



Arizona Department
of Water Resources

System Water Plan Guidance Document

August 11, 2006

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Introduction

Drought conditions have affected Arizona during most of the last decade. The economic and environmental impacts of drought continue to increase as the population of the state increases. Although Arizona has a reliable water supply by comparison to several of its neighboring states, drought conditions in the rural parts of Arizona have had devastating personal and economic impacts. There is a need for further preparedness in case conditions worsen.

On March 20, 2003, Governor Janet Napolitano issued an executive order and established the Governor's Drought Task Force to address the drought issues facing all Arizonans. The Task Force made several recommendations, documented in the *Arizona Drought Preparedness Plan*, including that the Governor seek legislative authority for the Arizona Department of Water Resources (ADWR) to require water systems to develop a drought plan. Based on the group's recommendation, the drought plan would include mitigation strategies, including a water conservation plan to reduce vulnerability to drought and plan for drought response actions. In addition, the Governor's Drought Task Force recommended legislative authorization for ADWR to require all water systems to provide consistent and coordinated water supply information to ADWR.

Recognizing the need for adequate water planning, the Arizona Legislature passed House Bill 2277 during the 2005 legislative session. House Bill 2277, now established in the Arizona Revised Statutes, created a requirement for community water systems to develop and submit a System Water Plan to ADWR. The development of these plans is an important step toward improving water resource management planning at both the state and local levels. They will enable the state to identify data gaps and gather much needed information. In addition, these plans will allow the state to increase public awareness regarding water supplies, local drought preparedness and response measures, and to promote appropriate statewide conservation practices.

Definitions

“Community Water System” means a public water system that serves at least 15 service *connections* used by year-round residents of the area served by the system, or that regularly serves at least 25 year-round *residents* of the area served by the system. A person is a year-round resident of the area served by a system if the person’s primary residence is served water by that system.

“ADWR” means the Arizona Department of Water Resources.

“A.R.S.” means Arizona Revised Statutes.

“Large Community Water System” means a community water system that serves water to more than 1,850 persons.

“Public Water System” means an entity that distributes or sells water and that qualifies as a public water system under Arizona Revised Statutes (A.R.S.) §49-352, Subsection B (a water system that provides water for human consumption through pipes or other constructed conveyances and has at least 15 service connections or regularly serves an average of at least 25 persons daily for at least 60 days per year).

“Small Community Water System” means a community water system that does not qualify as a large community water system (small systems serve up to 1,850 people).

System Water Plan Overview

Applicability

All community water systems are required to submit a System Water Plan. Community water systems serve at least 15 service *connections* used by year-round residents of the area served by the system, or regularly serve at least 25 year-round *residents* of the area served by the system. A person is a year-round resident of the area served by a system if the person's primary residence is served water by that system.

If a water system's population is at or near the minimum number of connections (15) or residents (25) necessary to qualify as a community water system, the system should consider carefully the number of residents *regularly* served. Because the number of residents served can vary from year to year, systems should examine more than one year to determine whether the number of residents *regularly* served is at or above 25 people. A system's status should not change from one year to the next.

System Water Plan Components

The System Water Plan must include the following three components (note that certain exemptions may apply; see **Exemptions** on p. 18):

1. *Water Supply Plan* – The Water Supply Plan must evaluate system water supply needs in the service area and propose a strategy to meet identified needs. In order to determine the potential impact of drought, the plan should include an inventory of the water supplies currently available, and infrastructure necessary to deliver the water to customers. The plan should consider both most probable and worst-case scenarios for surface water and groundwater supplies. These evaluations can then be used to determine a water system's ability to meet water demands during both average and peak periods.
2. *Drought Preparedness Plan* – Once present and future water supply and demand have been evaluated in the Water Supply Plan, the Drought Preparedness Plan should evaluate water demand *reductions* that can be implemented in response to drought conditions. Water systems should define specific measures to reduce water demands when deemed necessary to meet available supplies.
3. *Water Conservation Plan* - The Water Conservation Plan must be designed to increase the community water system's efficiency, reduce waste, and encourage consumer conservation efforts. A good conservation plan is one that encourages a low water use lifestyle and prevents water shortages from occurring. The plan should include both demand and supply management measures, an educational component, and an evaluation component.

Assistance and Contact Information

The Statewide Drought Program and Statewide Conservation Office are available to provide assistance in the development of a System Water Plan. Please note the checklist provided in **Appendix B** for assistance in submitting a System Water Plan that meets all of the submission requirements.

ADWR has developed an alternative means for community water systems to comply with the System Water Plan requirements. The form titled *Small Community System Water Plan Form (Appendix C)* may be completed and submitted to meet the requirements of a System Water Plan. This form *is not required*; it is simply provided as an option for those systems that wish to use it. Systems may also choose to use the form as a guideline and develop a different format of their own. Either way, the form was developed so that by answering each of the questions, water systems will meet the System Water Plan requirements. This form is intended to assist smaller systems in preparing their plans, but can be used by larger systems as well. The form can also be obtained on ADWR's website as a Word document that can be completed electronically: <http://www.azwater.gov/dwr/drought/CWS.html>.

For questions on this guidance document, the Water Supply Plan or Drought Preparedness Plan, contact:

Melanie Ford, Drought Planner
Statewide Drought Program
3550 N. Central Ave.
Phoenix, Arizona 85012
Phone: (602) 771-8442
Fax: (602) 771-8681
mlford@azwater.gov

For questions on the Water Conservation Plan, contact:

Marjie Risk, Statewide Conservation Coordinator
Statewide Water Conservation Office
3550 N. Central Ave.
Phoenix, Arizona 85012
Phone: (602) 771-8422
Fax: (602) 771-8681
mlrisk@azwater.gov

Water Supply Plan

The Water Supply Plan must evaluate the water supply needs in the service area and propose a strategy to meet identified needs. In order to determine the potential impact of drought, the Water Supply Plan should include an inventory of the water supplies currently available and infrastructure necessary to deliver the water to customers. Therefore, the Water Supply Plan will provide a good foundation for developing the Drought Preparedness Plan and the Water Conservation Plan.

Exemption: *Systems with an Assured Water Supply Designation are not required to submit a Water Supply Plan.*

Table 1 below lists the statutory requirements of the Water Supply Plan, suggestions for information that can be submitted to meet the requirements, and any exemptions that apply:

Table 1. Water Supply Plan requirements

	Statutory Requirements	Comments/Suggestions <i>Note these are <u>not</u> requirements</i>	Exemptions
List and describe:			
1.	Service area lands	<i>GIS maps, legal description of township, range and section information</i>	---
2.	Sources of supply, including emergency sources	<i>Water source information such as groundwater, surface water, CAP, Colorado River, effluent or other Backup supplies may be identified by water source and conveyance mechanisms, such as backup wells, water hauling agreements or connections with other water systems.</i>	---
3.	Well registration numbers, water levels at well sites (if known)	<i>If current water levels are not known, last measured water level and date for each well may be indicated (if known).</i>	---
4.	Storage and treatment facilities	<i>Indicate number and type of facilities, including capacity and water source for each facility.</i>	---
Provide map and description:			
5.	Existing transmission and distribution facilities	---	Not required if previously provided pursuant to A.R.S. § 45-498 (cities, towns, private water companies and irrigation districts within an Active Management Area must maintain current maps clearly delineating service areas and

	Statutory Requirements	Comments/Suggestions <i>Note these are <u>not</u> requirements</i>	Exemptions
			distribution systems). <u>Map</u> is not required for small community water systems but could be submitted to meet the requirement (only a description is required).
6.	Existing interconnections	<ul style="list-style-type: none"> • <i>Capacity of interconnect</i> • <i>Volume of water purchased or delivered through interconnect each year (if applicable), and reasons this water was purchased (lack of supplies, failure of one or more supplies, etc.)</i> • <i>Description of how the interconnection agreement can be used to offset loss of, or reductions in, water supplies</i> • <i>Limitations of such interconnection (e.g. mutual use, one-way use, emergency use only, peak capacity, etc.)</i> 	<p>Not required if previously provided pursuant to A.R.S. § 45-498 (cities, towns, private water companies and irrigation districts within an Active Management Area must maintain current maps clearly delineating service areas and distribution systems).</p> <p><u>Map</u> is not required for small community water systems but could be submitted to meet the requirement (only a description is required).</p>
Provide data:			
7.	Monthly system production data categorized by the system's sources of supply	<i>Monthly system production data may be provided in millions of gallons or acre-feet. Production data should be based on previous year's data.</i>	---
8.	<p>For systems that use meters to measure withdrawals and diversions, indicate for the past five years:</p> <p>a) A summary of system average daily demands</p> <p>b) Maximum monthly demands</p> <p>c) An estimate of peak day demands</p>	<p>a) <i>Average daily demand may be indicated on a yearly basis for the past five years. Or, seasonal averages may be useful in providing a more detailed picture of system demands. The days and output should be indicated.</i></p> <p>b) <i>Maximum monthly demands would be the total output during the months of highest demand. Indicate the months and the output.</i></p> <p>c) <i>Peak day demands would be the day of each year with the highest total demand. Indicate days and output.</i></p> <p><i>Peak <u>hour</u> demands are important to consider as well. See Discussion below.</i></p>	Not required for systems that are not metered.
9.	Quantities of water sold to or purchased from other water systems during the	<i>Water bills may be useful for estimation</i>	Not required if previously provided pursuant to A.R.S. § 45-632 (each person required to file an annual report must

	Statutory Requirements	Comments/Suggestions <i>Note these are <u>not</u> requirements</i>	Exemptions
	previous five years		maintain current accurate records of withdrawals, transportation, deliveries and use of groundwater).
Analysis:			
10.	An analysis of present and future water supply demands for the next five, ten and twenty years	<ul style="list-style-type: none"> • <i>Current demand can be based on either current or previous year.</i> • <i>Projection calculations may be based on:</i> <ul style="list-style-type: none"> - <i>Gallons per capita per day (GPCD)</i> - <i>Gallons per housing unit per day (GPHUD)</i> - <i>Number of connections and population</i> - <i>Historic or expected demands</i> - <i>Land use planning/classification</i> 	---

Discussion

The Water Supply Plan should consider both most probable and worst-case scenarios for surface water and groundwater supplies. Consider what would happen if all or a portion of well supplies became unreliable, and how such situations could be mitigated. Assessments of vulnerability to water supply shortages resulting from potential well failures, reductions in surface water supplies, or reductions in well capacities resulting from drought conditions should be evaluated.

These evaluations can then be used to determine a water system's ability to meet water demands during both average and peak periods. If a sufficient storage system is in place, it is possible that a water system can supply average day demand, even without all of its wells. However, peak day and peak hour demands may drain storage tanks faster than wells can refill them. Consider what might happen if three-quarters of the customers took a shower at the same time. Are the systems' supplies and infrastructure sufficient to meet demand as the population grows over the next 20 years?

When assessing water supplies, it is a good idea to consider unique local conditions that may affect the ability of a water system to obtain reliable quantities of water. For example, environmental laws such as the Endangered Species Act are increasingly affecting surface streams throughout the state. Endangered species needs may compete with the needs of human water users utilizing the same supply. Water systems should consider this potential conflict during the planning process to avoid legal issues during times of shortage.

Another limitation on supply availability in Arizona is the ban on transferring groundwater supplies between groundwater basins. These transfers are allowed only in certain limited cases. Water systems located on the edge of a groundwater basin

boundary may not be able to construct a new well in another basin and transport the additional water. Groundwater basin maps are available at ADWR's Phoenix office. For more information on the statutory requirements pertaining to Transportation of Groundwater, review A.R.S. §§ 45-541 to 45-547.

Drought Preparedness Plan

Once present and future water supply and demand have been evaluated in the Water Supply Plan, the Drought Preparedness Plan should evaluate water demand *reductions* that can be implemented in response to drought conditions. ADWR encourages water systems to share ideas and information; however, each Plan should be specific to the *water supplies, water demand and infrastructure* of each individual system. See the **Discussion** following the table below.

All community water systems must submit a Drought Preparedness Plan; there are no exemptions.

Table 2 below lists the statutory requirements of the Drought Preparedness Plan along with suggestions for information that can be submitted to meet the requirements:

Table 2. Drought Preparedness Plan requirements

	Statutory Requirements	Comments/Suggestions <i>Note these are <u>not</u> requirements</i>
1.	The name, address and telephone number of the community water system and the names of persons responsible for directing operations during a water shortage emergency	<i>Identification of person(s) authorized or responsible for initiating and terminating drought stages, and for implementing drought management measures would be important to include as well.</i>
2.	Drought or emergency response stages that provide for implementation of measures in response to a reduction in available water supply resulting from drought or infrastructure failure	<i>Drought stages should be specific to <u>water supply availability</u>. These drought stages will provide the basis for development of management measures under 3(c) below. Indicators and triggers for each stage should be developed. See Discussion below.</i>
3.	A plan of action that the community water system will take to respond to drought or water shortage conditions, including:	
	a) Provisions to actively inform the public of the water supply shortage and a program for continued education and information regarding implementation of the Drought Preparedness Plan	<i>The public should be made aware of the drought stages that the water system has developed and should understand what management measures will take place at each stage (see 3(c) below).</i>
	b) Development of emergency supplies, which may include identification of emergency or redundant facilities to withdraw, divert or transport substitute supplies of the same or other types of water	---
	c) Specific water supply or water demand management measures for each stage of drought or water shortage conditions	<i>For each stage of drought identified under #2 above, management measures should be listed that will respond to and/or mitigate drought conditions (e.g. when "Drought Stage 3" is triggered, measures Y and Z will be implemented).</i>
	Note - • Management measures are subject to	

	Statutory Requirements	Comments/Suggestions <i>Note these are <u>not</u> requirements</i>
	<p>approval by the Arizona Corporation Commission (ACC) if the community water system is a public service corporation.</p> <ul style="list-style-type: none"> • This requirement may be met by providing a curtailment tariff on file with the Arizona Corporation Commission (ACC). 	

Discussion

The Drought Preparedness Plan is *not* an emergency response plan, although emergency response should be *one component* of the plan. The purpose of the Drought Preparedness Plan is to prevent a drought/water shortage emergency.

Water systems should define specific measures to reduce water demands when deemed necessary to meet available supplies. Some typical examples include reducing landscape irrigation by both residential and non-residential users, and offering water use audits to customers. It is important to develop a plan that considers peak period, peak day, and peak hour use, and not just average demand scenarios.

Water systems have a significant amount of flexibility in developing the Drought Preparedness Plan and associated drought stages. The drought stages that each water system develops should be specific to the system and based on water supply availability. As an example, consider a scenario where precipitation deficiencies in a particular region of the state indicate “severe” short-term drought status, as determined in Arizona’s monthly Drought Monitor Report. This severe status is based on *weather conditions only*.

Because water systems need to determine drought stages based on water supplies, a system in this severe area may likely declare a *different drought stage* – either better or worse than “severe.” It is also likely two systems adjacent to each other in this “severe” area may declare drought stages *different from each other*. Consider the example systems below:

- Water System A is a large system using both ground water and surface water sources. This system has a large storage capacity and a system of back-up wells that ensure a constant supply, even if a number of primary wells are out of service or unable to meet demand during peak periods. This water system has declared a “moderate” drought stage for its service area, based on water supply availability.
- Water System B lies immediately adjacent to Water System A. It is a small system completely dependent on ground water supplies and has experienced an explosion in population growth over the past couple of years. This system is struggling to keep pace with new infrastructure and expansion of current facilities. It has declared an “extreme” drought stage for its service area, based on water supply availability.

Water System A may be experiencing “moderate” drought conditions due to a combination of many factors: good storage capacity, back-up water supplies, and slower population growth. Additionally, the below-average precipitation levels may not have persisted long enough to start impacting water supplies. Water System B, on the other hand, has progressed to “extreme” drought because supplies were already stressed.

Thus, there are two likely reasons for the differences in drought stages:

1. A decrease in groundwater and surface water supplies (“hydrological drought”) is usually delayed in time behind a period of below-average precipitation levels (“meteorological drought”). Although drought status based on precipitation levels may be severe, supplies may not be so severely impacted until a couple of years down the road.
2. Effects on water supply depend on a complex set of variables that vary from one water system to the next, including population growth, amount of supply in relationship to demand, infrastructure of the system, and water management and conservation practices.

Drought stages and management measures should be developed based on an analysis of system-specific vulnerabilities. Are supplies already stretched to the limit? Is population growing rapidly? How quickly will drought impact supplies?

ADWR recommends developing indicators and triggers for each drought stage. *Indicators* would be the variables that describe the specific drought conditions that will cause stress to the system’s water supplies (e.g. precipitation, streamflow, ground water levels, reservoir levels, soil moisture, palmer indices, etc.). *Triggers* would be the specific values of the indicators that initiate and terminate each level or stage of a drought plan and any associated management responses (e.g. when reservoir levels drop to level X, “Drought Stage 3” is triggered).

The two example water systems will probably have very different indicators, or at least very different trigger levels for moving from one drought stage to the next. Water System A’s storage system and back-up wells provide a type of “buffer” against any immediate impacts of weather, whereas Water System B is more directly vulnerable. Once the drought stages and associated indicators and triggers are developed, management measures must be determined for each stage. These will also vary by water system. Building new infrastructure and increasing storage capacity may be a major portion of Water System B’s plan. Water System A may focus solely on conservation practices in order to maintain its reserves.

Note that there are no requirements as to how many stages a system should develop or what the indicators should be. ADWR recommends that systems take a regional planning approach to drought response and coordinate with other area water providers in creating a Drought Preparedness Plan, especially if systems may need to rely on each other for emergency supplies. Example drought stages and management measures are provided in **Appendix A**.

Because drought and its effects on water supplies can be quite complex, it is vital that water systems communicate clearly and openly with their customers to ensure success of the Drought Preparedness Plan. If customers are being asked to implement conservation practices and see that a neighboring system is not, this may lead to confusion and inaction. Water systems should include customers as key stakeholders in the plan development process to facilitate understanding and involvement.

Water Conservation Plan

The Water Conservation Plan must be designed to increase the community water system's efficiency, reduce waste, and encourage consumer conservation efforts. A good conservation plan is one that encourages water use efficiency, reduces water waste, encourages a low water use lifestyle and prevents water shortages from occurring.

Exemption: *Large municipal providers in an Active Management Area (those that supply more than 250 acre-feet of water for non-irrigation use during a calendar year pursuant to A.R.S. Title 45, Chapter 2, Article 9) are not required to submit a Water Conservation Plan.*

A small municipal provider in an Active Management Area that demonstrates, under reasonable growth projections, that it will be regulated as a large municipal provider (pursuant to A.R.S. Title 45, Chapter 2, Article 9) prior to January 1, 2012, may petition ADWR for an exemption by January 1, 2007.

Table 3 below lists the statutory requirements of the plan along with suggestions for information that can be submitted to meet the requirements:

Table 3. Water Conservation Plan requirements

	Statutory Requirements	Comments/Suggestions <i>Note these are not requirements</i>
1.	Feasible measures that may be implemented to determine and control lost and unaccounted for water	<i>Install or replace meters, repair leaking pipes</i>
2.	Consideration of water rate structures that encourage efficient use of water, as set by the community water system's governing body Note – Rate changes are subject to approval by the Arizona Corporation Commission (ACC) if the community water system is a public service corporation.	<i>Information that may be provided:</i> <ul style="list-style-type: none"> • Existing rate structure information • Plans to institute conservation incentive rate structures if they are not already in use (e.g. increasing block rates, seasonal rates, target billing, excessive use rates, etc.) • Any education/outreach efforts tied to acceptance of incentive rates (e.g. workshops, etc.)
3.	A continuing conservation education program that contains provisions to actively inform the public of drought conditions and provide information on conservation measures that reduce vulnerability from drought conditions, including: <ol style="list-style-type: none"> a) Curtailment of nonessential water uses b) Affordable efficiency technologies for indoor and outdoor use c) Rebate and retrofit programs for indoor and outdoor uses d) Reuse and recycling programs 	<i>Provide descriptions of any existing and proposed conservation efforts (see examples under Discussion below).</i>

Discussion

A good Water Conservation Plan can be the key to reducing a water system's vulnerability to drought and water shortages. A well-designed plan should include a balance of both demand- and supply-side measures. Supply-side programs, such as leak detection and repair, increase the water supply, while demand-side programs, such as higher seasonal rates, tend to reduce the demand for water. A long-term conservation program can result in significant cost savings to the water system; it can extend the life of existing infrastructure and delay the costs associated with building new facilities or retrofitting old facilities to handle larger capacities.

Community awareness and support is vital to the success of any conservation program. The most successful conservation programs are ones that are designed specifically for the local community; what works in one community may not work in another area where lifestyles and water use habits are different. A water system designing a conservation program for the first time should begin with programs that are affordable, easy to implement, and have a proven or high rate of success for water savings (see examples below).

Once conservation measures have been chosen, a public education component is vital to the success of the programs. Customers should be educated on the purpose of the conservation measures and the benefits they will provide. Incentives for changing water use behaviors should be considered whenever possible, as customers are more likely to participate if they can see a clear and direct benefit for themselves. Higher seasonal rates, for example, should provide a financial incentive for customers to conserve water during periods of higher demand.

In order to set conservation goals, the water system first needs a good understanding of its baseline water use. The water system characteristics determined in the Water Supply Plan and the Drought Preparedness Plan should provide much of the needed information. From the baseline water use, a percent reduction in water use can be targeted and tracked. Based on the size of the system, the most feasible measures to help reach that goal should be selected, in terms of initial cost, payback and ease of implementation. Appropriate conservation measures will vary based on the size of the community water system. Following are suggestions to consider:

For small community water systems, consider:

- Universal metering
- Measures to reduce lost and unaccounted for water
- Conservation incentive rates
- General education and outreach efforts (pamphlets, workshops, etc.) that focus on standard conservation measures

For large community water systems, consider:

- Interior and exterior water use audits
- Excessive use or seasonal rates
- Retrofit programs

- Fixture replacement and promotional efforts
- Water use regulations and/or integrated resource management (water conservation achieved with conservation of other resources such as energy)
- System pressure management evaluations and/or efficiency requirements for landscape water use
- Education and outreach programs for teachers, students, and the community as a whole
- Acceptable levels of discretionary use reduction to include time of day, day of week recommendations, water waste ordinances, landscape water restrictions, etc.
- Existing or planned programs that encourage or require the reuse or recycling of water (e.g. rainwater harvesting, gray water use) - description should include any incentives provided

An evaluation component is a crucial consideration in any conservation plan. How will the water system determine which measures have been successful, and which have not? The plan should be a living document that changes based on evaluation of the conservation measures implemented, as well as changes in service area characteristics.

Important note - Upon written notification from ADWR that the plan is in compliance with the requirements of A.R.S. § 45-342, a community water system must start implementing the Water Conservation Plan within 12 months after receipt of that notice. If a system receives notice that the plan is not in compliance, the system must start implementing the plan within 12 months after the date by which the system is required to make any revisions or additions to the plan to bring it into compliance.

Exemption Summary

- 1) **Assured Water Supply** (pursuant to A.R.S. § 45-576) – Systems with this designation are exempt from the requirement to submit the Water Supply Plan component of the System Water Plan.
- 2) **Large municipal provider** (pursuant to A.R.S. Title 45, Chapter 2, Article 9) – Large municipal providers (those in an Active Management Area that supply more than 250 acre-feet of water for non-irrigation use during a calendar year) are exempt from the requirement to submit the Water Conservation Plan component of the System Water Plan.
- 3) **Small municipal provider** (pursuant to A.R.S. Title 45, Chapter 2, Article 9) **that will be a large provider by 2012** - Small municipal providers (those in an Active Management Area that supply 250 acre-feet or less of water for non-irrigation use during a calendar year) are exempt from submitting the Water Conservation Plan component, if the system:
 - a) Petitions ADWR for an exemption prior to January 1, 2007, and
 - b) Demonstrates, under reasonable growth projections, that it will be regulated as a Large Municipal Provider under A.R.S. Title 45, Chapter 2, Article 9, (a municipal provider that supplies more than 250 acre-feet of water for non-irrigation use during a calendar year) prior to January 1, 2012.
- 4) **Other exemptions** - A system may make a written request to ADWR to be exempted from submitting any information required in the System Water Plan that has already been submitted to ADWR. ADWR will grant the exemption upon determination that the information is already on file at ADWR and meets the requirements of A.R.S. § 45-342.

Table 4. Requirement/exemption look-up table

Entity Type		Water Supply Plan	Drought Preparedness Plan	Water Conservation Plan
Inside an AMA				
Small Municipal Water Provider	<i>with designated Assured Water Supply</i>	exempt	X	X
	<i>with petition to ADWR prior to January 1, 2007 that demonstrates it will be regulated as a Large Municipal Provider prior to Jan. 2012</i>	X	X	exempt
	<i>without an Assured Water Supply or petition</i>	X	X	X
Large Municipal Water Provider	<i>with designated Assured Water Supply</i>	exempt	X	exempt
	<i>without designated Assured Water Supply</i>	X	X	exempt
Outside an AMA				
All Community Water Systems*		X	X	X

X – indicates those entities are responsible for submitting the noted plans.

* Note that a designated **Adequate Water Supply** may meet the requirements of the **Water Supply Plan** and qualify a water system for an exemption from this requirement. Please submit a written exemption request to ADWR (see Exemption 4 above).

Example – A community water system that is a **large municipal provider** (exempt from submitting a Water Conservation Plan) and has an **assured water supply designation** (exempt from submitting a Water Supply Plan) only needs to submit a **Drought Preparedness Plan**.

Keep in mind that **all community water systems must submit a Drought Preparedness Plan**.

Submission and Deadlines

Mail or deliver the completed System Water Plan to:
Melanie Ford, Drought Planner
Arizona Department of Water Resources
3550 N. Central Ave.
Phoenix, AZ 85012

Large Community Water Systems (serving more than 1,850 people):

The first System Water Plan must be submitted to ADWR no later than January 1, 2007, unless filing jointly with another community water system as identified below. An updated plan must be submitted prior to January 1st of every fifth calendar year thereafter (Jan. 1st of 2012, 2017, 2022).

Small Community Water Systems (serving 1,850 people or fewer):

The first System Water Plan must be submitted to ADWR no later than January 1, 2008. An updated plan must be submitted prior to January 1st of every fifth calendar year thereafter (Jan. 1st of 2013, 2018, 2023). Note that a small system may request an extension for submitting only the *first* System Water Plan (due in 2008), as long as the request is submitted at least 90 days prior to the January due date (Oct. 3, 2007). ADWR will notify the system in writing that the request has been received and granted.

Joint Community Water System Plans and Filings:

Two or more water systems may coordinate efforts and submit a joint System Water Plan if they serve water to residents in the same city or town. The first joint System Water Plan must be submitted to ADWR no later than January 1, 2008. An updated plan must be submitted prior to January 1st of every fifth calendar year thereafter (Jan. 1st of 2013, 2018, 2023).

Note - If a large community water system provider plans to submit a joint System Water Plan to ADWR, please provide written notice to ADWR prior to January 1, 2007 (due date for large community water systems to submit System Water Plans), indicating that a joint System Water Plan will be submitted. In the written notification, please specify the other partnering entity/entities. Providing written notice to ADWR prior to January 1, 2007, will prevent the water system provider from receiving a non-compliance determination letter from ADWR.

Revisions:

If a community water system revises its System Water Plan after submittal to ADWR, the revised plan must be submitted to ADWR within 60 days from the date of revision.

ADWR Plan Review

ADWR must review all System Water Plans and any subsequent revised plans. In addition, ADWR must provide written notice to community water systems of its determination on whether or not the System Water Plan meets the statutory requirements:

- a) **If the System Water Plan meets all of the requirements**, ADWR will give written notice that the plan is in compliance. ADWR may determine that the plan meets all of the requirements but may also recommend changes to improve the plan. In this case, ADWR will provide written notice of the recommended changes; however, the community water system provider is not required to make the changes.
- b) **If the System Water Plan does not meet all of the requirements**, ADWR will provide written notice of that determination to the community water system. The community water system will have at least 120 days to make any necessary revisions or additions to bring the plan into compliance. If the community water system does not bring the plan into compliance by the date specified in the notice, ADWR will provide notice of the noncompliance to the governing bodies of the cities, towns and counties located within the community water system's service area.

Note – Community water system providers are in compliance by supplying the required information. These planning requirements are designed to improve water resource management planning at both the state and local levels.

Appendix A
Drought Stage and Water Management Examples

Table A-1 below illustrates potential drought stages and names. **Table A-2** provides some examples of management measures that could be implemented at different drought stages (this table is modified from a table found in the *Arizona Drought Preparedness Plan*). These tables are intended as examples only; water systems can develop any number of drought stages and should develop management measures that make sense for their particular system.

Table A-1. *Example* drought stages

Water System #1	Water System #2	Water System #3
Stage 0 – Normal (Reduce Vulnerability)	Stage 1 – Drought Alert	Stage 1 – Mild Drought Conditions
Stage 1 – Abnormally Dry (Raise Consciousness)	Stage 2 – Drought Warning	Stage 2 – Moderate Drought Conditions
Stage 2 – Moderate (Voluntary Reductions)	Stage 3 – Drought Emergency	Stage 3 – Severe Drought Conditions
Stage 3 – Severe (Curtailment)	Stage 4 – Drought Crisis	Stage 4 – Extreme Drought Conditions
Stage 4 – Extreme (Eliminate Non-essential Water Use)	---	---

Table A-2. *Example* drought stage management measures

Drought Stage	Management Measures	
	Water system will:	Water system will encourage customers to:
Stage 0 – Normal (Reduce Vulnerability)	<ul style="list-style-type: none"> ▪ Discourage developers from requiring turf in residential developments ▪ Improve infrastructure and storage facilities, if necessary 	<ul style="list-style-type: none"> ▪ Install low-water use landscaping ▪ Repair leaks in irrigation systems
Stage 1 – Abnormally Dry (Raise Consciousness)	<ul style="list-style-type: none"> ▪ Communicate conditions, increase outreach and provide conservation tips ▪ Increase use of reclaimed effluent for commercial landscaping to reduce potable water supply shortages 	<ul style="list-style-type: none"> ▪ Fix leaking faucets and replace faulty fixtures ▪ Avoid outdoor watering during hottest part of the day
Stage 2 – Moderate (Voluntary Reductions)	<ul style="list-style-type: none"> ▪ Provide incentives for water conservation for residences and businesses installing efficient alternative outdoor irrigation ▪ Implement water waste ordinances 	<ul style="list-style-type: none"> ▪ Voluntarily reduce discretionary outdoor water uses ▪ Comply with water wasting ordinances
Stage 3 – Severe (Curtailment)	<ul style="list-style-type: none"> ▪ Implement time of day/day of week schedules ▪ Impose restrictions on fire and fireworks 	<ul style="list-style-type: none"> ▪ Comply with time of day/day of week outdoor watering restrictions ▪ Use covers to reduce evaporation from pools
Stage 4 – Extreme (Eliminate Non-Essential Water Use)	<ul style="list-style-type: none"> ▪ Eliminate outdoor watering ▪ Prohibit all public water uses not required for health or safety and publicize enforcement activities to customers 	<ul style="list-style-type: none"> ▪ Eliminate outdoor watering ▪ Reuse water (dishwater, shower water, pool back-wash)

Appendix B
Checklist for System Water Plan Submission

Table B-1. Checklist for submission

WATER SUPPLY PLAN REQUIREMENTS		
<input type="checkbox"/>	1.	Service area lands
<input type="checkbox"/>	2.	Sources of supply, including emergency sources
<input type="checkbox"/>	3.	Well registration numbers, water levels at the well sites (if known)
<input type="checkbox"/>	4.	Storage and treatment facilities
<input type="checkbox"/>	5.	Map and description of existing transmission and distribution facilities*
<input type="checkbox"/>	6.	Map and description of existing interconnections*
<input type="checkbox"/>	7.	Monthly system production data categorized by the system's sources of supply
<input type="checkbox"/>	8.	a) A summary of system average daily demands**
<input type="checkbox"/>		b) Maximum monthly demands**
<input type="checkbox"/>		c) An estimate of peak day demands for the past five years**
<input type="checkbox"/>	9.	Quantities of water sold to or purchased from other water systems during the previous five years
<input type="checkbox"/>	10.	An analysis of present and future water supply demands for the next five, ten and twenty years
DROUGHT PREPAREDNESS PLAN REQUIREMENTS		
<input type="checkbox"/>	1.	The name, address and telephone number of the community water system and the names of persons responsible for directing operations during a water shortage emergency
<input type="checkbox"/>	2.	Drought or emergency response stages that provide for implementation of measures in response to a reduction in available water supply resulting from drought or infrastructure failure
	3.	A plan of action that the community water system will take to respond to drought or water shortage conditions, including:
<input type="checkbox"/>		a) Provisions to actively inform the public of the water supply shortage and a program for continued education and information regarding implementation of the Drought Preparedness Plan
<input type="checkbox"/>		b) Development of emergency supplies, which may include identification of emergency or redundant facilities to withdraw, divert or transport substitute supplies of the same or other types of water
<input type="checkbox"/>		c) Specific water supply or water demand management measures for each stage of drought or water shortage conditions
WATER CONSERVATION PLAN REQUIREMENTS		
<input type="checkbox"/>	1.	Feasible measures that may be implemented to determine and control lost and unaccounted for water
<input type="checkbox"/>	2.	Consideration of water rate structures that encourage efficient use of water, as set by the community water system's governing body
	3.	A continuing conservation education program that contains provisions to actively inform the public of drought conditions and provide information on conservation measures that reduce vulnerability from drought conditions, including:
<input type="checkbox"/>		a) Curtailment of nonessential water uses
<input type="checkbox"/>		b) Affordable efficiency technologies for indoor and outdoor use
<input type="checkbox"/>		c) Rebate and retrofit programs for indoor and outdoor uses
<input type="checkbox"/>		d) Reuse and recycling programs

* Map is not required for small systems (serving $\leq 1,850$ people); only a description is required. A map may be submitted to meet the requirements.

**Not required for non-metered systems

Appendix C
System Water Plan Form
for Small Community Water Systems

System Water Plan Form

ADWR has developed a form, beginning on the next page, which *may* be filled out and submitted as the System Water Plan. The form may also be used as a guideline and systems may develop the plan in a different format. Either way, the form was developed so that by answering each of the questions, water systems will meet the System Water Plan requirements. This form is intended to assist smaller systems in preparing their plans, but can be used by larger systems as well.

Please note that *water systems are not required to follow this format or submit this form.* It is simply provided as an option. ADWR encourages systems to be creative in developing a plan that is useful and practical for their own planning purposes.

The System Water Plan form can also be found on ADWR's website as a separate Word document that can be downloaded and completed electronically:
<http://www.azwater.gov/dwr/drought/CWS.html>.

System Water Plan Form

WATER SUPPLY PLAN

1. List and describe service area lands:

2. List and describe sources of supply, including emergency sources:

3. List and describe well registration numbers and water levels at the well sites (if known):
Note: If current water levels are not known, please provide water levels and dates of last measurement, if known.

4. List and describe storage and treatment facilities:
Note - Please describe capacities and water sources/types for each facility.

5. Describe existing transmission and distribution facilities:
Note – A map is not required for small systems but could be submitted to meet the description requirement.

6. List and describe existing interconnections:
Note – A map is not required for small systems but could be submitted to meet the description requirement.

SYSTEM WATER PLAN FORM

WATER SUPPLY PLAN (cont.)

7. Describe monthly system production data categorized by the system's sources of supply:

8. For systems that use meters to measure withdrawals and diversions please provide:

Note – For systems that are not metered, estimate or leave blank.

a. Summary of system average daily demands:

b. Maximum monthly demands:

c. Estimated peak day demands for the past five years:

9. List and describe the quantities of water sold to or purchased from other water systems during the previous five years:

10. Provide an analysis of present and future water supply demands for the next five, ten and twenty years:

SYSTEM WATER PLAN FORM

DROUGHT PREPAREDNESS PLAN

1. Name, address and telephone number of the community water system and the names of Officers or other persons responsible for directing operations during a water shortage emergency:

2. Identify drought or emergency response stages that provide for implementation of measures in response to a reduction in available water supply resulting from drought or infrastructure failure:

3. A plan of action that the community water system will take to respond to drought or water shortage conditions, including:
 - a. Provisions to actively inform the public of the water supply shortage and a program for continued education and information regarding implementation of the Drought Preparedness Plan:

 - b. Development of emergency supplies, which may include identification of emergency or redundant facilities to withdraw, divert or transport substitute supplies of the same or other types of water:

 - c. Specific water supply or water demand management measures for each stage of drought or water shortage conditions [measures are subject to approval by the Arizona Corporation Commission (ACC) if the community water system is a public service corporation]:

SYSTEM WATER PLAN FORM

WATER CONSERVATION PLAN

1. Feasible measures that may be implemented to determine and control lost and unaccounted for water:

2. Consideration of water rate structures that encourage efficient use of water, as set by the community water system's governing body (subject to approval by the ACC if the community water system is a public service corporation):

3. A continuing conservation education program that contains provisions to actively inform the public of drought conditions and information regarding conservation measures to reduce vulnerability from drought conditions, including:
 - a. Curtailment of nonessential water uses:
 - b. Affordable efficiency technologies for indoor and outdoor use:
 - c. Rebate and retrofit programs for indoor and outdoor uses:
 - d. Reuse and recycle programs: