Kyl Center for Water Policy
at Morrison Institute
Arizona State University

THE PRICE OF UNCERTAINTY

2018

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The Arizona Town that Ran Out of Water

WELCOME TO WILLOWVILLE

A Fable

In the 1970s, a job brought Sam and Cindy Williams to Phoenix. They soon discovered Willowville, a small town two or three hours' drive from Phoenix, and they fell in love with the place. Willowville had a quaint historic downtown and better weather – in the summer, it stayed at least ten degrees cooler. And the Willow River a few miles from town made for idyllic family picnics and hikes. Willowville's rural charm only increased, in the Williams's eyes, when a small wine industry took root in the surrounding area.

Over the years, Sam and Cindy spent many happy weekends in Willowville. Eventually, they bought a home in a new subdivision and moved there. Sam enjoyed mornings on the golf course and became involved with the chamber of commerce. Cindy got into the real estate business and became well known as a volunteer and civic leader.

Sam and Cindy were especially proud of how Willowville managed water. Town ordinances required low water-use landscaping in new developments. The Water Services Department provided free plumbing audits and carefully monitored to prevent waste. There were restrictions on the use of high pressure washers and car washing, and the town's golf courses and medians were watered with treated wastewater. You didn't even get a glass of water in a restaurant unless you asked for it. All in all, Sam and Cindy felt that residents of Willowville had a better appreciation of water as a precious resource than did people in the Phoenix area.

But not everyone was satisfied. Some residents complained that the town's increased groundwater withdrawals to meet growing demand were reducing the flows in the Willow River. Sam and Cindy thought it might be less of a river than it had been back in the 1970s, but they felt reassured by old-timers who said that the changes were due to a long term drought, which would surely end eventually. Besides, the town would never let the river run dry. Everyone understood that the river was one of the things that made the place special, along with the wineries and the historic buildings.

The court order shutting off the town's wells came as complete surprise. Sam and Cindy had lived in Willowville almost ten years and, in spite of their involvement in local affairs, they had never even heard that there was a legal dispute about the town's right to pump water. And Willowville was such a model of water consciousness!

At an emergency meeting, the town council voted to impose draconian water use restrictions and a drastic increase in water rates to cover the cost of hauling water in from another county. Recall petitions hit the streets the next day.

The news stories were devastating. The national media were almost gleeful in their coverage of "***the Arizona town that ran out of water,***" with their images of dusty vacant lots and pick-ups carrying polyethylene water tanks. Of course they didn't get their facts straight. There was plenty of water in Willowville – the problem was the court said that it belonged to someone else.

Naturally, land values took a hit. Who would buy property in a place that didn't have water?

Cindy's real estate business ground to a halt.

The golf course ceased operations.

The wine grapes withered on their vines...

Is This For Real?

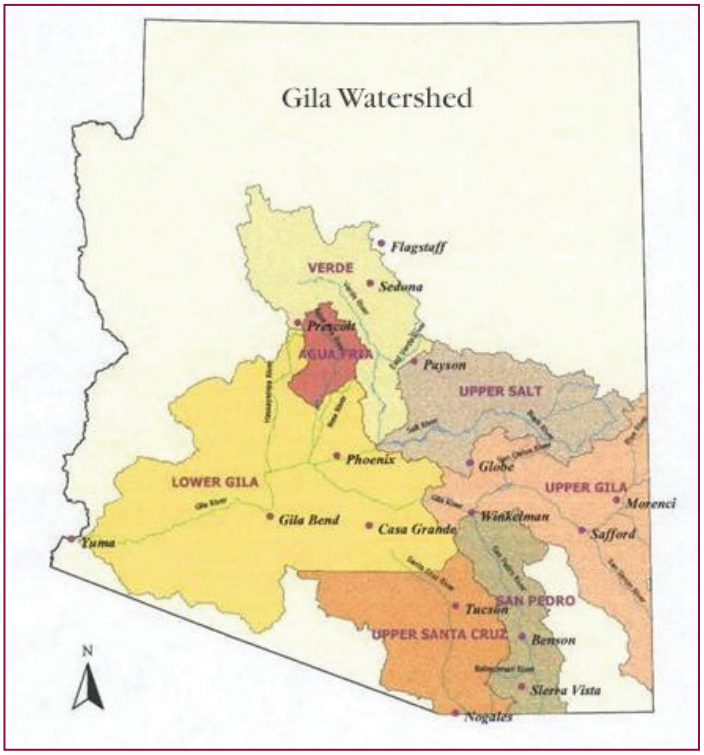
Willowville is a fictional town, but the story is not pure fantasy. The water rights of communities, businesses and homeowners in much of Arizona are in question in the unfortunately named General Adjudication of All Rights to Use Water in the Gila River System and Source, a massive lawsuit to determine the nature and priority of every water right claimed on the Gila River and all its tributaries, including the Verde, Salt, San Pedro, Santa Cruz and Agua Fria, among others.

Possibly the most complex lawsuit in US history, the Gila Adjudication has been going on since 1974. The case involves more than 32,000 parties and almost 57,000 competing water rights claims. Moreover, the Adjudication isn't limited to deciding rights to divert water from rivers and streams: It also concerns the right to pump water from wells located near rivers.

"Since there is not enough water to meet everyone's demands, a determination of priorities and a quantification of the water rights accompanying those priorities must be made. Obviously, such a task can be accomplished only in a single proceeding in which all substantial claimants are before the court so that all claims may be examined, priorities determined, and allocations made."

Arizona Supreme Court in U.S. v. Superior Court (San Carlos Apache Tribe), 144 Ariz. 265, 270, 697 P.2d 658, 663 (1985).

Figure 1



Since the lawsuit started, more and more people have become dependent on the very water supplies in dispute. Individuals have bought properties and cities and towns have grown up reliant on water supplies to which their rights are in question. While it may be unlikely that the Adjudication court would ever shut off a town's wells suddenly and completely — as in the Willowville fable — it is entirely possible that the court would order a reduction in the amounts of water that can legally be pumped from some wells. And many of the people who are most at risk to be impacted have little or no idea of the Adjudication.

For the last three years, the Kyl Center for Water Policy has been working with party representatives to find ways to resolve claims in the Gila Adjudication. Why would we wade into a long standing fight between hundreds of parties that is so complex? Because as long as the Gila Adjudication continues, a cloud of uncertainty hangs over Arizona. When people, businesses and communities don't know how much water they have a right to, they cannot plan for their future water needs or ensure their long term water sustainability. And this uncertainty constrains actions, threatening sound water stewardship and economic growth.

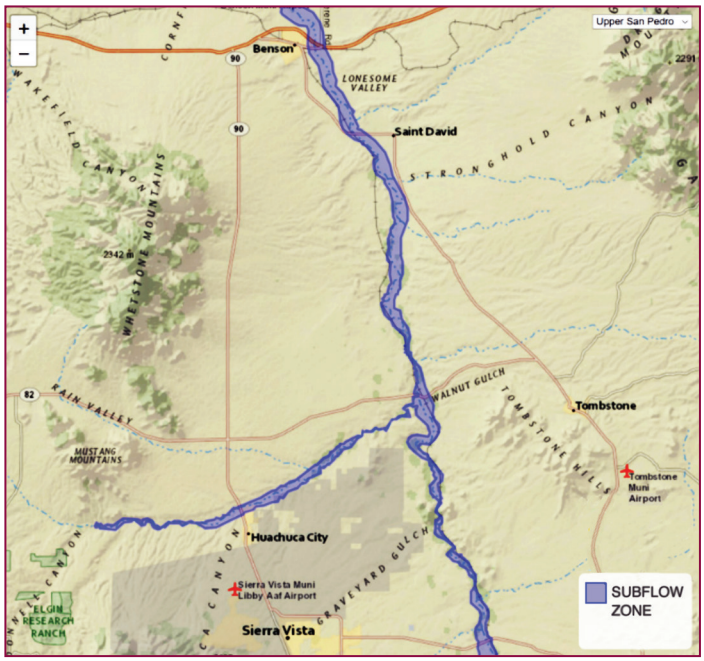
In this report, we explore why it has proved so difficult to resolve the Adjudication. We also present the results of a series of interviews we conducted to find out how the Adjudication might impact economic development. We conclude with a round-up of some promising local water management solutions that could be integral to settling the Adjudication.

Why Can't We Resolve the Adjudication?

One of the main reasons the Gila Adjudication has not been resolved has to do with the difference in how surface water and groundwater (well water) are treated under Arizona law.

Rights to water that flows through in-state rivers and streams are regulated by the doctrine of prior appropriation: A person who diverts water from a river and puts it to beneficial use has a right that takes precedence over later users. That is, he or she is entitled to his or her full water allocation before water is available to junior users, who might go without water during times of shortage. In contrast, groundwater is subject to a completely different set of laws. In some parts of the state groundwater is regulated by a set of laws known as the Arizona Groundwater Management Act of 1980. In most of the rest of state, groundwater pumping is unregulated: A person may drill a well of any size and pump as much groundwater as desired without permission from the state and regardless of impacts on existing well owners.[1]

Figure 2



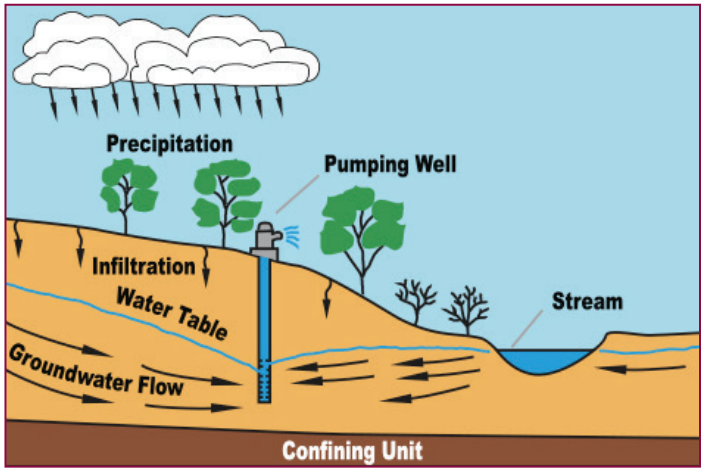
Subflow zone of the Upper San Pedro within the Sierra Vista sub-watershed

This "bifurcated" system of managing surface water and groundwater left open the question whether well owners should be included in the Adjudication if they are pumping subsurface flow, the underground water that runs beside and beneath a riverbed. In a landmark decision in 2000, the Arizona Supreme Court ruled that they should: Well owners claiming a right to pump subsurface flows must file claims and have the nature and priority of their rights determined as if they were claims for surface water.

The Supreme Court tasked the Arizona Department of Water Resources with delineating a "subflow zone" for every river and stream in the Adjudication. Under the court's ruling, even a well that is located outside of a subflow zone may be included in the Adjudication if the well's pumping will create a cone of depression that will draw subsurface flows at some point in the future.

Seventeen years later, in spite of the Department's assiduous efforts, only one subflow zone, the San Pedro River Watershed, has been finalized.[2] The problem is defining the subflow zone is technically complex, and for the parties the stakes are high. The Department's first iteration of the San Pedro subflow zone was not completed until 2009 and it met with strong opposition, which took years of evidentiary hearings to work through.

Figure 3



Groundwater pumping can draw subsurface flows into a cone of depression away from the stream bed

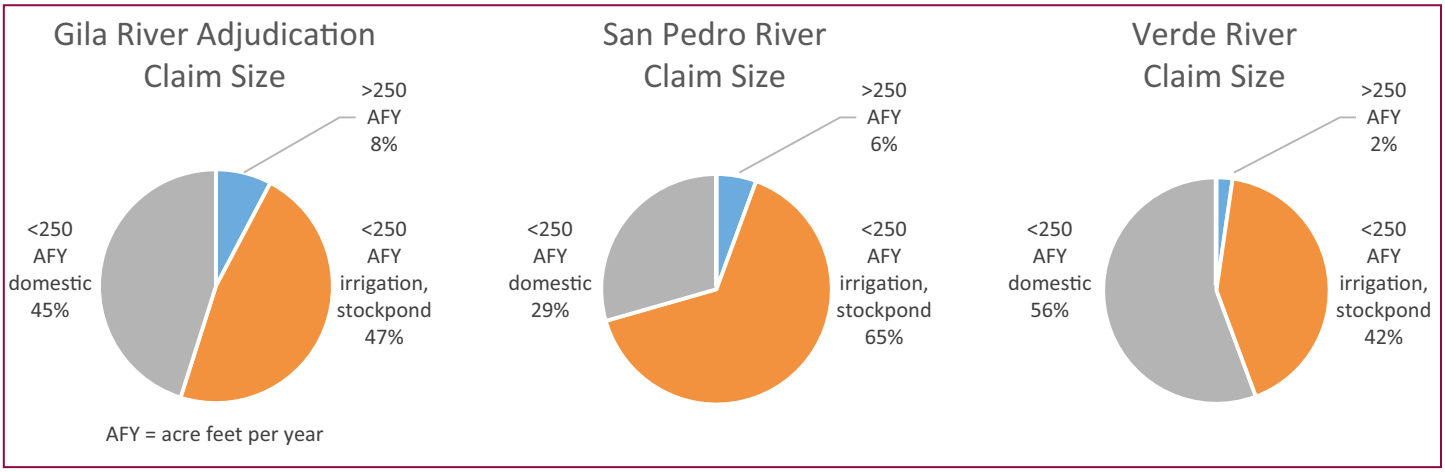
In the spring of 2013, the court requested the parties' suggestions for improving the efficiency of the proceedings. In the resulting order, the court stated:

> It is clear that the parties are frustrated with the pace of the adjudications. The Court shares that sentiment; the cases have gone on longer than most thought possible at their inception. This Court's perception is that law surrounding "subflow" has proven to be the root cause of the delay – whatever one might think of that concept from a philosophical perspective, it has proven to be extraordinarily difficult to apply in practice. But at this juncture, there is no going back.[3]

Delineating a subflow zone only opens the door to more difficult questions that have yet to be answered; for example, how much of the water any particular well is pumping is subflow and how much is groundwater? Some parties contend that the law requires the court to prohibit the use of any water from wells pumping "misappropriated" subflow. Others argue that pumping should be reduced in proportion to the amount of subflow being pumped.

Meanwhile, new wells continue to be drilled in areas that stand to be most affected by the Adjudication. And before they drill, land-owners do not receive detailed notice or information that they may not have any right to the water supplies they're counting on.[4]

Figure 4



Over ninety percent of the claims in the Gila Adjudication are for under 250 acre feet of water per year – a relatively small claim. Almost three-fourths of the individual claimants in the Adjudication are asserting claims for residential use.

Are investors worried about the Adjudication?

Not exactly.

Not yet.

To find out how people at the cutting edge of economic development think about water certainty these days, the Kyl Center for Water Policy conducted qualitative surveys of twenty-nine professionals working in land-use and corporate site selection. All of the individuals we spoke with – nineteen Arizona real estate developers, eight corporate site selection consultants and three attorneys – affirmed that water certainty is a pre-requisite to investment. Whether a proposed property has an adequate long-term supply of water is always one of the first questions they ask.

Only twelve of the nineteen real estate development professionals in our survey admitted to having heard of the Gila River Adjudication. Seven of those twelve stated that their companies avoid investing in properties involved in the Adjudication and another four stated that the Adjudication is not an issue for them because they work exclusively within AMAs. None of the site selection consultants we interviewed had heard of the Adjudication.

One of the water rights lawyers we surveyed explained, "Developers are typically relying on a municipality or a private water company. The Adjudication is a problem for the water providers to solve." In contrast, another attorney we surveyed stated, "For a long time, I could tell clients that nothing is happening in the Adjudication. I can't say that anymore."

How Do Today's Economic Development Decision-makers think about Water Certainty?

"If you don't have water, you don't have economic development."
~ Real Estate Developer

"Risk and uncertainty are the enemies."
~ Site Selection Consultant

"Now everyone is looking at it."
~ Site Selection Consultant

The majority of our survey respondents agreed that **"in recent years, investors have begun to look more carefully at the water-related aspects of investments, particularly in the West."** Seven respondents indicated that since water has always been a top concern they could not say that it had become a greater concern. Only one respondent disagreed with the statement.

Have investors become more concerned about water in the last few years?

	Yes	No	Always a Top Concern
Developers	16		3
Site Selectors	6	1	2
Lawyers	1		2

The Developer's Perspective

A real estate developer's basic business is to buy a parcel of land, "add value" to it by entitling it and sell it. "Entitling" land is the process of obtaining government permits and approvals to develop a property for specific uses. The use and value of a property depend on entitlements, which might include zoning or re-zoning, use permits, utility and road easements and landscaping approvals. Once a property is entitled, the developer sells it or builds on it and then sells. In either case, the developer seeks to recoup the cost of the land purchase, the expenses of entitling it and a profit.

In most cases, well before starting the entitlement process, the developer has made a significant investment in the property. Often, the land becomes subject to new taxes and fees before it is fully entitled. Delay is costly and may diminish the developer's return. Many of the developers in our survey stated they have a one to four-year time line from acquisition to sale. Such a timeline leaves no room for unanticipated delays to sort out something as critical as water rights.

"Investors must be comfortable that they're not investing in a future problem. This is not an easy business and there is a lot that can go wrong."

~ Real Estate Developer

"In general, we wouldn't invest in a property if there wasn't already a water solution, or we couldn't get a water solution to it readily. . . . If there was a significant question about [water], we would ask the seller to solve the problem or pass."

~ Real Estate Developer

"A developer is more concerned about legal availability than supply."

~ Real Estate Developer

The Site Selection Consultant's Perspective

Site selection consultants often have even shorter timelines. A site selection consultant typically works with the client to craft detailed site specifications, which are sent out to economic development agencies, developers and others in the land use fields. One consultant explained, "The site selection process starts with cities that we think are able to provide all the client's requirements. If you don't have enough water, you most likely won't even be looked at. . . . You will be taken out of the running."

Specifications vary depending on how the client plans to use the new location. Primary concerns for a manufacturer, for instance, will include availability and costs of energy, water and wastewater disposal, water quality, costs for transporting raw materials and product distribution. The most important consideration for a new customer service center, on the other hand, might be the available labor pool.

A location decision requires balancing a number of factors, water being one of them. And as one consultant summed it up: "If you use a lot of water you need to have a good reason to be in Arizona." But there are good reasons for a

comparatively high water-use industry to locate in the state. A beverage producer, for example, might choose to locate a plant in Arizona to save on the costs of transporting its relatively heavy products to local markets. In contrast, for a high water-use and relatively light product, like tissue, it may make more sense to locate in a more water abundant state and ship the product greater distances.

"If there's a question about water, we take that site off the list."
~ Site Selection Consultant

"There are no water supply fights in the East."
~ Site Selection Consultant

"Most heavy water users are not looking to manufacture in the West."
~ Site Selection Consultant

"There is a perception that water is limited in the West, but it depends on the city."
~ Site Selection Consultant

"Some parts of the country think their water richness will give them a competitive advantage."
~ Site Selection Consultant

Self-eliminating sites

A number of survey respondents explained that sites with water supply problems "eliminate themselves." That is, because a reliable water supply is a paramount requirement, a site with a potential water certainty problem would never be considered. However, the developers working in rural areas noted that sometimes the developer is the one who must explain to a seller that a property's water rights are not adequate or secure.

Where investors and their consultants get information about water supply depends on the location of the prospective investment. Developers working within AMAs most frequently cited the water provider, municipal or private, as their primary source of information. Developers working outside AMAs cited the Arizona Department of Water Resources, hydrologists and attorneys as their main sources of information about water supply. In contrast, all of the site selection consultants we surveyed mentioned the local or regional economic development agency and the water provider as their main sources of water related information.

Feeling the Adjudication

The Adjudication has already stopped progress on Tribute, a major development in Sierra Vista. As required by law, the developer of Tribute obtained a certification from the Arizona Department of Water Resources affirming that there was a 100-year supply of groundwater to serve the development.[5] When claimants in the Adjudication challenged the certification, arguing that the groundwater was actually subflow to which they held senior rights, the Department responded that it was prohibited from considering such rights because they were yet to be adjudicated. The Arizona

Court of Appeals disagreed, ruling that the Department "must use its knowledge and expertise to look at [100-year supply applications] with an educated eye as to what the Gila Adjudication may eventually determine."[6] The case is now awaiting review by the Arizona Supreme Court.

Why not just eliminate the Adequate Water Supply requirement and allow the Tribute development to proceed? Because doing away with the requirement would not resolve the dispute over who has a right to the groundwater in question. Instead, the dispute would simply move to the Adjudication court and perhaps take years to resolve. At the Superior Court hearing, the lawyers for both the developer and the Department of Water Resources acknowledged that the adequacy determination could change depending on the outcome of the Adjudication.[7]

The Tribute case may well be a harbinger of new threats the Adjudication – and specifically the lack of resolution of the subflow issue – poses to economic development. Until the Adjudication is resolved, water uncertainty will increase for groundwater dependent communities in the Gila Watershed. And the notoriety of legal collisions like the Tribute case jeopardizes Arizona's reputation for careful and innovative water stewardship that fosters prosperity and quality of life.

Real estate development and growth are not the only things impacted by water rights uncertainty, moreover. Some Arizona communities recognize that the environmental attributes of a nearby river or stream make their community special, but until the Adjudication is resolved those communities lack a mechanism for implementing a management plan to protect those attributes.

Rather than wait for the Adjudication to play out to what will likely be a bitter end, communities, land-owners and other parties have another option — resolve the Adjudication through settlement among affected parties. Such settlements must be holistic, acknowledging the interdependence of the economy, the environment, and the public health and welfare. And they must be structured in a way that works for the people who will have to live with the results.

How Do We Get There?

A settlement proposal that leaves people, cities and towns without a water supply is certain to go nowhere. To be viable, a settlement solution must ensure water for well owners in the subflow zones as well as for senior rights holders.

With a goal of developing concepts to help shape a clear and lasting solution to the subflow problem, the Kyl Center for Water Policy convened a small group of water managers with expert knowledge of water issues affecting the Verde and San Pedro Rivers. Through a series of discussions and review of hydrological data, the group settled on the concept of a "water budget" for each watershed. In this concept, existing wells would be allowed to continue pumping at current levels. Municipal and large private water providers would be allocated an amount of water above current demand to account for growth. And any well owner would have the right to retire his or her well and transfer the pumping right, which would be required in order to drill a new well. The water managers group emphasized that programs for augmenting the water supply of these basins and facilitating the voluntary transfer of surface water rights within a subwatershed should be integrated into the plan.

Community members have already initiated projects that could play an important role in resolving claims. In the Sierra Vista sub-watershed in Cochise County, stakeholders have launched a water conservation and recharge project designed to keep flows in the San Pedro River and prevent the cone of depression caused by local groundwater pumping from reaching the river. Relying on years of hydrological studies, the project includes using monsoon run-off and treated wastewater to recharge aquifers under vulnerable reaches of the river.

In the Verde Valley, farmers dependent on groundwater are voluntarily participating in a mitigation program in which they make up for their impact on the Verde River by paying a surface water user to forego diverting. The Kyl Center's Adjudication Reform Committee also has considered whether allowing more flexibility in transferring water rights within a given sub-basin could help landowners and communities secure the water they need.

These kinds of creative, practical solutions are examples of the kinds of policies that could be implemented as part of a plan to resolve the Adjudication. They show that there is a way out.

The story of "the Arizona town that ran out of water" could stay just that—a fable.

[1] Arizona has five Active Management Areas (AMAs) and three Irrigation Non-Expansion Areas (INAs) in which groundwater is regulated pursuant to the 1980 Groundwater Management Act. The AMAs cover the metro areas of Phoenix, Tucson, and Prescott, part of Pinal County and the Santa Cruz River basin (in southern Arizona). The INAs are the Joseph City INA in Navajo County, the Harquahala INA covering parts of western Maricopa and eastern LaPaz Counties and the Douglas INA in Cochise County.

[2] In Re the General Adjudication of All Rights to Use Water in the Gila River System and Source, Contested Case No. W1-103, Order Entered Pending Objections, July 13, 2017.

[3] In Re the General Adjudication of All Rights to Use Water in The Gila River System and Source, No. CV-6417 (Superior Court of Arizona, June 18, 2013).

[4] The Notice of Intent (NOI) that must be filed with the Arizona Department of Water Resources prior to drilling a new well does state that, among other things, that "the Department's issuance of an authorization to drill a well is not a determination of whether water withdrawn from the well is legally surface water or groundwater," and that "the legal nature of the water withdrawn from the well may be the subject of court action in the future as part of a determination of surface water rights in your area." But this limited notice has not seemed to deter the drilling of new wells. After a well is drilled in an area subject to the adjudication, the Department also sends a "new use summons" to the well-owner that directs the owner to assert any water rights claims it has by filing with the Adjudication court.

[5] In 2007, the Arizona legislature enacted a law permitting counties to mandate that a developer obtain a certificate of adequate water supply before a final subdivision plat could be approved. A unanimous vote of the Board of Supervisors was required for the requirement to go into effect. Ariz. Rev. Stat. § 11-823(A). Cochise County adopted the requirement the following year. Cochise County Subdivision Reg. 408.03.

[6] *Silver v. Pueblo del Sol Water Co.*, 241 Ariz. 131, 143, 348 P.3d 814, 826 (Ct. App. 2016), *petition for review cont'd* (November 16, 2017).

[7] *Silver v. Pueblo del Sol Water Co.*, LC 2013-000264 (Maricopa County Superior Ct., April 7, 2014).

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