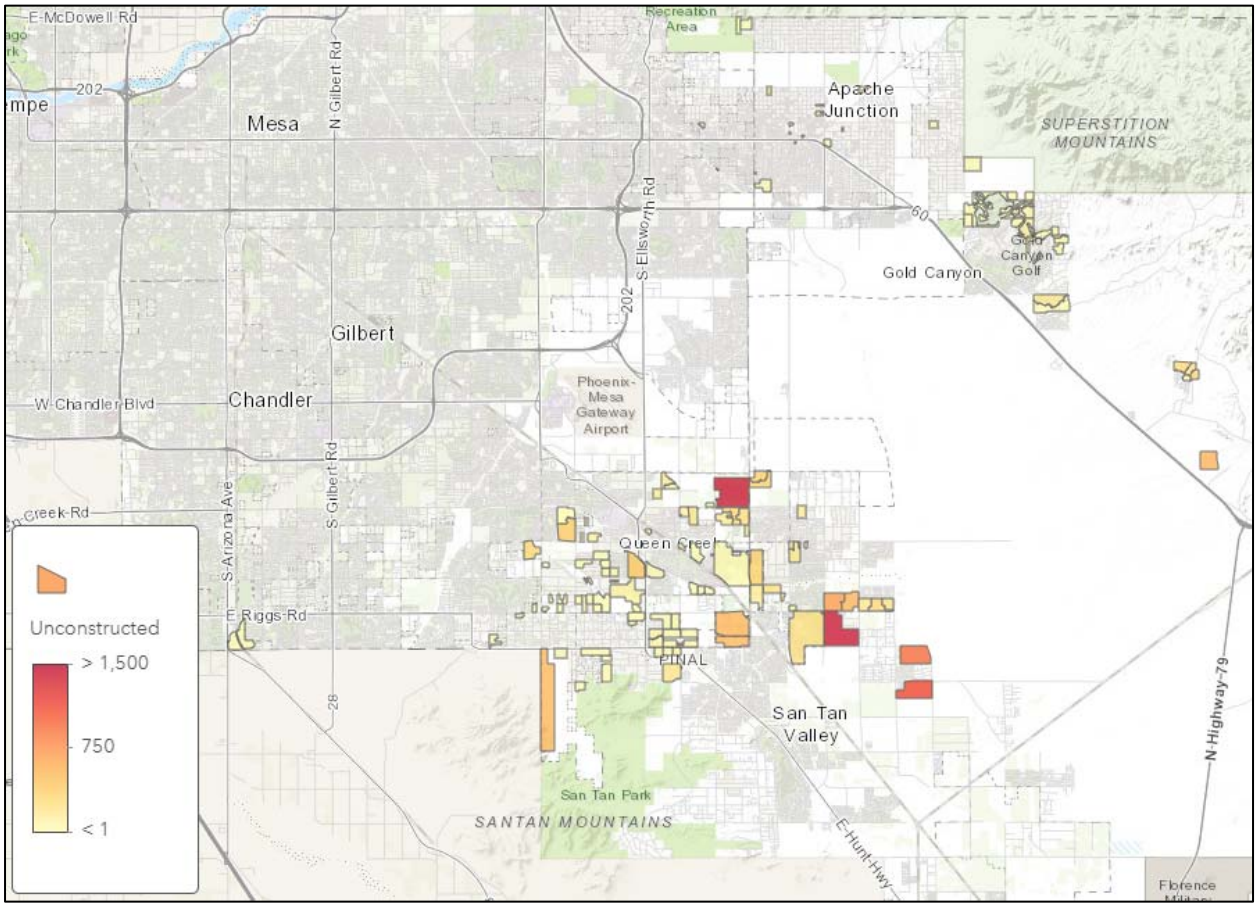
Source: CAGRD

Unbuilt Homes – West Valley Locations



Source: CAGRD

Unbuilt Homes – East & Southeast Valley Locations



The number of "available" lots is under dispute. A recent analysis of certificates by Arizona land brokerage firm, Land Advisors, found that 2,800 lots with certificates were located on land that has been sold and planned for an employment use and over 13,400 lots with certificates are located on parcels that currently are not financially feasible due to lack of infrastructure and/or are not on parcels large enough to spur investment in the required infrastructure. Data provided by CAGRD also confirms that the vast majority of certificates were issued 15 or more years ago. The lack of development activity on these certificates over the past two decades indicates that they are likely not reflective of the current market for homes.

Summary of Available Lots by Enrollment Year

	Phoenix AMA		Pinal AMA		Pima AMA		TOTAL CAGRD	
Enrollment Period	**Lots**	**% Total**	**Lots**	**% Total**	**Lots**	**% Total**	**Lots**	**% Total**
Enrolled 0-5 Years Ago	24,235	30%	0	0%	2,431	21%	**26,666**	**18%**
Enrolled 6-14 Years Ago	6,930	9%	262	1%	229	2%	**7,421**	**5%**
Enrolled 15+ Years Ago	50,240	62%	51,376	99%	9,066	77%	**110,682**	**76%**
Total	**81,405**		**51,638**		**11,726**		**144,769**	

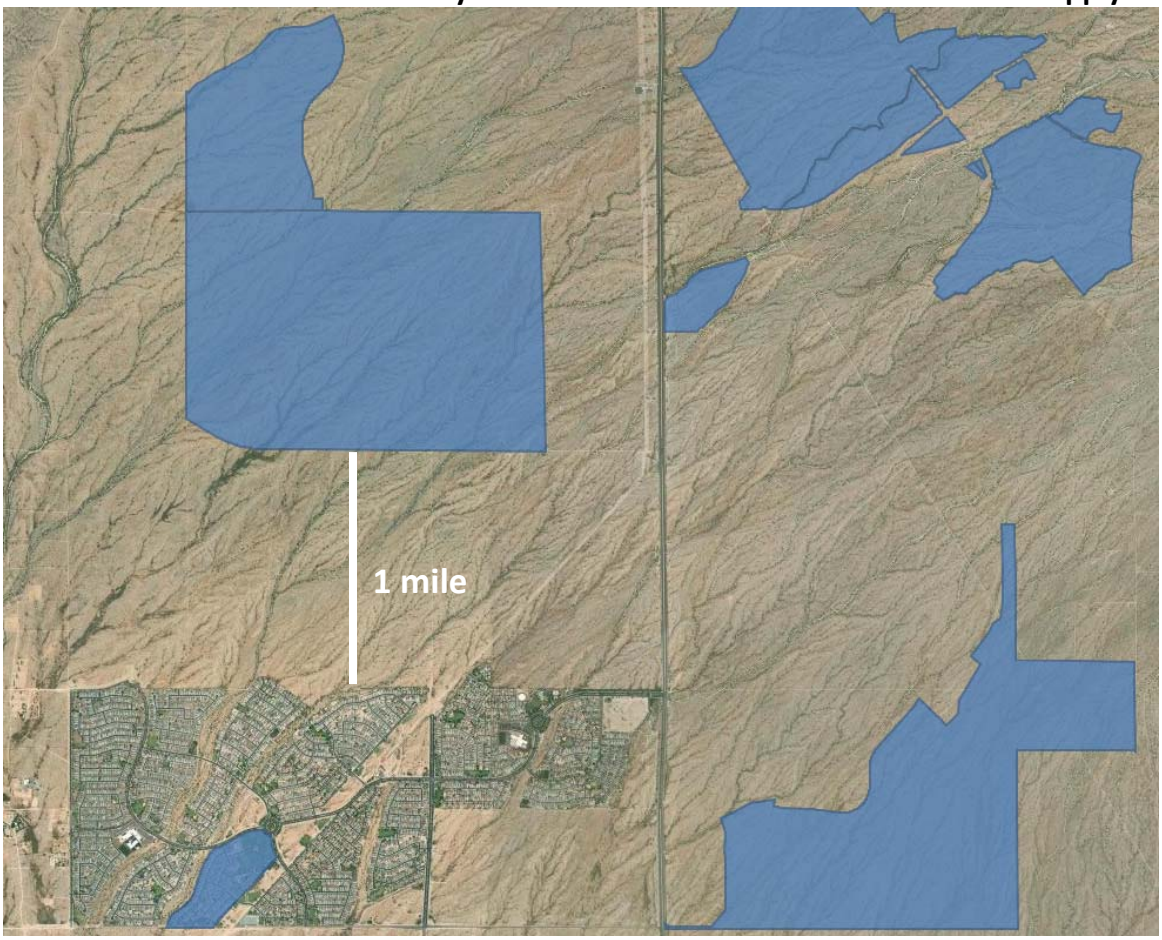
Source: CAGRD

In addition, numerous landowners, investors, and developers now have stranded investments on parcels of land ready for development, located next to existing development, with all required infrastructure, and were purchased based on the previous decades of established policy that development could move forward. Successful residential communities throughout the affected areas now cannot proceed with their next phase of development on a neighboring property, the most logical next places to continue to develop, with all the available infrastructure in place.

For example, within the City of Buckeye, two successful master planned communities are now built out or near build-out. These large-scale communities have neighboring land available for development but no certificates of assured water supply.

The following map illustrates the Tartesso master planned community at the bottom of the image. This phase of Tartesso is now built out, with 1,600 acres located directly to the north in the path of development with no certificates of assured water supply. However, areas in blue indicate land parcels that do have certificates. Except these parcels are far from developable, with no neighboring development and none of the required infrastructure that Tartesso already contains. There are 4,400 certificates located one mile to the north and over 5,100 certificates on several parcels to the east and northeast.

Location of Tartesso Community & Available Certificates of Assured Water Supply



Source: CAGRD

The master planned community Verrado has similar dynamics. The remaining land with certificates in this community is nearing build out but there is additional land that is contiguous to existing homes and infrastructure that was planned for future phases but cannot obtain new certificates under current policy.

Combined, these two communities have accounted for 35%-45% of all new home construction in the City of Buckeye. Their inability to continue to develop future phases has already impacted growth in the city. As the following table illustrates, the inability of Tartesso and Verrado to open new phases began impacting Buckeye in 2021 with a decline in permits by 20% and a further decline in 2022 by nearly 22%. Permits within the City of Buckeye fell a further 8.4% in 2023.

New Home Permits by Year
City of Buckeye

Year	City of Buckeye	% Chg	Tartesso	Verrado	Total	% of Buckeye
2016	1,505		83	433	**516**	34.3%
2017	2,163	44%	250	530	**780**	36.1%
2018	2,143	-1%	458	516	**974**	45.5%
2019	2,349	10%	567	378	**945**	40.2%
2020	2,837	21%	708	487	**1,195**	42.1%
2021	2,257	-20%	256	595	**851**	37.7%
2022	1,765	-22%	-	317	**317**	18.0%
2023	1,616	-8%	-	172	**172**	10.6%

Source: RL Brown

Within the affected area, there are also owners of active farms on agricultural land in the immediate path of development that are willing to sell to home builders, but the land cannot receive certificates of assured water supply. Converting agricultural land to residential development would substantially decrease current and future water demand.

5.3 Potential Impacts

If the current policy holds, the Greater Phoenix MSA is at risk of not achieving previously forecasted growth in population and employment. Many of the affected areas are both actively growing regions as well as some of the last remaining locations that homeowners could find a new home for under $400,000. Unfortunately, this is the new home price threshold for "affordability".

The current policy will substantially reduce the number of homes that can be constructed under this price point. As the table on the following page illustrates, only 2,700 new homes were sold

for under $400,000 in the last year. Over 99% of those homes were built in the West Valley, and over one in four were built in Buckeye. There are few suitable alternatives for affordable homes in the region if Buckeye cannot continue to develop homes.

Maricopa County New Home Sales
Sales Price Under $400,000
December 2022 - November 2023

City	Sales	% Total	City	Sales	% Total
APACHE JUNCTION	5	0.2%	MORRISTOWN	17	0.6%
AVONDALE	256	9.3%	PEORIA	22	0.8%
BUCKEYE	751	27.4%	PHOENIX - EAST	14	0.5%
EL MIRAGE	17	0.6%	PHOENIX - WEST	569	20.8%
GLENDALE	19	0.7%	QUEEN CREEK	2	0.1%
GOODYEAR	41	1.5%	SUN CITY WEST	8	0.3%
LAVEEN	42	1.5%	SURPRISE	658	24.0%
LITCHFIELD PARK	128	4.7%	TOLLESON	100	3.7%
MESA	5	0.2%	WADDELL	71	2.6%
			WICKENBURG	13	0.5%
Total	**2,738**				
West Valley[1/]	**2,712**	**99.1%**			

1/ Located west of I-17 Highway

Source: RL Brown

At current mortgage interest rates, the required household income for a $400,000 home must be at least $100,000. At lower interest rates, (5%) qualifying household incomes would still be $85,000 or more. As the following table illustrates, only 40% of households in the Greater Phoenix region have household income of $100,000 or more. Income thresholds also disproportionally affect persons of color as well as Hispanic or Latino households.

Household Income by Race
Greater Phoenix MSA

Income Range	TOTAL	White	Black or African American	American Indian & Alaska Native	Asian	Native Hawaiian & Other Pacific Islander	Other	Two or More Races	Hispanic or Latino
Total:	**1,890,835**	1,260,500	101,124	31,491	73,853	3,284	150,869	268,696	452,880
Less than $50,000	**28%**	26%	41%	37%	24%	24%	33%	32%	33%
$50,000 to $74,999	**17%**	16%	17%	14%	11%	14%	22%	19%	20%
$75,000 to $99,999	**14%**	14%	14%	12%	14%	17%	16%	15%	15%
$100,000 or more	**40%**	44%	27%	37%	51%	45%	29%	34%	31%

Source: U.S. Census Bureau, 2022 American Community Survey 1-Year Estimates

For households earning an income in this price range, they will either choose to stay in a housing option that is not their preference, or it will drive them to choose lower-cost housing in a location out of the state. An analysis of net out-migration from the State of Arizona on the following page shows that most residents leaving the State of Arizona are locating to places where housing is more affordable.

Net Out Migration From Arizona

State	Out Migration	Net Out Migration	Median Home Price
Arizona			**$434,606**
Florida	11,901	7,430	
Jacksonville			$333,098
Miami			$442,984
Tampa			$377,625
Orlando			$358,921
Texas	22,634	5,230	
Austin			$464,403
Dallas			$380,463
Houston			$320,393
San Antonio			$307,374
North Carolina	5,619	2,319	$363,544
Oklahoma	4,822	1,726	$220,327
Nebraska	3,661	1,689	$269,974
Hawaii	2,750	1,514	$682,571
Pennsylvania	5,561	1,288	$317,299
Mississippi	1,848	1,248	$223,491
Indiana	4,953	1,194	$258,941
Idaho	3,633	1,005	$465,319
Connecticut	1,267	928	$322,867
Arkansas	1,776	629	$210,534
New Mexico	6,862	599	$337,237
District of Columbia	712	560	$507,513
Alabama	1,202	475	$237,221
Kentucky	2,618	475	$241,095
Rhode Island	662	382	$418,590
Minnesota	4,234	307	$351,830
Kansas	1,519	279	$227,989
Wyoming	2,132	269	$354,092
South Carolina	2,628	230	$286,136
Tennessee	4,584	227	$371,843
New Hampshire	430	116	$441,650
Vermont	264	82	

Source: U.S. Census Bureau, 2022 American Community Survey, 1-year estimates.

By 2030, the Maricopa Association of Governments projected that one out of every seven homes built in Greater Phoenix would be in the City of Buckeye and is forecasted to capture an even larger share of newly built homes in subsequent decades. Nearly 14% of all projected growth over the next 40 years was slated for Buckeye, equating to between 3,200 and 3,700 new homes per year (9,000 to 10,000 new residents annually).

Apart from Pinal County, there are very few remaining locations that can build a home under $400,000 in the region. Without an alternative at this price point, the region is at risk of losing this potential growth.

As illustrated in previous tables, new resident population generates substantial economic benefits for the state and local economy. They attract new employers as a growing workforce. They support local businesses and job creation by spending their disposable income which creates demand for goods and services. Significant tax revenue is also generated.

For every 10,000 residents lost, the state's economy loses out on the opportunity for 10,800 construction related jobs and $2.1 billion in construction related economic activity each year, and nearly $118.7 million in construction related taxes on an annual basis.

Economic Impact Summary
Loss of 10,000 Residents

Construction	
Jobs	10,758
Wages ($mil)	$751.9
Economic Output ($mil)	$2,110.3
Jobs Spported by Resident Spending	
Jobs	1,540
Wages ($mil)	$79.4
Economic Output ($mil)	$213.9

Sources: CAGRD; Elliott D. Pollack & Co.; IMPLAN; Arizona Department of Revenue

Those residents would have additionally supported over 1,500 jobs in the local economy and created $213.9 million in economic output through $143.8 million in spending, resulting in a loss of $22.4 million in state and local taxes. These figures double and triple each year that growth underperforms its potential.

Commercial development is also impacted. Retail development requires a critical mass of households before locating new stores. The policy is restricting the ability for these areas to build to that required threshold. This impacts current residents who must drive greater distances for shopping needs and decreases the amount of local tax revenue for the municipality.

Fiscal Impact Summary Loss of 10,000 Residents				
Construction				
	State	**County**	**Local**	**TOTAL**
Construction Sales Tax	$37,242,100	$5,720,400	$20,481,600	$63,444,100
Secondary Total	$24,888,800	$16,109,400	$14,218,500	$55,216,700
Total Impact from Construction	**$62,130,900**	**$21,829,800**	**$34,700,100**	**$118,660,800**
Resident Supported Impacts				
	State	**County**	**Local**	**TOTAL**
Sales Tax	$3,653,500	$744,500	$2,228,300	$6,626,300
Utility Tax	$330,500	$47,500	$142,300	$520,300
Income Tax	$5,605,600	N/A	$989,200	$6,594,800
Unemployment Tax	$713,200	N/A	N/A	$713,200
Vehicle License Tax	$243,700	$513,500	$470,300	$1,227,500
Highway User Revenue Fund	$289,900	$166,600	$200,300	$656,800
Property Tax	N/A	$3,445,800	$1,269,800	$4,715,600
State Shared Revenues	N/A	$833,000	$514,100	$1,347,100
Total Impact from Residents	**$10,836,400**	**$5,750,900**	**$5,814,300**	**$22,401,600**
GRAND TOTAL				
	State	**County**	**Local**	**TOTAL**
GRAND TOTAL	**$72,967,300**	**$27,580,700**	**$40,514,400**	**$141,062,400**

NOTE: All of the above figures are representative of the major revenue sources for various levels of government. The figures are intended only as a general guideline as to how the various levels of government have been impacted. The above figures are based on the current economic structures and tax rates.

Sources: CAGRD; U.S. Census; Elliott D. Pollack & Co.; IMPLAN; Arizona Department of Revenue

5.4 Conclusions

In our opinion, there is a critical need to remedy the current process of analyzing water supply and demand factors as well as the lack of stakeholder engagement prior to announcing sweeping decisions that had both immediate and long-term effects. Potential economic damage could have been avoided by simply investigating the assumptions embedded in the model internally through stakeholder engagement before their public release.

From reviews of the studies, along with subsequent interviews with water experts and regional stakeholders, it appears that several key assumptions in these studies were not examined. For example, assumptions that were used regarding water usage per household conflict with the latest data available. When it is understood that some of the assumptions in the model are essentially extrapolations of past decades' activities, it is clear that adjustments are warranted. It is not reasonable to predict water demand today using extrapolations from one hundred years ago. Just accounting for water efficiency factors achieved in the recent past would materially affect model outcomes. Moreover, the model makes no effort to assume more

efficient water usage in the future with technological advances or adjusting consumer preferences.

Proper water usage is only one factor. The model's improper placement of wells was simply uncalled for. In addition, the model does not take into account the elasticity of demand (the more you charge, the less you use), potential savings from xeriscape landscaping (at least 60% of single-family water usage is outside the house), the mandate that housing developments reclaim water back into the ground even though that ability already exists, and reclaiming brackish water, just to name a few. The model either had no flexibility to make informed adjustments because it was constrained by policies or current legislation, or did not receive the benefit of stakeholder reviews, which would have included third party water experts.

From an economic perspective, the sudden and drastic measures that were announced created uncertainty and risk, an effective deterrent to potential investors in our state's economy. The damage by media coverage has already been done, though it is nearly impossible to measure the full extent of the impacts of investments that never materialize. The prevailing sentiment that Arizona is out of water is now a significant hurdle that requires educating all future potential investment in our State. Housing affordability is already a pressing issue, and this policy is another blow to finding solutions going forward. Even if it were unintentional, these are the moments when a technical groundwater study designed mainly to inform long term water planning becomes an economic development red flag for Arizona.

The results of these studies and the resulting policy restricting new residential development, if left unexamined, will significantly inhibit new economic growth in our state due to the way they were presented through the media and now the inability to provide an attainable homeownership option for a substantial percentage of households. This could mean fewer jobs, less real income growth, less economic opportunity, higher housing costs, and a generally worsening economic environment.