IV. WATER ELEMENT 1.0

Introduction

The Water Element of a County Comprehensive Plan is required in Arizona Revised Statute (ARS) §11-804. The Water Element of the Comprehensive Plan is required to address known water supplies, current and future water demands, and the impacts of future growth on water management. The Statutes add that "the Water Resources Element does not require: new independent hydrogeological studies; nor the County to be a water service provider."

Yavapai County is known worldwide as a recreational destination, with beautiful red rocks, forests, flowing rivers, and a thriving rural community. However, uncontrolled growth (with its demands on our finite water supplies) threatens the future of our natural open spaces as well as community sustainability. Inaction will result in unacceptable losses to our economy and vital ecosystems. Therefore, Yavapai County must use the Comprehensive Plan to guide development in a responsible manner to preserve the quality of life that its citizens value as a top priority.

An adequate supply of clean water is one of the most serious issues Yavapai County faces in planning for the future. Climate change, increased development, and the needs of a growing population factor heavily into determinations of water adequacy. The County must ensure that the quality and quantity of its water supplies meet future demand. To move toward a more water-secure future, the County must further its efforts in the areas of long-range planning, promoting water conservation and reuse, fostering cross-jurisdictional partnerships, and amending water policy where practical.

Purpose

The Water Resources Element is intended to comply with the Arizona Statutes by addressing known water supplies, current and future water demands, and the impacts of future growth on water management. Yavapai County is not a water service provider and is not providing new hydrogeological studies for the purpose of this legislation. The element includes Goals and Objectives, adopted through a public participation process; a review of water management practices in Yavapai County; existing water supplies; water demands and future impacts; and finally, Policies, and Implementation Strategies intended to address current and future conditions.

Regulatory Framework

Although Yavapai County is not a water provider and cannot assure long-term supplies, water security is vital to our stability and growth. Most unincorporated communities and households in the county draw their supplies from groundwater wells. However, there are concerns about long-term impact of continued growth and development on the limited water supplies and water-dependent ecosystems. The County must play a role in long-range water resources planning to protect property values and the environment, while simultaneously encouraging appropriate and sustainable growth. As the County undertakes this effort, it must navigate a complex web of local

conditions, politics, and state and federal laws to produce carefully thought-out policies and practices that are appropriate.

The Arizona Department of Water Resources (ADWR) administers Arizona's surface water rights laws and groundwater codes. Most of the surface water in the county has already been allocated or is being adjudicated through existing appropriation claims. Groundwater withdrawals are not nearly as constrained. Under current state law, any landowner can drill an "exempt" water well on his or her property. The challenge with Arizona groundwater law is that the cumulative impact of wells pumping from the same aquifer and the potential impacts of groundwater overdraft are not considered in the permitting of new developments or the appropriation of new wells.

In 2007, the Arizona State Legislature passed SB 1575, aka the Mandatory Adequate Water Supply Program (MAWSP), which gave counties and cities the ability to require new developments of more than six parcels to demonstrate a 100-year water supply for its residents for approval by ADWR and the platting agency. The MAWSP has been adopted by Cochise and Yuma Counties and the Cities of Patagonia and Clarkdale. Because each 100-year adequacy assessment must account for the ongoing water uses of surrounding wells, the program encourages sustainable growth through an analysis of local water supply and demand. Enrolling in the MAWSP is one way the County could move towards more sustainable water use. One potential drawback to requiring developers to prove water adequacy is that it could motivate some to exploit existing loopholes in the subdivision process, resulting in more lot splits. To enroll in the program, the County would have to obtain a waiver that would allow groundwater below a depth of 1,200 feet to qualify as an adequate water supply.

By working with ADWR, the Arizona State Legislature, and other partners, we may explore other options for creating more local and regional oversight on water withdrawals, such as well spacing requirements and metering. Along with promoting water conservation, these measures could help prevent overdraft of the county's groundwater supplies.

Groundwater Law

The Management Plans serve as a tool to assist in achieving the groundwater goals of each of the state's five Active Management Areas (AMAs). Arizona's 1980 Groundwater Management Act (GMA or Code) created ADWR and put in place structures for water management, intended to curb the severe groundwater overdraft occurring in several parts of the state. These plans contain the conservation programs that are intended to guide each AMA to meet its management goal – and these conservation programs are to be designed to achieve reductions in groundwater withdrawals. The successive periods and plans are a particular strength of the Code, enabling the plans to evolve over time, adapting to incorporate the information and experience gained over time and to respond to changing technologies and circumstances.

The statutory management goal of the Prescott AMA (PrAMA) is safe-yield by the year 2025 (A.R.S. § 45-562(A)). Safe-yield is defined as "a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area" (A.R.S. § 45- 561(2)). Groundwater withdrawals in excess of natural and artificial recharge lead to groundwater overdraft -- meaning that to progress toward the goal of safe-yield, the AMA should be moving in a direction of balancing their

inflows and outflows. Safe-yield is a condition where inflows and outflows are balanced and maintained in the long-term. Both pieces of this are equally important and equally challenging – achieving that balance and thereafter maintaining the balance requires close attention and response to changing conditions and demands over time. The PrAMA is not at safe-yield and will be unlikely to achieve and maintain safe-yield.

As the state moves into a drier future and supplies become increasingly constrained, the AMA management model may be modified to develop an expanded Rural Management Area (RMA), for resource management outside the AMA. The Assured Water Supply (AWS) Program was created to preserve groundwater resources and promote long-term water supply planning in the AMAs. AWS statutes and rules limit the use of groundwater by new residential and commercial subdivisions. Every person proposing to subdivide land within an AMA must demonstrate the availability of a 100-year water supply. An AWS demonstration must include proof of the following criteria: 1) water supplies will be of adequate quality; 2) water supplies will be physically available for 100 years; 3) water supplies will be legally available for 100 years; 4) water supplies will be continuously available for 100 years; 5) any groundwater use will be consistent with the management goal for the AMA; 6) any groundwater use will be consistent with the management plan for the AMA; and, 7) the developer or water provider has the financial capability to construct the necessary water storage, treatment and delivery systems.

Surface Water Rights

Surface water in Arizona is defined as "the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface… and are subject to appropriation and beneficial use…", (A.R.S. § 45-141). Early in its history, Arizona adopted the doctrine of prior appropriation to govern the use of surface water. This doctrine is based on the tenet of "first in time, first in right" which means the person who first puts the water to a beneficial use acquires a right that is senior to later appropriators of the water. In Arizona, there are two ongoing general stream adjudications, judicial proceedings to determine the nature, extent, and relative priority of water rights: the Gila River System and Source (Gila Adjudication) and the Little Colorado River System and Source (LCR Adjudication). The exterior boundaries of these two adjudications include more than half the state, where most of the Indian reservations and federal land are located.

While the regulatory authority in the Groundwater Code is based on the use of groundwater, the availability of renewable supplies like surface water are inextricably linked to the use – and overuse – of groundwater. As climate change increases hydrologic variability, there may be increasing concerns about the reliability of surface water supplies in the County. Beyond climate impacts and considerations around annual surface flows, there is further uncertainty for surface water users due to the general stream adjudications. Progress toward resolving the amount and priority of surface water rights in the state will have divergent impacts – providing some certainty and resiliency for some users and causing others to lose access to water they may have assumed was reliable. Effective and coordinated water planning will have to be considerate of the interconnection of surface water and groundwater.

Water Quantity

Groundwater

The risks associated with the overuse of groundwater have been long recognized in Arizona. There were multiple efforts prior to the GMA to regulate groundwater, and the risks of overdraft were well-accepted enough that they were written into the "Declaration of Policy" in the Groundwater Code: "(overdraft) is threatening to do substantial injury to the general economy and welfare of this state and its citizens…" (A.R.S. § 45-401(A)). To address this threat, the GMA set forth what was then seen as a comprehensive and proactive set of regulations with the goal to shift water users to alternate supplies and preserve groundwater.

The regulations and goals laid out in the GMA have proven to be insufficient though: despite significant conservation efforts since 1980, the AMA has not reached, and is not expected to reach, its goal of safe-yield by 2025. Continued overdraft has resulted in growing pressure on groundwater supplies: physical availability challenges in the AWS program which have already been observed in Pinal County are expected eventually to also occur in Yavapai County, and there are additional concerns about the physical impacts (subsidence, fissures, water quality degradation, etc.) associated with continued groundwater mining.

Management plans and water management strategies – including the GMA itself – continue to rely in large part on correcting imbalances in water supply and demand by importing additional supplies. The importation of Colorado River water to central Arizona, the development of uses for reclaimed water, and provisions allowing for importation of groundwater from specified basins into the AMAs are all examples of these supply-side strategies. These types of strategies allowed for significant economic progress and progress toward the goals in the AMAs. However, the imported water was often used to support increases in total demands rather than offsetting existing groundwater demands and led to continued groundwater overdraft despite significant additional supplies.

Private Domestic and Exempt Wells

Private domestic wells are not monitored or regulated unless they are within the boundaries of the AMA. Private domestic wells outside of an AMA do not have a capacity restriction. Wells within an AMA that pump 35 gallons per minute or less are called "exempt wells". Non-exempt wells are those that are allowed to pump more than 35 gallons per minute and are required to file more stringent water reports records with regulatory agencies. From the period of 1985 to 2005 there has been a 267% increase in the number of exempt wells (private domestic wells with less than 35 gal/min capacity). In 1985 there were 4,200 exempt wells in the PrAMA; in 1997, the number had more than doubled to 8,700; and in 2005, over 11,200 had been registered in the PrAMA.

Yavapai County Development Services is responsible for reviewing all well permit applications for referral to the Arizona Department of Water Resources on parcels 5 acres and smaller.

Future Water Demand

The quantity of water needed in the future and the ability to meet that demand depends on several factors including the amount of growth, the location of the growth and the water requirements of the growth. Water use is often expressed as per capita amount and is typically estimated and projected based on current use. In Yavapai County projections have been made for the planning areas in the CYHWRMS study (Phase 1) and in the Agua Fria Demand Analysis. Other areas of the county have not been analyzed in detail at this time.

Phase I of CYHWRMS has produced summary tables showing water demand from projected population growth until 2050. The population growth figures used in CYHWRMS are from the Arizona DES's projections as well as projections given by communities for a more locally accurate account of projected growth using land use data and future community plans. Summary tables from Phase I show water demand at 53 approximately 117,381 af/yr and supply ranging from 38,520 af/yr (with net natural recharge) using the Water Balance Method to approximately 72,103 af/yr using status quo data.

Regional Use and Water Planning Areas

The CYHWRMS is a comprehensive study of water demand and supply in the Central Yavapai and Verde Valley regions and highlights regional use and planning areas. There are 20 water planning areas within the CYHWRMS in which many water companies operate. The major water planning areas in the CYHWRMS area are Prescott and Camp Verde, using over 10,000 af/yr in each planning area. The amount of water used in each planning area in the region is separated into three different kinds of use: municipal/domestic; agricultural; and commercial/industrial. Agricultural and domestic uses comprise a majority of the water use in the region. In recent years, however, some agricultural demand in the PrAMA has been reduced due to the purchase of the Big Chino Water Ranch. Exempt wells are also a major user of water resources.

It is important to note that although CYHWRMS is a comprehensive study, it does not include the Agua Fria, Bill Williams, or Hassayampa watersheds. A draft report on the demand in the Upper Agua Fria highlights the demands in the Upper Agua Fria Watershed, just south of the study area covered in CYHWRMS. The Upper Agua Fria report outlines the supply and demand in the region, and indicates that the study area's supply is greater than demand in 2057, but also indicates that the study area is somewhat smaller than the overall basin in which it is contained, and that many areas within the study have had to resort to occasional pumping in order to fulfill demands.

Satisfying Future Demand

Many alternatives are being developed in the effort to meet future demands within Yavapai County. Although some alternatives are in appraisal stages, various water supplies and strategies are being used to manage demand in a rapidly growing state. These include, but are not limited to: groundwater, surface water, effluent, water harvesting, and conservation. Phase III of CYHWRMS is currently identifying alternatives for the management of water resources in Yavapai County, and the Water Resources Development Commission at the State level also provides alternatives for Water Resources Management.

Current Conditions

Water Quality

The Arizona Department of Environmental Quality (ADEQ) issues permits and monitors surface water via a network of volunteer "Citizen Scientists" and fixed stations. Most of these waters meet drinking water standards that are based on Clean Water Act criteria and/or standards established by the State of Arizona.

Avoiding point- and nonpoint-source pollution will help protect our aquatic ecosystems and our surface and groundwater quality. Point sources of pollution typically originate from industrial discharges (atmospheric, solid, or liquid waste). This type of pollution is regulated by the U.S. Environmental Protection Agency (EPA) and ADEQ. Nonpoint pollution can be a problem in areas of high development, recreational use, or livestock use. The most common nonpoint source pollutants are sediment, animal waste, fertilizer, and motor oil, which wash into waterways during storm events.

The County's Stormwater Ordinance is designed to minimize nonpoint pollution to our waterways and drinking water. The intent behind this ordinance is to slow stormwater flows, enable infiltration into the ground, and protect riparian areas and floodplains from pollution. Low impact development (LID) structures, such as swales, detention basins, and pervious pavement may be used to retain stormwater on site.

Another important factor contributing to water quality is watershed health. Forest restoration and the prevention of high-severity wildfires are vital to our watersheds. The best way to protect watershed health is to minimize disturbance to native vegetation and soils. Land use activities should minimize soil disturbance; likewise, riparian areas and floodplains should be protected because they provide important buffers between upland uses and instream water quality.

Concerns are often raised about the impact of septic systems on groundwater. Nitrates are potentially of higher concern because heavy rains could leach them into aquifers, particularly in areas containing faults. However, ADEQ monitors nitrate levels regionally and has not yet identified any areas within Yavapai County that require mitigation. Recent studies (both national and local) have shown that EPA water quality standards (A or A+ water) for discharging reclaimed water still allow some organic and pharmaceutical compounds to pass into our waterways and that these compounds can percolate to groundwater.

Groundwater occurs close to the surface in perched water-bearing zones. Because this shallow water is more susceptible to impacts from septic systems and other surface contamination, it should be tested or treated periodically to ensure safety. Also, perched water tables are closely tied to annual precipitation; as a result, long-term supplies from them may be less secure during extended periods of drought.

Watershed Management

A watershed is the land area that drains to one stream, lake, or river, affects the water quality in the water body that it surrounds. All land drains into a lake, river, stream or other water body and directly affects its quality. Because we all live on the land, we all live in a watershed — thus watershed condition is important to everyone.

A healthy watershed is one in which natural land cover supports dynamic hydrologic and geomorphologic processes within their natural range of variation, contains habitat of sufficient size and connectivity to support native aquatic and riparian species, and has physical and chemical water quality conditions that can support healthy biological communities.

Integrated land use and water management planning is a crucial step that the County should take to address the interrelated challenges of climate change, ongoing population growth, and increasingly limited water supplies.

Integrated land use and water planning cannot occur without collaboration. Local planning departments and water management agencies are the leading actors. Additional local decision makers such as city councils and governing boards can offer valuable leadership and support necessary for success. Planners should incorporate meaningful public participation into planning efforts and bring other major stakeholders to the table, including the public, developers, businesses, and nongovernmental organizations.

The County should incorporate water management agencies into all stages of the development approval process so that the agencies can ensure adequate water supplies and provide developers with information on how a project may be more water-efficient, stormwater friendly, and low-impact, while it protects water quality.

Environmentally Sensitive Lands

Environmentally sensitive lands include areas with critical resources: Floodplains, riparian zones, rivers and streams, wetlands, springs and seeps, and steep slopes. These spaces offer habitat for rare or endangered plant and animal species; in addition, some are significant for aquifer recharge. Environmentally sensitive lands require special consideration in the development-design process.

Through integrated conservation design or similar measures, we can maintain or increase land values by retaining as much of their natural characteristics as possible. Preserving private land for habitat, open space, or other nondevelopment purposes may require offsetting the owner using a method that reflects the fair-market value of the property. Such methods include purchasing the property outright, exchanging it for other lands, transferring easements or development rights, or offering property-tax breaks.

Early settlement tended to occur along drainageways and floodplains for practical reasons—these areas provided tillable land for farming and shelter, shade, and a source of water in the arid climate. Today's private land ownership patterns reflect this pattern. Floodplains also provide a great deal of habitat for native flora and fauna, create wildlife movement areas, and serve as important repositories of biological diversity.

The Federal Emergency Management Agency (FEMA) has defined floodplains for most watercourses, whether perennial, intermittent, or ephemeral, on maps showing surface-water elevations during 100-year floods. Reducing construction and development in 100-year floodplains helps protect riparian vegetation and wildlife communities. Regardless of whether the drainage contains permanently flowing water, soils in riparian areas are generally deeper and moister than they are in adjacent uplands. Riparian areas facilitate movement and provide food, water, and cover for many species of wildlife. Many land uses compete for riparian resources,

challenging conservation efforts. Furthermore, because water is scarce, management decisions often favor human uses (recreation, drinking water, irrigation, and livestock use) over conservation. The capacity for conservation attainment is contingent on our proficiency to influence public land-management endeavors and provide motivations to private landowners for restoring degraded riparian habitats.

Water Conservation & Alternative Sources

Effluent

Arizona has long been and remains a leader in the reuse of effluent water. The management plans have encouraged and incentivized massive investment in advanced treatment and the infrastructure to constructively exploit this resource. Rather than simply discharge effluent to a streambed or wash, policies, agreements, infrastructure, and facilities were designed for the purpose of putting the supply to good use.

Over time, with innovations in treatment technologies and shifts in regulations, it became evident that effluent was more than a means to conserve or counteract the use of potable supplies – it could be used for almost any use and the supply was likely to improve over time. The initiation of underground water storage and recovery and of technology allowing for direct potable reuse of effluent (DPR) facilitated and enhanced this change in perception. Water management strategies have increasingly moved to a "one water" approach, in which all supplies of water – including effluent – are seen as equally valuable components of a water portfolio. Existing incentives for the use of effluent are increasingly being re-evaluated and scrutinized: when water supplies are considered "one water," and new supplies are scarcer and more expensive, incentivizing any water use becomes questionable.

As competition has increased for effluent over time, there have been growing conversations around how the uses of effluent might be prioritized. While the longstanding paradigm of "the right water for the right use" may still be useful, there are increasing calls for deeper consideration of what the highest use for that resource might be. Currently, effluent supplies are used for power production, landscape irrigation, storage and recovery, and other uses. Effluent is also increasingly being considered as a potential source of water for restoration or riparian uses and as an additional source of potable supply.

As all supplies become more constrained and as competition for effluent continues to increase, water managers in the state are increasingly discussing strategies to prioritize the use of effluent, particularly with considerations of prioritizing those uses that would allow the water to be repeatedly recaptured and recycled.

Gray Water (AAC Title 18, Ch. 9, Art 7 – Pt D)

Gray water is wastewater collected separately from sewage flow. It includes water from washing machines (laundry), bathtubs, showers or sinks.

It must only be used for residential gardening, composting, or landscape watering, where it is not accessible by the public or allowed to run off the property. Use must be less than 400 GPD.

It is important to understand which substances or chemicals go down household drains. Gray water may contain fats, oils, grease, hair, lint, soaps, cleansers, fabric softeners and other chemicals. Do not use gray water with elevated levels of chlorides, sodium, borax, or sulfate with a high pH, which could be harmful to plants.

Wastewater from a kitchen sink, dishwasher or toilet is not considered gray water. These sources produce "black water", which should not be reused at home because of the high risk of contamination by bacteria, viruses, and other pathogens.

Lastly, gray water may only be used in locations where groundwater is at least 5 feet below the surface throughout the year and cannot be in a floodway, wash, or drainage. Do not use gray water on plants that produce food, except trees and shrubs with edible portions not touched by gray water.

Low Impact Development (LID) / Stormwater Capture

Green spaces, pervious surfaces, and green infrastructure all help manage stormwater for flood control. The county would benefit in creating a water management agency staff, who have a close understanding of the community's hydrology, are keenly suited to advise where infrastructure for flood control would be most beneficial for recharging key aquifers. Land use planners should follow these recommendations to designate open space zoning and certain building types, and to plan densities accordingly.

Low Impact Development (LID) designs have several identifiable environmental benefits. Utilizing LID practices can reduce the amount of runoff and stormwater conveyed through existing conveyance systems, which will directly translate to reductions in the amount of pollutants that are discharged into Yavapai County watersheds. Pollutants can be filtered naturally by increasing runoff infiltration into soils through LID installations. Additionally, implementation of LID practices can result in the beneficial use of stormwater as a supplemental source of landscape irrigation.

Community and secondary benefits include overall water conservation, urban heat reduction, improvements in population health, and the aesthetic benefits of additional green spaces.

When introduced in 1999, LID was a radically different approach to stormwater management. It was developed to address issues related to new residential, commercial, and industrial development through environmental design and implementation practices. As originally conceived, the LID approach combined a hydrologically effective and integrated design that incorporated site-scale pollution prevention measures to compensate for land development impacts on hydrology and water quality. LID was intended to recreate natural (pre-construction) hydrologic patterns by utilizing landscaping and collection techniques that store, absorb, infiltrate, evaporate, and detain runoff throughout a site to keep as much rainwater as possible onsite near the location where it landed. This differed from the prevailing approach at that time, in which stormwater was shed from a site as efficiently as possible through structural methods.

The objectives of the LID approach are accomplished by:

- Minimizing stormwater impacts to the extent practicable. Techniques include reducing imperviousness, conserving natural resources and ecosystems, maintaining natural drainage courses, reducing the use of pipes and structural collection systems, and minimizing clearing and grading.
- Providing dispersed runoff storage measures throughout a site using a variety of detention, retention, and runoff practices.
- Maintaining predevelopment times of concentration by strategically routing flows to maintain travel times and to control the discharge.
- Implementing an effective public education program to encourage property owners to use pollution prevention measures and to maintain LID management practices on their sites.

Since its introduction, LID has gained wide acceptance and has been extensively practiced in portions of the United States. It is integral to land planning and development criteria in various parts of the country because of rainfall variability, greater potential for pollution via runoff, and obvious need for a higher level of stormwater management. There is newfound interest in LID practices in central Arizona for a variety of reasons. These include greater visibility of the concept through outreach efforts by a variety of organizations and entities, rising infrastructure and water costs, and higher public consciousness about the scarcity of water in the Southwest. There is also a recognition by local design and planning professionals and community leaders that LID is a sustainable approach that can continue to work in Arizona through thoughtful design consideration, site analysis, engineering, and planning.

The basic concepts of working with natural patterns, reducing impervious surfaces, capturing stormwater and pollutants, reliance on vegetation to absorb stormwater, dispersed on-site capture locations to keep rainwater near where it falls on the ground, minimizing pipes, etc. are all valid and implementable in Yavapai County.

Some examples of LID structures are: 1) Permeable Pavements, 2) Curb Openings, 3) Sediment Traps, 4) Stormwater Harvesting Basins, 5) Vegetated or Rock Bioswales, 6) Bioretention Systems, 7) Curb Extensions, 8) Bioretention Planters, 9) Domed Overflow Structures, 10) Low or No Water Use Landscaping.

Water Education and Outreach

The County shall continue to promote water conservation and alternative water sources in a variety of ways. Educating the public, developers, and County staff is important. Incorporate conservation elements into development projects and encourage the use of reclaimed water, gray water, and rainwater systems wherever possible. Technologies and methods are constantly emerging that can help us reduce our consumption of this precious resource.

Goals, Objectives, and Recommendations

Water Quantity

Goal 1: Identify water supplies. Determine water supply sufficiency to meet growing/diverse demands.

Objective a: Prepare a list of alternatives to continue to supply water to a growing county.

Goal 2: Long-term planning efforts supported by the County will incorporate climate science into projections of future supply.

Objective a: Improve predictive use and availability.

Goal 3: Encourage growth that makes conservative use of renewable water supplies such as effluent, surface water, and groundwater as the primary water source only in the absence of renewable sources.

Objective a: Increase storage and reduce waste.

Objective b: Improve local resource planning

Goal 4: **Promote conservation and reuse of water used for residential, agricultural, commercial, and industrial uses.**

Objective a: Gain support for water adequacy determinations for new subdivisions outside Active Management Areas.

Water Quality

Goal 1: Promote and protect public health with a clean water supply.

Objective a: Improve impaired or not attaining waters.

Goal 2: Reduce surface water pollution through utilization of the framework of federal and state laws, regulations, and guidelines.

Objective a: Conserve and enhance riparian buffers, protect floodplains from development, and require the capture of stormwater on site.

Goal 3: Ensure compliance with ADEQ Water Quality Standards (WQS) for effluent treatment and reuse.

Objective a: Increase protection for Outstanding AZ Waters (OAW), and other high-quality waters.

Goal 4: Increase water conservation and reduce groundwater depletion.

Objective a: Support water conservation techniques in the planning and design of new development

Goal 5: Actively participate in and pursue programs and activities that address the conservation and management of regional water resources.

Objective a: Make use of drought monitoring and predictive data

Objective b: Manage low flows for drought resiliency

Objective c: Improve interagency flood and drought coordination

Water Conservation & Alternative Sources

Goal 1: Increase water conservation and reduce groundwater depletion.

Objective a: Support water conservation techniques in the planning and design of new development.

Objective b: Encourage efficiency in homes to conserve water.

Objective c: Promote water wise landscaping.

Goal 2: Actively participate in and pursue programs and activities that address the conservation and management of regional water resources.

Objective a: Work with incorporated towns/ cities to promote water conservation strategies for homeowners.

Watershed Management

Goal 1: To reduce stormwater runoff and improve water quality, the County encourages use of pervious surfaces and using LID principles within all developments.

Objective a: Promote graywater harvesting, efficient (low-flow) plumbing and methods of water harvesting, such as rainwater barrels and catchment basins where feasible.

Goal 2: Promote healthy, sustainable watersheds via proper land and water management.

Objective a: Encourage the preservation of the Verde River and all other major waterways in Yavapai County and support the protection of riparian areas.

Objective b: Promote land use practices that will improve watershed health.

Goal 3: Encourage development that complies with the ADEQ Aquifer Protection Program mandates.

Objective a: Protect critical aquifer recharge sites by identifying environmentally sensitive corridors.

Goal 4: **Encourage developments that provide aquifer recharge benefits and utilize treated wastewater for irrigation of golf courses, neighborhood and community parks, roadside rights-of-way, etc.**

Objective a: Analyze all proposed water-intensive plans for consideration of efficient alternatives, environmental impact, and economic value to the residents of the county.

Water Education and Outreach

Goal 1: Increase public awareness about the importance, methods, and benefits of water conservation

Objective a: 1. Support informing the public about the importance and benefits of water conservation

Objective b: Educate the public about water resource management and associated scientific studies

Objective c: Promote low impact water resource management and associated scientific studies.

Recommendations

……

Sources:

https://yavapaiaz.gov/Portals/36/County-Watersheds.pdf

https://www.usbr.gov/lc/phoenix/programs/CYHWRMS/CYHWRMSRepwApp.pdf

https://www.coconino.az.gov/DocumentCenter/View/10608/Coconino-County-Comprehensive-Plan---2017-Approval?bidId=

https://yavapaiaz.gov/devserv/Divisions/Planning-Division/Comprehensive-Plan

https://yavapaiaz.gov/Portals/34/Reference%20Materials/YavapaiCountyComprehensivePlan.pdf

PrAMA5MPDraft_Jan2022_0.pdf (az.gov)

Home | Arizona Water Blueprint | Arizona Water Blueprint (asu.edu)

Integrating Land Use and Water Management: Planning and Practice (lincolninst.edu)

LID2018-Book-04-11-19.pdf