

An Introduction to Arizona's Municipal Water Conservation Regulatory Universe

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Arizona's major agricultural regions and urban centers are located within the Basin and Range physiographic province, which covers most of the land area between central Arizona and Mexico. In general, this province is a vast system of Quaternary erosional and drainage basins nestled between interspersed mountains with granite and volcanic material - that where saturated - contain productive aquifers that can yield large volumes of water to wells¹. Today's complex groundwater regulatory framework in Arizona is a response to the state's overdrafting of these vast groundwater aquifers during the 20th century.

Water management in Arizona is framed around a bifurcated system in which groundwater and surface water rights are acquired and regulated under separate doctrines. Surface water in Arizona is statutorily subject to the doctrine of prior appropriation and beneficial use. See A.R.S. § 45-141. Under this doctrine, also known as "first-in-time first-in-right", the first appropriator is entitled to the quantity of water appropriated by him, to the exclusion of subsequent claimants. Arizona's bifurcated system was crystallized in the 1931 Southwest Cotton decision of the Supreme Court of Arizona, which declared that - unlike surface water rights - waters percolating generally through the soil are the property of the overlying landowner and are not subject to the appropriation doctrine². Twenty years later in *Bristor et al. v. Cheatham et al.* the Arizona Supreme Court established the right of the landowner to reasonable use of the percolating water under his or her property³. The Court held in the *Bristor* case that if water is diverted for the purpose of making reasonable use of the land from which it is taken, there is no liability incurred to an adjoining owner for a resulting damage. One important exception made by the Court (and a very important exception as you will later see) was that the reasonable use doctrine did not cover water that was drawn from one parcel for use in another parcel⁴. Thus, after the 1950's in Arizona: surface water was subject to the doctrine of prior appropriation and beneficial use; while landowners in Arizona were entitled to extract as much groundwater as they wanted as long as (1) it was for a reasonable use (2) that benefited the land from where it was diverted and (3) it did not tend to diminish the flow of a surface stream appreciably and directly.

By the early mid-1940's, it is reported that agriculture, mining, and urban growth, compounded by the advent of the high-powered pump, started to overdraft the aquifers that supply water to Arizona's

¹ Robson, S.G. and Banta, E.R. 1995. Arizona, Colorado, New Mexico, Utah. HA 730-C: USGS Ground Water Atlas of the United States.

² *Maricopa County Mun. Water Conservation Dist. v. Southwest Cotton Co.*, 39 Ariz. 65, 84 (1931).

³ *Bristor et al. v. Cheatham et al.*, 75 Ariz. 227 (1953).

⁴ *Id.* § 238.

major metropolitan centers⁵. From the 1960s to the present, “safe-yield” - finding a balance between the amount of groundwater withdrawn and the amount replaced through natural and artificial recharge - has been the Holy Grail of the major water conservation efforts of Arizona. As urban centers began to over-draft their local aquifers, they started reaching out to additional water supply sources outside of their service area in order to satisfy growing water demands. In 1976, another Arizona Supreme Court case, *Farmers Investment Co. v. Bettwy*, heralded a sea change in Arizona municipal water management. The Court in this case affirmed a lower court’s decision to prohibit the City of Tucson from pumping and transporting groundwater for use away from the Sahuarita-Continental Subdivision in the Santa Cruz groundwater basin⁶. The Court applied a strict interpretation of the reasonable use doctrine that significantly prevented the transportation of groundwater by municipal providers. This decision, together with the over-draft dilemma, placed enormous pressure on the Arizona legislature to enact the 1980 Groundwater Management Act (GMA), which serves to distribute and manage Arizona’s groundwater resources in a way that could support a vigorously growing economy and population⁷.

The GMA, also known as the Arizona Groundwater Code, is the foundation of the current innovative and complex inter-connected constellation of water management schemes and programs in Arizona which includes, among other things: the Arizona Department of Water Resources (ADWR); Active Management Areas (AMAs); Assured Water Supply (AWS) regulations; the Total Gallons Per Capita Per Day (GPCD) program; the Non-Per Capita Conservation Program (NPCCP); the Alternative Conservation Program (ACP); the Modified Non-Per Capita Conservation Program (MNPCCP); the Central Arizona Groundwater Replenishment District (CAGRD); the Arizona Water Banking Authority (AWBA, Water Bank); and the Central Arizona Project (CAP).

The Arizona Groundwater Code created the ADWR, the government entity in charge of the administration and enforcement of the state’s groundwater code and the surface water rights laws that are not related to water quality. The ADWR is also responsible for developing and implementing water conservation policies and strategies to increase water supplies to meet future water demand in the state. The Groundwater Code recognizes the necessity to aggressively manage the important groundwater resources of the state. It designates as Active Management Areas (AMAs) 4 areas which have historically relied heavily on groundwater. An additional AMA was carved out of the Tucson AMA in 1994⁸. The five AMAs are: Phoenix AMA, Pinal AMA, Tucson AMA, Prescott AMA, and Santa Cruz AMA.

Each AMA has a statutorily mandated management goal. The management goal of the Tucson, Phoenix and Prescott AMAs is to reach safe-yield by January 1, 2025⁹. “Safe-yield” is accomplished when no

⁵ See City of Tucson and Pima County. 2009. Infrastructure, Supply, and Planning Study Phase I Report: Chapter 1: Current State of Water, Wastewater, and Reclaimed Water Systems. p. 9. Tucson: City of Tucson and Pima County Cooperative Project. See also Gelt, Joe. Managing the Interconnecting Waters: The Groundwater-Surface Water Dilemma. University of Arizona Water Resources Research Center. <http://ag.arizona.edu/azwater/arroyo/081con.html> (accessed on July 27, 2010).

⁶ *Farmers Investment Co. v. Bettwy*, 113 Ariz. 520 (1976).

⁷ ARIZ. REV. STAT. §§ 45-401 to 704 (2010).

⁸ The 5th and latest AMA established in Arizona is the Santa Cruz AMA. See *Id.* § 45-411.03.

⁹ *Id.* § 45-562(A).

more groundwater is being withdrawn than is being replaced on an annual basis. The management goal of the Pinal AMA is to allow development of non-irrigation uses and to preserve existing agricultural economies in the AMA for as long as feasible, consistent with the necessity to preserve future water supplies for non-irrigation uses¹⁰. Each AMA must also develop and implement a management plan for 5 consecutive management periods (1980-1990; 1990-2000; 2000-2010; 2000-2020; 2020-2025). The plans must include continuing mandatory conservation measures designed to achieve reductions in withdrawals of groundwater for all persons withdrawing, distributing, or receiving groundwater¹¹.

A real estate developer within any AMA must demonstrate a 100-year assured water supply (AWS) for new growth. This can be proven by satisfying the requirements to obtain a Certificate of Assured Water Supply, or by a written commitment of service from a designated water provider approved by the ADWR as meeting AWS criteria and as having sufficient water supply to serve its current and future demand for the next 100 years. In order for a provider within an AMA to meet AWS criteria, it must also be in compliance with the AMA's management plan requirements. For example, for a provider in the Total GPCD program to be approved as having a Designated AWS it must be either in compliance with its Total GPCD limit, or in compliance with the terms of a stipulation and consent order to remedy non-compliance with the GPCD requirement¹².

AMAs impose a plethora of additional mandatory conservation measures for the municipal sector. Although the scope of these conservation programs includes distribution systems, individual users, large untreated water providers, and monitoring and reporting requirements, this introduction covers only large and small municipal providers. Utilities serving more than 250 AF of water are regulated as large municipal providers, while utilities serving 250 AF or less are regulated as small municipal providers.

The Total GPCD program establishes mandatory maximum gallons per capita per day (GPCD) requirements. This program is required under the Groundwater Code, which mandates that the conservation programs under each AMA's first three management plans impose reasonable reductions in GPCD¹³. Because the original Groundwater Code did not exempt any municipal provider, all municipal providers had maximum GPCD requirements under the First Management Plan. Small municipal providers were statutorily exempt under the Second and Third Management Plans from the Total GPCD program¹⁴.

The ADWR offered another program in the Second Management Plan with the inception of the Alternative Conservation Program (ACP). The ACP is available to large municipal water providers that have a disproportionately increasing non-residential sector. Under this program, utilities are not

¹⁰ *Id.* § 45-562(B).

¹¹ *Id.* § 45-563.

¹² Arizona Department of Water Resources. 1999. Third Management Plan for Phoenix Active Management Area. 2000-2010. Chapter 5 § 5.42.

¹³ ARIZ. REV. STAT. §§ 45-564(A)(2), 45-565(A)(2), 45-566(A)(2) (2010).

¹⁴ *Id.* §§ 45-565(A)(4), 45-566(A)(4). The Code mandates "reasonable conservation requirements" for small municipal providers (instead of reasonable reductions in GPCD) in the Second and Third Management Plans. These reasonable reductions include: minimize waste, maximize efficiency in outdoor watering, encourage reuse, and reduction of GPCD within the service area.

required to meet Total GPCD goals, but are subject to groundwater use limitations, residential GPCD requirements, and non-residential reasonable conservation measures (RCMs).

In addition to the ACP, the ADWR was mandated by statute in 1992 to include within the Second Management Plan the Non-Per Capita Conservation Program (NPCCP) for large municipal providers¹⁵. The NPCCP requires, among other things, the implementation of residential and nonresidential conservation programs for interior and exterior water use; a public education program relating to water conservation; and a program to meter most service area connections.

The Modified Non-Per Capita Conservation Program (MNPCCP) is a new statutorily mandated program for AMAs included in the Third Management Plan in 2008. This is a performance-based program designed to achieve water use efficiency in the provider's service area. Like the ACP, this program was created for private utilities and cities that wanted to serve increasing non-residential uses under more flexible regulatory options¹⁶. This program requires participating providers to implement a public education program and one or more best management practices (BMPs) that must be chosen from an ADWR-approved list of 53 BMPs. A provider with up to 5,000 connections is required to choose and implement, in addition to the education program, 1 BMP; providers with 5,001-30,000 connections, 5 BMPs; and providers with 30,001 or more connections, 10 BMPs.

The Total GPCD, APC, NPCCP, and MNPCCP regulatory programs are summarized in a table at the end of this document.

The Central Arizona Groundwater Replenishment District (CAGR), and the Arizona Water Banking Authority (AWBA, Water Bank) are two other programs related to the Groundwater Code. CAGR's mission is to provide a mechanism for its members (landowners and water providers) to demonstrate an assured water supply under the AWS Rules. Specifically, CAGR must replenish in each AMA the amount of groundwater pumped by or delivered to its members which exceeds the pumping limitations imposed by the AWS Rules. The Water Bank stores renewable water that currently has no immediate direct use in either underground storage (USF) or groundwater savings (GSF) facilities to be used in times of shortage and to firm (or secure) water supplies for Arizona. This program also facilitates water management by allowing storage of water in one location and recovery in a different location. Several utilities in Arizona are concerned about the fact that the CAGR allows new developments based on "paper water" that have no physical connection to supply.

Community Water Systems (CWSs) are another component of the Arizona water conservation regulatory universe. A water provider in Arizona that serves at least 15 connections or 25 year-round residents is considered a CWS¹⁷. Arizona law requires CWSs to submit annual reports and a system water

¹⁵ *Id.* § 45-565.01.

¹⁶ Arizona Department of Water Resources. 2008. Modified Non-Per Capita Conservation Program: Background and Rationale for Program Development. <http://www.azwater.gov/azdwr/WaterManagement/AMAs/documents/MNPCCPBackgroundRationale.pdf> (accessed on July 28, 2010).

¹⁷ The AZ Department of Environmental Quality makes the determination of whether a provider is regulated as a CWS.

plan¹⁸. The system water plan must include a water supply plan, a drought preparedness plan, and a water conservation plan¹⁹. The water conservation plan must be designed to increase the efficiency of the water system, reduce waste, and encourage consumer water conservation efforts. The water plan has to be updated every 5 years. Most of the CWSs that fall within an AMA report directly to their respective AMA program. As of November of 2009, there were 293 CWSs inside of the AMAs (serving 5 million people), and 507 CWSs outside of AMAs (serving 1 million people²⁰).

It is important to note that cities and towns in Arizona also have their own conservation ordinances and regulations. That said, state and city/town regulations are not, and should not be expected to be, the sole remedy for water conservation. Water rate structures, cost-effective and market-driven economic incentives, rebates, education, effluent use, and a conservation culture are critical components of any effective conservation strategy.

Finally, a foundational link in the interconnected regulatory water conservation programs of Arizona is the Central Arizona Project (CAP). Although safe-yield is a groundwater conservation goal (and a very important one in Arizona), it is affected dramatically by Arizona's management of renewable water supplies. CAP has been created and designed to bring about 1.5 million acre-feet of Colorado River water per year to Pima, Pinal and Maricopa counties. CAP carries Colorado River water from Lake Havasu to the southern boundary of the San Xavier Indian Reservation southwest of Tucson. It is a 336-mile long system of aqueducts, tunnels, pumping plants and pipelines; and it is the largest single resource of renewable water supplies in the state of Arizona. Under the current and long-term water management plans of the Phoenix and Tucson AMAs, the safe-yield goals of these 2 AMAs would not be realistic goals without their critical and significant reliance on Colorado River water.

¹⁸ ARIZ. REV. STAT. §§ 45-341 to 343.

¹⁹ *Id.* § 45-342.

²⁰ Arizona Department of Water Resources. 2009. Community Water Systems in the Pinal AMA: 2008 Annual Water Use Reporting Summary for Community Water Systems not Regulated by Active Management Area Programs. Arizona Department of Water Resources. Phoenix Active Management Area. CWS Program.

Matrix Table of ADWR Conservation Programs for Large Municipal Water Providers within Active Management Areas

Conservation Program	Key Provisions	Mandatory/Voluntary*
Total Gallons Per Capita Per Day (GPCD) Program	<ul style="list-style-type: none"> Maximum GPCD requirements for municipal providers to achieve reasonable reductions in per capita use 	<ul style="list-style-type: none"> Voluntary With a Designated Assured Water Supply (AWS), provider may choose to switch to the MNPCCP or ACP After adoption of the Fourth Management Plan, providers with a Designated AWS will only be able to choose between the MNPCCP or Total GPCD program
Alternative Conservation Program (ACP)	<ul style="list-style-type: none"> Available for water providers with a disproportionately increasing non-residential sector Not required to meet Total GPCD goals Subject to groundwater use limitations, residential GPCD requirements, and non-residential reasonable conservation measures (RCMs) 	<ul style="list-style-type: none"> Voluntary Providers that are currently in the ACP must remain in the ACP until the Fourth Management Plan (2010-2020)
Non-Per Capita Conservation Program (NPCCP)	<ul style="list-style-type: none"> Implementation of residential and non-residential conservation programs for interior and exterior water use Public education program relating to water conservation Program to meter most service area connections Provider to either limit or reduce groundwater use 	<ul style="list-style-type: none"> Only large municipal providers that have a Designated AWS and have been regulated under the original NPCCP as of January 1, 2008 may continue to be regulated under the original NPCCP Providers who are currently in the NPCCP may voluntarily switch to the MNPCCP, Total GPCD program, or ACP
Modified Non-Per Capita Conservation Program (MNPCCP)	<ul style="list-style-type: none"> Designed to achieve water use efficiency in the provider's service area Created for private utilities and some cities that wanted to serve increasing non-residential uses under a more flexible regulatory option than the Total GPCD program <p>In addition to the education program, providers with:</p> <ul style="list-style-type: none"> Up to 5,000 connections are required to implement 1 ADWR-approved BMP Providers with 5,001-30,000 connections, 5 ADWR-approved BMPs Providers with 30,001 or more connections, 10 ADWR-approved BMPs 	<ul style="list-style-type: none"> In general, voluntary; but with the exceptions below Mandatory for large municipal water providers without a designation of AWS and that are not regulated as a large untreated water provider or an institutional provider After adoption of the Fourth Management Plan, providers with a Designated AWS will only be able to choose between the MNPCCP or the Total GPCD program

* "Voluntary" does not mean that the provider can opt-out from a conservation program. In general, large municipal providers within AMAs *are statutorily required* to enter into and comply with one of the 4 conservation programs included in the table.