

City of Chandler Drought Management Plan

Introduction

Since 1986, the City of Chandler has been implementing its Water Resource Master Plan, Water Conservation Plan, Water Master Plan, and Reclaimed Water Master Plan and is prepared for drought. Implementing these plans has allowed Chandler to secure a diverse water supply, build the infrastructure needed to deliver the water supply, efficiently use the water supply, and develop a reclaimed water system to supplement the water supply. Chandler has a secure, reliable water supply for its businesses and residents during normal supply years, as well as, during times of reduced supplies. The drought management plan details Chandler's existing drought programs and the demand reduction measures that will be implemented during severe drought conditions.

Chandler is prepared for drought because it has established the following:

- Diversified water supplies
- Water conservation program
- Water conservation ordinances
- Reclaimed water program
- Redundant well program
- Underground storage and recovery program

The above listed programs allow Chandler to withstand surface water shortages that periodically occur in the Southwest. However, the City's capability to meet its demand could be at risk during extreme water supply shortage conditions. Considering Chandler's diverse water supply, existing infrastructure, and conservation programs, a 30% reduction in Colorado River water deliveries and / or a 60% reduction in Salt River Project water deliveries would have to occur before implementing mandatory city-wide water demand reductions.

The Drought Management Plan will ensure that the basic water needs for Chandler residents and businesses will be met during extreme water shortages. This plan will provide procedures to track water shortages, monitor supply and demand during the drought, and identify measures that reduce water demands during extreme water shortage conditions. Mandatory water use restrictions for Chandler residents and businesses will only be implemented when the City anticipates it cannot meet its projected demand.

The following criteria will be used when mandatory restrictions are implemented:

- 1) Municipal outside water use restrictions will be implemented prior to mandatory water use restrictions for residents and businesses.
- 2) Outside water use reductions will be shared equitably among all City water users: municipal, residential, commercial, and industrial.
- 3) Water users will be informed of the City's water supply condition.
- 4) Water use restrictions will be designed to achieve water use reductions with the least possible impact on the local economy.

- 5) Water use restrictions will cease when supplies are adequate to meet the following year's projected demands.
- 6) Reclaimed water supplies are projected to experience minimal decline during times of drought, therefore, mandatory restrictions may not apply.

Chandler's Water Supplies

Chandler's water supply comes from allocations from the Salt and Verde Rivers, the Colorado River, groundwater, and reclaimed water. Obtaining water rights from surface water sources in different watersheds help the City withstand droughts that occur within an individual watershed.

Salt and Verde River water supplies come from the Salt River Project (SRP), Roosevelt Water Conservation District (RWCD), and the additional new conservation storage (NCS) constructed at Roosevelt Dam. Water deliveries from SRP can only be used within the project boundaries. This area is considered "member lands". SRP's water allocation for member lands includes a mix of surface water and groundwater. Salt and Verde surface water is stored in reservoirs and delivered through a series of canals to the City's Pecos Surface Water Treatment Plant (SWTP). SRP can also pump groundwater through a series of wells that either discharge into the canals to fulfill water deliveries at the Pecos SWTP, or are connected directly to the City's water distribution system.

Colorado River water is delivered through the Central Arizona Project (CAP) canal to Chandler's San Tan Vista SWTP, jointly owned with the Town of Gilbert, or diverted to SRP canal system near the Granite Reef diversion dam. This water is then delivered to the City's Pecos SWTP or recharged into the aquifer at the Granite Reef Underground Storage Project (GRUSP) for future use. Chandler has long-term contracts to receive Colorado River water. Colorado River water is used on lands within Chandler outside the SRP member lands.

Chandler receives groundwater through a series of City wells that are connected to the water distribution system. Chandler pumps groundwater to supplement the surface water supply during peak demands, emergencies, and drought conditions. Groundwater pumped within Chandler is regulated under the States Groundwater Code. Chandler can pump some groundwater each year without a replenishment obligation. This is known as safe yield pumping and is the amount of groundwater that can be pumped without a long-term aquifer draw. This quantity, established by the Arizona Department of Water Resources (ADWR), is about 6% of Chandler's total water demands. During droughts, Chandler can request a drought exemption from ADWR to allow Chandler to utilize its groundwater reserves, pursuant to R12-15-722G of the Arizona Administrative Code. Drought pumping is the amount of groundwater that ADWR has deemed appropriate to pump during a drought. This groundwater is used to supplement reduced surface water supplies during droughts. Emergency response pumping is the amount of groundwater withdrawn when an unexpected event has occurred at the surface water treatment plant or canals. During emergencies, Chandler will recover surface water stored underground during normal and surplus runoff years.

Chandler's Drought Preparedness Programs

Diversified Water Supplies

Chandler has worked hard to reduce its reliance on one water source. Both the SRP water supply and the CAP water supply are subject to drought. If a drought were to occur on either the SRP or the CAP system, Chandler could receive water from the surface water system not in drought, its vast groundwater reserves, or both.

Water Conservation Program

Water conservation is a way of life in Chandler. Chandler actively promotes water conservation practices, regardless of the water supply. The City began its water conservation program in 1990. Implementing an aggressive water conservation program assists the City in managing its groundwater reserves during normal supply years so that groundwater is available during droughts and / or emergencies.

Chandler's Water Conservation Program uses a combination of financial incentives, free services, and educational activities to encourage water conservation. Low water use landscape and irrigation timer rebates, water audits, leak detection services, water saver kits and educational activities have increased the public's awareness about conserving water. Chandler water conservation programs and strategies are continually promoted online at www.chandleraz.gov/water, through its Facebook page at www.facebook.com/ChandlerConserves, by the WaterSaver email newsletter and through Channel 11 and local newspaper outlets. (Refer to Appendix 1 for a summary of the City's Water Conservation program.)

Water Conservation Ordinances

Chandler enacted its first water conservation ordinance in 1990. Today, there are several ordinances that promote water conservation. Chandler has ordinances that require all new construction to install water efficient plumbing fixtures, restrict the amount of water intensive landscaping at newly constructed model homes, businesses, industrial facilities and common areas, and require all new landscape areas in the south half of the service area to use reclaimed water when it becomes available. (Refer to Appendix 2 for a summary of the City's Water Conservation Ordinances).

Reclaimed Water Program

Chandler's Reclaimed Water Program is an environmentally sound way of reusing our water resources while saving our potable water supplies for future uses. Wastewater from kitchens, laundry rooms, bathrooms, and sinks is collected and transported through a system of underground pipes to a water reclamation facility where it undergoes extensive treatment to meet the State's Reuse and Aquifer Water Quality Standards. The reclaimed water is then used for irrigating turf and low water use landscaping at parks, golf courses, residential common areas, roadside landscaping, and non-edible crops. It is also recharged into the aquifer for future use.

Chandler has upgraded its water reclamation facilities to create a high quality reclaimed water product that meets all state standards for reuse and recharge. Chandler has also constructed the

infrastructure needed to deliver reclaimed water to its end users. The 90-mile distribution system delivers reclaimed water to the majority of south Chandler. Reclaimed water, as an irrigation source, is a valuable water resource that Chandler uses to supplement its drinking water supply.

Well Program

Chandler's wells allow the City to pump groundwater during times of surface water shortages and to meet peak summer demands. The well system also supplements the Salt River Project and Central Arizona Project water and acts as a back-up system when the Surface Water Treatment Plants are off-line. Currently, there are over 20 potable water wells connected to the City's water distribution system. Since 1980, groundwater levels in Chandler have been rising, and today the aquifer below Chandler contains enough water to supply Chandler for over 100 years. Reliance on this large groundwater aquifer during times of drought has always been an integral part of Chandler's long-term water resource planning. Increased groundwater pumping during droughts will not affect Chandler's groundwater supplies because wet weather cycles and artificial recharge will allow the aquifer to refill after a drought.

Underground Storage and Recovery Program

An essential part of Chandler's water resource management plan is its underground storage projects. Chandler recharges CAP, NCS, and reclaimed water into the aquifer for future use. Chandler uses eight different recharge sites to store water. The largest recharge site is located in the Salt River channel downstream of Granite Reef Diversion Dam, approximately 12 miles northeast of downtown Chandler. The Granite Reef Underground Storage Project (GRUSP) is operated by SRP with Chandler owning 20% of the capacity of GRUSP. In a typical year, Chandler's share of the recharge capacity is 16,000 acre-feet. One acre-foot equals 325,851 gallons and is enough water to meet the needs of 2 to 3 single family homes for one year.

During normal surface water supply years, water is placed into GRUSP's spreading basins, where it percolates into the aquifer. This recharged water naturally flows to the west and southwest. Chandler recovers this recharged water through its groundwater wells.

Drought Stages and Implementation Measures

There are four drought stages in this plan. Each stage is based on the severity of water supply conditions and the City's ability to meet the water demand of its users. The trigger point for Stages Two through Four is based on the percent of actual water delivery reductions. Stage One is triggered when Staff predicts a water delivery reduction may be announced by SRP or the Central Arizona Water Conservation District (CAWCD) which operates the CAP. Surface water and groundwater deliveries from SRP can only be used on SRP lands. Therefore, SRP water delivery reductions are considered separately from CAP water delivery reductions.

Chandler is a growing community, and as the City's supply and demand changes, the percentage of water reduction assigned to each stage will vary. Staff will analyze the available water sources and demand for each drought that occurs. Depending on this analysis, the trigger point for each drought stage may be adjusted. Each stage has measures that will be implemented to ensure the basic water

needs of Chandler customers are met. The measures below may be interchanged as needed to ensure Chandler's water needs are met.

Stage One

The Water Resource Manager may declare Stage One when a water shortage is predicted. Chandler's Water Resource Staff monitors the precipitation and water storage levels of the Colorado, Salt, and Verde watersheds. A reduction in water supplies can be predicted several months prior to the actual announcement of the reduction. Staff tracks water shortages so the City is prepared before a supply reduction is made. At this stage of the drought, Chandler is capable of meeting demand through remaining surface water supplies and groundwater wells.

The following measures may be implemented in response to a Stage One event:

- 1) Continue to monitor SRP and CAP surface water supplies and weather patterns.
- 2) Report to the Public Works & Utilities Director as water supply conditions change.
- 3) Increase water conservation education messages.
- 4) Develop and implement a public awareness program designed to alert residents of drought conditions and the potential impact to Chandler's water supplies.
- 5) Increase groundwater usage. Staff may request a drought exemption from ADWR to allow Chandler to utilize its groundwater reserves.

Stage Two

The Public Works & Utilities Director may declare Stage Two when SRP water deliveries are less than 1.8 acre foot per acre and/or Colorado water deliveries are reduced 10% from Chandler's full contract, leased, and Arizona Water Bank Authority (AWBA) water volume. At this stage, Chandler is capable of meeting demand through its remaining surface water supplies and groundwater wells. During this stage, the City will use its groundwater reserves to supplement reduced surface water deliveries. When surface water supplies return to normal, the City will need to replace the water withdrawn from its reserves by recharging additional surface water back into the aquifer. Chandler will have to purchase this surface water. Stage Two will implement mandatory reduction in municipal water use to minimize the added expense of recovering the City's groundwater reserves.

One or more of the following measures may be implemented in response to a Stage Two event:

- 1) Continue to monitor SRP and CAP surface water supplies and weather patterns.
- 2) Report to the Public Works & Utilities Director as water supply conditions change.
- 3) Increase water conservation education messages.
- 4) Increase public awareness messages to alert residents of drought conditions.
- 5) Increase groundwater production. Staff will obtain a drought exemption from ADWR to allow Chandler to utilize its groundwater reserves.
- 6) Use surface water that Chandler stored underground to supplement the water pumped that is legally defined as groundwater.
- 7) Implement mandatory reduction of outdoor municipal water use to compensate for reduced surface water deliveries. Reductions of water use will be recommended by the

Public Works & Utilities Director and approved by City Department Directors and the City Manager.

- 8) Reclaimed water use may be exempt from restrictions.

Stage Three

The City Manager may declare Stage Three when SRP water deliveries are less than 1.5 acre foot, per acre and/or Colorado water deliveries are reduced 15% from Chandler's full contract, leased, and AWBA water volume. At this stage, Chandler is capable of meeting demand through its remaining surface water supplies and groundwater wells. The water delivery reductions in Stage Three will require the City to use its groundwater reserves. When surface water supplies return to normal conditions, the City will need to replace the water withdrawn from its reserves by recharging additional surface water back into the aquifer. Chandler will have to purchase this additional surface water. Stage Three requires mandatory municipal and voluntary public water usage restrictions. Educational and public awareness programs will be implemented to encourage voluntary reductions in water use among all water users.

One or more of the following measures may be implemented in response to a Stage Three event:

- 1) Continue to monitor SRP and CAP surface water supplies and weather patterns.
- 2) Report to the Public Works & Utilities Director as water supply conditions change.
- 3) Increase water conservation education messages.
- 4) Increase public awareness messages to alert residents of drought conditions.
- 5) Increase groundwater production. Staff obtains drought exemption from ADWR to allow Chandler to utilize its groundwater reserves.
- 6) Use surface water stored underground to supplement the water pumped that is legally defined as groundwater.
- 7) Track water demand patterns daily.
- 8) Reduce peak use through mandatory and voluntary water use reductions.
- 9) Implement mandatory municipal and voluntary public reduction of water use:
 - A) Reduction in lawn watering to two times per week. Selected watering days will be determined based on water operation and water resource Staff recommendations.
 - B) Limit landscape watering to off peak hours (9:00 pm – 5:00 am).
 - C) Eliminate winter overseeding.
 - D) Shut off all outdoor potable water features.
 - E) Prohibit use of outdoor misters.
 - F) Allow auto/truck washing only if pail and hose with a shut off nozzle are used, or at a commercial facility.
 - G) Other conservation measures may be implemented depending on specific supply and demand conditions.
 - H) Reclaimed water use may be exempt from restrictions.
- 10) Introduce drought surcharge as determined based on the severity of drought condition. Drought surcharge to be recommended by City Manager and approved by City Council. If the Public Works & Utilities Director determines that there is a significant possibility that the City's water supplies needed to meet the following year's demand may be reduced if

drought conditions are not reversed, and it is likely the increased cost of recovering surface water stored underground and the reduced water sale revenues will cause a significant financial impact, the City Manager may propose an Ordinance for Council approval of a schedule of water deficiency rate surcharges following the requirements of A.R.S. 9-511.01. The intent of the surcharge would be to encourage water use reductions and provide adequate revenues to operate the water utility system in accordance with the water deficiency.

Stage Four

The City Council may declare Stage Four when the Public Works & Utilities Director determines that there is a significant possibility that the City's water supplies needed to meet the following year's demand may be reduced if drought conditions are not reversed, and it is unlikely that the City will be able to deliver sufficient water to meet all demands. At this stage, SRP water deliveries are less than 1.2 acre foot per acre and / or Colorado water deliveries are reduced 30% from the full contract, leased, and AWBA water volume. The water delivery reductions in Stage Four will require the City to use a large amount of its groundwater reserves. Chandler's well system cannot make up the reduced water deliveries. Without Citywide mandatory water use restrictions, it is unlikely Chandler can deliver sufficient water to meet peak summer months demands. Mandatory water reductions will target managing the water demands to reduce the peak summer demand. Stage Four will implement mandatory municipal and public water usage reductions to ensure basic water needs for Chandler residents and businesses will be met.

One or more of the following measures may be implemented in response to a Stage Four event:

- 1) Continue to monitor SRP and CAP surface water supplies and weather patterns.
- 2) Report to the Public Works & Utilities Director as water supply conditions change.
- 3) Increase water conservation education messages.
- 4) Increase public awareness messages to alert residents of drought conditions.
- 5) Increase groundwater production. Staff obtains drought exemption from ADWR to allow Chandler to utilize its groundwater reserves.
- 6) Use surface water that Chandler stored underground to supplement the water pumped that is legally defined as groundwater.
- 7) Track water demand patterns daily.
- 8) Authorize Public Works & Utilities Director to purchase additional drought supplies, if available.
- 9) Restrict overseeding (mandatory for municipal and voluntary for public).
- 10) Mandatory municipal and public reduction of water use:
 - A) Lawn watering restricted to once per week. The City Manager shall determine selected watering days for all users of City potable water.
 - B) Tree and shrub watering restricted to once per week. The City Manager shall determine selected watering days for all users of City potable water.
 - C) Limit landscape watering to 9:00pm – 5:00am.
 - D) Prohibit use of all outdoor potable water features.
 - E) Prohibit use of all outdoor misters.

- F) Allow auto/truck washing only if pail and hose with shut off nozzle are used or at a commercial facility.
 - G) Other conservation measures may be implemented depending on specific demand and supply conditions.
 - H) Reclaimed water use may be exempt from restrictions.
- 11) Implement education program that gives information on plant survival during water use restrictions.
 - 12) Other water conservation measures as adopted by the City Council, needed to balance water demand with the available water supply.
 - 13) Introduce drought surcharge as determined based on the severity of drought condition. Drought surcharge to be recommended by City Manager and approved by City Council. If the Public Works & Utilities Director determines that there is a significant possibility that the City's water supplies needed to meet the following year's demand may be reduced if drought conditions are not reversed, and it is likely the increased cost of recovering surface water stored underground and the reduced water sale revenues will cause a significant financial impact, the City Manager may propose an Ordinance for Council approval of a schedule of water deficiency rate surcharges following the requirements of A.R.S. 9-511.01. The intent of the surcharge would be to encourage water use reductions and provide adequate revenues to operate the water utility system in accordance with the water deficiency.

Stage Four Variances

Variances to the water use regulations set forth in this plan may be granted at the discretion of the City Manager or designee. Applicants for a variance must apply in writing to the Public Works & Utilities Department, and demonstrate special circumstances such as health and safety needs.

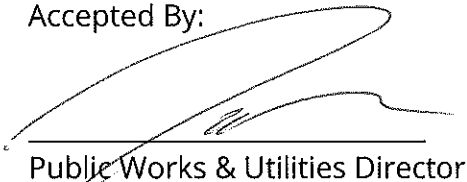
Stage Four Notifications

The City of Chandler Communications & Public Affairs Department will notify the public of a Stage Four drought condition and mandatory water use regulations using the available media sources:

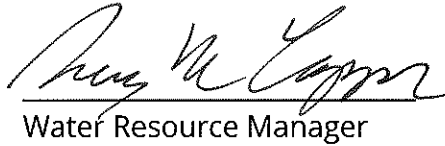
- A. A media briefing will be held, and a news release in English and Spanish will be distributed to the local media.
- B. Information will be included in City utility bills, along with a phone number to call for additional information.
- C. Cable Channel 11 will air a twenty-second slate on a regular hourly rotation during the duration of the drought condition. The slate will include instructions for reducing residential and non-residential water use and a phone number to call for additional information.
- D. Cable Channel 11 will air a "news crawl" to run several times a day, at the top of the hour, during the duration of the drought condition. The crawl will include instructions for reducing residential and non-residential water use and a phone number to call for additional information.

- E. The home page of the City's intranet and internet web sites will include a drought alert message informing employees and the public of the Stage Three or Stage Four drought. Instructions will be provided for reducing residential water use and a phone number will be provided for residents to call for additional information.
- F. The City's "on-hold" phone recording will inform callers of the drought condition and provide instructions for reducing residential water use and a phone number to call for additional information.
- G. Display ads a minimum of four column inches in size will be placed in at least three community newspapers (including one Spanish language paper) with circulations that cover the City's water service area. The ads shall run once monthly during the duration of the drought condition with a phone number to call for additional information.

Accepted By:


Public Works & Utilities Director

Date: 3/11/2020


Water Resource Manager

Date: 3/11/2020