

**CITY OF GLENDALE  
DROUGHT MANAGEMENT PLAN**

**ADOPTED: June 2004**

**I. INTRODUCTION**

The City of Glendale is a leader in water resources planning and it is committed to provide quality water services to its residents and businesses. A major challenge facing nearly all water providers, including Glendale is temporary water shortages caused by droughts.

The city's drought management plan ensures that the city has in place best management practices to minimize the negative impacts of temporary water shortages resulting from droughts. These best management practices include ordinances, policies, plans and procedures that are recognized by water providers as being effective and practical in dealing with drought conditions and potential water shortages.

**A. GLENDALE'S WATER RESOURCES GOALS AND PRINCIPLES**

The city bases its drought management plan on five fundamental public policy goals/principles.

1. To provide water in an amount that will protect the safety, health, and welfare of the public;
2. Minimize the disruption of normal economic, business, and residential activities;
3. To maintain public trust through effective communication with residents and businesses in implementing the plan;
4. To provide a balanced and equitable plan, in which all water customers share the hardships and responsibilities in proportion to the amount of water used and the magnitude of the water shortage, taking into consideration situational circumstances; and
5. To provide a comprehensive, logical, and coordinated plan that is effective, practical and flexible.

**B. HOW TO USE THIS PLAN**

Through this plan the city is preparing for droughts of different levels and magnitude, including the worst case. The drought management plan is to be used only to deal with droughts. Temporary water emergencies and shortages that occur due to other causes, such as infrastructure failure, water contamination or a water-borne disease outbreak are covered under the city's Water and Wastewater Emergency Plan.

The plan is organized into six sections.

**Section I.** Presents the overall goals and objectives of the plan, and provides an overview of the plan content and structure.

**Section II.** Contains key definitions and concepts used in the plan.

**Section III.** Provides a general discussion on the city's water resources planning efforts and describes each source of water supply available to Glendale and their associated drought susceptibility/risk.

**Section IV.** Presents the four distinct and progressive stages of drought management and response, which may be declared by the city. Guidelines are provided to aid in determining the severity of the drought and/or the targeted response. The initial drought stages are intended to focus primarily on municipal efforts. Declaration and termination of the first two drought stages is therefore made by the City Manager.

The latter stages of this plan incorporate mandatory residential, commercial/industrial impacts and response measures. Declaration and termination of the third and fourth drought stages is therefore made by the City Council.

Implementation procedures and processes are covered in this section.

**Section V.** Describes the array of best management practices that the city may utilize to offset any reductions in the available water supply. These best practices were identified through a review and evaluation of drought management plans in the Phoenix metropolitan area and across the nation.

## **Appendices.**

The recommended measures for each drought stage are provided in Tables 1 through 4. The appendix also contains the ordinance associated with implementation of this plan.

## **II. KEY DEFINITIONS AND DROUGHT CONCEPTS**

### **A. DROUGHT**

Drought is defined as an extended period of below normal precipitation on a watershed. Cycles of drought and surplus conditions on regional water supplies are a normal occurrence. No one can accurately predict how long a specific drought will last, its geographical extent, nor the magnitude or severity of a drought. When an area experiences a drought it does not necessarily mean that the area will need to curb water use. The key issue is drought susceptibility.

## **B. DROUGHT SUSCEPTIBILITY**

Drought susceptibility is the extent to which an area may be subject to the negative impacts of a drought. High susceptibility means that an area is more prone to experiencing a drought and is sensitive or vulnerable to the negative impact of a drought, such as not having enough water to meet customer needs.

Different cities and places have different drought susceptibility levels even when they appear to be similar in other ways, such as size, climate, precipitation pattern, and growth.

From a municipal water providers' perspective, drought susceptibility is the inability to provide normal water service to its residents, businesses and visitors during different levels of droughts. The three factors that affect drought susceptibility are surface water reservoir storage capacity, availability of alternative water resources to replace drought affected supplies, and water system infrastructure capability.

The availability to tap into several sources of water, particularly groundwater (and stored water credits) and having the infrastructure (i.e., well capacity) in place to utilize those resources during a drought is perhaps the most important factor that reduces drought susceptibility. In fact, the Salt River Project minimizes the impact of droughts on their water system by using groundwater to replace drought impacted surface water supplies. Similarly, a substantial volume of groundwater and stored water credits are available to Glendale during droughts.

Groundwater (well) production capacity is currently a limiting factor for Glendale. The city will look to develop additional well capacity to take full advantage of the significant investments made to generate reclaimed water related stored water credits.

## **C. DROUGHT MANAGEMENT**

While the terms drought management and water conservation have been at times used interchangeably, there is a notable and important difference. Drought management refers to the plans and actions a city or water provider will implement to reduce the impact of drought on their water system. This includes switching to alternative water supplies and using measures to temporarily curtail water demand. Demand management measures are intended to significantly reduce water demand over a short period of time, specifically in response to a drought.

## **D. WATER CONSERVATION**

By contrast, water conservation programs are intended to be on-going and designed to reduce the amount of water wasted, regardless of drought. Water conservation programs change water use behavior of water customers through information, education, and incentives that encourage wise water use, low water use landscaping and water saving technologies. It is important to keep drought management and water conservation separate in order to not send a mixed message after a drought has ended. While the end

of a drought will result in business as usual, business as usual should not mean that it is acceptable to waste water.

### **III. GLENDALE'S WATER RESOURCES PLANNING PROGRAM**

Glendale's management of its water resources and water system has reduced the city's drought susceptibility. Unlike most areas of the country, Glendale has access to several sources of water, including groundwater, effluent/reclaimed water, and stored water credits. The city continues to develop its water system to maximize the usefulness of each of these supplies. In addition, the city has access to long-term water supplies and has demonstrated to the state that it has a 100-year assured water supply for its entire water service area.

While the city's water planning efforts have significantly reduced the risk of drought related impacts to Glendale, severe drought conditions on the Salt/Verde watershed and/or the Colorado River watershed can result in a reduction of available surface water supplies. These reductions could potentially affect the city's ability to provide normal water services, thus requiring additional drought related responses from both the city and its water service customers.

It is important to note that it would take an extremely severe or prolonged drought to cause the city to suspend normal water services and mandate water demand reduction measures. Nonetheless, deep and prolonged droughts can occur and the city needs to be prepared.

The city has five sources of water, including supplies from the Salt River Project, Central Arizona Water Conservation District, groundwater, effluent/reclaimed water, and stored water credits.

It is the city's philosophy to first utilize surface water to the extent available and practical, and then rely on a combination of groundwater, stored water credits, and reclaimed water to meet the city's total water demand. The city places a high priority on surface water use to comply with Arizona's Groundwater Management Act and because of its commitment to utilize renewable water resources. Unfortunately, surface water supplies are subject to shortages during droughts.

#### **A. SALT RIVER PROJECT (SRP)**

SRP surface water supply comes from the Salt and Verde River systems. The water from the Salt and Verde rivers originates from the springtime melt of the snow pack and from monsoon rains originating in northeastern and central Arizona. This water is stored in a series of reservoirs and is delivered to the city's treatment plant via the Salt River Project's canal system. Water supplies received from Salt River Project can only be used on lands within the Project's service area boundaries.

In normal, non-drought years, the Salt River Project provides sufficient water supplies to meet water demand on the city's SRP eligible lands. The water demand on SRP eligible land is about 2.3 acre-feet per acre per year. The SRP is capable of providing surface water from the Salt/Verde River system and groundwater from SRP wells. In normal years, SRP would be able to provide nearly all of the city's SRP supply as surface water and only a small component of what the city receives would be groundwater.

During drought years, SRP has the option of cutting back on the total amount of water delivered and/or can change the type of water it delivers depending on the severity of the drought. During 2003, the worst drought of record on the Salt and Verde watershed, SRP cut its allocation to 2 acre-feet per acre of which 1.3 acre-feet per acre was groundwater and 0.7 acre-feet per acre was surface water.

SRP is capable of providing about 1.3 to 1.5 acre-feet per acre to their water customers even during the most severe droughts because of their ability to provide groundwater.

## **B. CENTRAL ARIZONA WATER CONSERVATION DISTRICT (CAWCD)**

The city is entitled to several sources of Colorado River water delivered by the Central Arizona Water Conservation District, of which the largest supply is Central Arizona Project water. During normal, non-drought years the city would be entitled to receive a total of 19,679 acre-feet from the Colorado River.

The various sources of Colorado River water have different delivery priorities that may be a concern during droughts on the Colorado River watershed. Central Arizona Project water has a lower priority than all other Colorado River water rights. Of the Central Arizona Project supplies delivered to Arizona, the lowest priority of water that would be first subject to shortages is the agriculture priority supply. The city has the right to use 682 acre-feet of this low priority water through the Roosevelt Water Conservation District agreement. The remainder of the city's Colorado River supply has a higher priority and is less subject to drought reductions.

The Colorado River system has a large reservoir capacity and can withstand moderate droughts without cutting back water supplies. Nonetheless, extremely severe droughts could negatively impact the city's higher priority Colorado River water resources.

Arizona has taken action to reduce the impact of potential water shortages on the Colorado River. The Arizona Water Banking Authority was established in 1996 to store Arizona's unused Colorado River water entitlements. To date, over one million acre-feet of water have been stored underground in the Phoenix area. This stored water can be used to replace shortages of Central Arizona Project water during droughts. The Authority is in the process of preparing a plan for the recovery of that stored water. Groundwater wells will be used to recover the stored water. Whether the Authority will construct the well system needed to recover the water, or leave the responsibility of recovery to the individual water providers has not been determined. Also undetermined is whether the recovery wells will feed the Central Arizona Project Canal system.

### **C. CITY GROUNDWATER**

Groundwater availability is not typically affected by drought. Glendale has the right to utilize a limited amount of groundwater, which is pumped from wells connected to either a treatment facility or directly to the city's water system. The city received a one-time volume of 294,300 acre-feet of groundwater that could be used over a 100-year period starting in 1998 (some of this groundwater has already been used). This limited amount of groundwater may be pumped out of the aquifer without being replenished.

In addition to groundwater, the city receives an annual credit for incidental recharge equal to 4.69 percent of total water demand.

The city is also working with the Arizona Department of Water Resources to determine the applicability of a provision in the Assured Water Supply regulations that allow a certain amount of groundwater use to be exempted from a replenishment obligation during droughts that cause a reduction of over 20 percent of surface water supplies from a source.

### **D. EFFLUENT /RECLAIMED WATER**

The newest type of water developed by Glendale is effluent/reclaimed water. Reclaimed water is water previously used that has gone through the wastewater treatment process and is made safe to use again. Reclaimed water is being used directly on landscaping (such as at Arrowhead Ranch) and being stored in the aquifer.

Direct use of reclaimed water benefits the city by fulfilling a water demand that would otherwise be met using potable water. The normal rate of direct use of reclaimed water is usually needed even during droughts because of the lack of underground aquifer storage facilities.

Reclaimed water that is recharged in underground aquifers is a stored water credit that can be used in the future. These credits are recovered through groundwater wells or can be exchanged for other water. Currently, the City stores about 7,000 acre-feet of reclaimed water a year. Reclaimed water availability is not significantly impacted by droughts.

### **E. OTHER STORED WATER CREDITS**

The city also acquires stored water credits through a Groundwater Savings Facility and by extinguishing old irrigation rights. The city has acquired 32,000 acre-feet by purchasing and storing excess Central Arizona Project Water through the Groundwater Savings Facility. In addition, the city earned 25,000 acre-feet of water by extinguishing old irrigation rights within the city. These credits are one-time credits that are not subject to droughts. Stored water credits can be recovered through wells.

## IV. DROUGHT STAGES AND MANAGEMENT PLAN

The city's drought management plan is comprised of four stages. Each stage is progressively more serious. More restrictive declarations are made when the current stage is insufficient to meet water demand or when the situation changes significantly. Selected best management practices are provided for each stage. Details regarding each drought stage and the corresponding best management practices are provided in Tables 1 through 4. The trigger for each drought stage is intended as guidance.

### A. DROUGHT STAGES

**Stage 1. Drought Watch.** Declared by the City Manager when the watershed or watersheds that the City relies on for surface water experience drought conditions and the respective water district is either considering or actually cuts total water allocations. The city is still capable of providing adequate water service throughout the system. All available water resources and facilities (conveyance and production) that are necessary to meet normal water demand are utilized.

The city begins to reduce water consumption to demonstrate leadership by targeting a 5% reduction in overall water use by City facilities. Irrigation of city parks will not exceed 75% of the state's recommended water use to maintain landscaping.

The city asks for businesses and residents to use water wisely. Drought water use reduction measures are voluntary.

The list of recommended best management practices for a Stage 1 Drought Watch may be implemented selectively and/or progressively by the City Manager at the time of an initial Stage 1 Drought Watch, or any time during a Stage 1 Drought Watch. The list of recommended best management practices is not all-inclusive, and may be amended as necessary, excluding implementation of non-voluntary water use restrictions on businesses and the public.

**Stage 2. Drought Alert.** Declared by the City Manager when total water allocations are cut and the City anticipates that it may not have sufficient water resources to supply normal water service to meet normal water demand.

The City reduces water consumption by targeting a 10% reduction in overall water use by city facilities. Irrigation of city parks will not exceed 75% of the state's recommended water use to maintain landscaping.

Businesses and the public are asked to voluntarily curb water use by 5%. Businesses and the public are put on notice that if conditions worsen that the city may not be able to provide enough water to meet all demand and that mandatory drought water use restrictions will be put into place if voluntary measures do not adequately reduce water consumption.

The list of recommended best management practices for a Stage 2 Drought Alert may be implemented selectively and/or progressively by the City Manager at the time of an initial Stage 2 Drought Alert, or any time during a Stage 2 Drought Alert. The list of recommended best management practices is not all-inclusive, and may be amended as necessary, excluding implementation of non-voluntary water use restrictions on businesses and the public.

**Stage 3. Drought Declaration.** Declared by the City Council when total water allocations are cut and mandatory drought/water restrictions need to be enacted. The city projects a 10% water shortage due to the cut in total water allocations.

The city reduces water consumption by targeting a 15% reduction in overall water use by city facilities. Irrigation of city parks will not exceed 65% of the state's recommended water use to maintain landscaping.

Businesses and the public are asked to curb water use by 10%. The list of recommended best management practices for a Stage 3 Drought Declaration may be implemented selectively and/or progressively by the City Council at the time of an initial Stage 3 Drought Declaration, or any time during a Stage 3 Drought Declaration. The list of recommended best management practices is not all-inclusive, and may be amended as necessary.

**Stage 4. Drought Emergency.** Declared by the City Council when the city projects a 20% or greater water shortage. Mandatory water conservation and/or drought management measures are required in order for the city to meet water demand.

The city reduces water consumption by targeting a 20% reduction in overall water use by city facilities. City parks that do not receive SRP urban irrigation will be allowed to water only on non-turf areas.

Businesses and the public will be asked to curb water use by 20%.

The city will consider strengthening and/or requiring additional drought management measures for Stage 4, if deemed necessary. These measures will be presented to City Council for consideration prior to the declaration of a Stage 4 Drought Emergency. The list of recommended best management practices for a Stage 4 Drought Emergency may be implemented selectively and/or progressively by the City Council at the time of an initial Stage 4 Drought Emergency, or any time during a Stage 4 Drought Emergency.

## **B. DROUGHT MANAGEMENT PLAN IMPLEMENTATION**

**Annual Water Supply Assessment.** The city usually knows by October of the preceding year whether a drought on either the Salt River Project system or the Colorado River system would impact the city's water supply.

The city prepares a water supply plan in September for the next calendar year based on anticipated supplies, available water system infrastructure (e.g., water treatment plant capacity and well capacity), and projected demand. The city uses water supply availability projections from the Salt River Project and the Central Arizona Water Conservation District. The Salt River Project water allocation is provided to the city in September. The city is required to submit its annual Colorado River water order by October 1.

## **V. BEST DROUGHT MANAGEMENT PRACTICES**

There are a number of best management practices that may be used by the City of Glendale to deal with droughts. These practices include both supply management and demand management strategies.

### **A. SUPPLY MANAGEMENT**

The city's first line of defense in facing a drought is to fully utilize the water resources that are available to replace water affected by the drought. Supply management strategies are generally preferred over demand management strategies because it has minimal impact on water users. In many cases, residents and businesses may not even realize that the city has implemented supply management measures to deal with the drought. A minor downside to this measure is that the public may think the city is not taking the drought seriously enough.

Glendale is fortunate because it is not reliant on a single source of water and it has several options to secure water on which to draw upon during a drought.

#### **Option A. Purchase Excess Central Arizona Project Water.**

Droughts and water shortages on the SRP watershed may be offset with the purchase of available excess Central Arizona Project water. Excess Central Arizona Project water is water, above and beyond the city's allocation that may be available for purchase through the Central Arizona Water Conservation District. Availability of excess Central Arizona Project water is determined on a year-to-year basis. The availability of excess Central Arizona Project water is expected to diminish over time as water users with Central Arizona Project allocations begin to more fully use their allocation.

Ironically, during 2003, a severe drought year, the city has been able to purchase excess (unused allocation) Central Arizona Project water to make up for the reductions in SRP supplies because water providers entitled to Central Arizona Project water are still not using their full entitlement.

## **Option B. Maximize existing well capacity.**

In the event of a drought that causes a cutback in the city's surface water supply, the city will consider using all existing wells that can produce drinking water prior to asking water users to curb water consumption. City wells would be used to access the city's groundwater and stored water credits.

## **B. DEMAND MANAGEMENT**

The second line of defense when faced with a drought is to implement demand management measures. There are a number of best management practices that are designed to reduce water demand. The list of recommended drought mitigation measures is discussed below. This list of drought mitigation measures is not all-inclusive, and may be amended as necessary. Each measure can be designed to match the level of severity of water shortage and the type of water user.

Generally, the implementation of measures will begin with a public education and information campaign encouraging voluntary water use reductions. As the drought impact becomes more severe, mandatory water reduction measures will be implemented.

Water use curtailments focus primarily on out door water use because water savings can be achieved without compromising public health and safety. Outdoor water use mainly affects aesthetics, while indoor water use directly impacts hygiene and sanitary conditions.

### **1. Recommended Measures.**

**Public Information and Drought Awareness Campaign.** Provide timely information explaining the drought situation to raise awareness and solicit cooperation from the public and business community. The city will use a variety of methods in implementing the public information and drought awareness campaign. Depending upon the severity of the drought, these methods may include press releases, channel 11 programming, interviews, informational brochures, speakers bureau presentations, city webpage and other methods as required.

The city will also work cooperatively and in conjunction with the Salt River Project, Central Arizona Water Conservation District and members of the Arizona Municipal Water Users Association in coordinating appropriate public information and drought awareness campaigns.

**Water Conservation Technical Assistance.** Along with increasing the awareness of the need to use water wisely, the city's Water Conservation Office provides water conservation tips, incentives and technical assistance to residents, businesses and other city departments.

- **Conduct water use audits of high water use city facilities.** The city has several high water use facilities, including city parks, golf courses, cemetery, and rights-of-way. The audits will track current water use and identify the potential to curb water consumption at these facilities.
- **Provide technical assistance to large non-residential water users.** The city provides water savings information and conducts water audits for homeowners associations and schools.

**Municipal/City Operations Water Use Restrictions.** Municipal water use restrictions are those imposed on city operations. The public and business community will look to the city for leadership. The city will demonstrate leadership through the implementation of municipal water use restrictions prior to implementing water use restrictions on businesses and residents.

- **Restrict turf watering/landscape irrigation.** Initially, limit landscape irrigation to occur only during the night and early morning hours (9 pm to 6 am) to reduce evaporation losses. If conditions worsen, limit landscape irrigation and out door water to occur only on selected days. Further restrict irrigation on turf landscaping if drought conditions worsen and warrant such action. Irrigated areas using 100% direct use effluent/reclaimed water are exempt.
- **Restrict winter grass.** Initially, restrict over seeding of winter grass, except in high use areas or for special/priority events. Prohibit any over seeding with winter grass if drought conditions worsen and warrant such action. Irrigated areas using 100% direct use effluent/reclaimed water are exempt.
- **Prohibit the use of public ornamental fountains and other water features.** Initially, turn off municipally owned and operated fountains and water features, such as splash/play fountains, unless the water is re-circulated. Prohibit any use of fountains and water features, if drought conditions worsen and warrant such action. Fountains and water features using 100% direct use effluent/reclaimed water are exempt. Fountains and water features deemed by the city to be of high importance may be exempted on a case-by-case basis.
- **Restrict motorized vehicle washing.** Prohibit vehicle washing unless conducted at a commercial facility or at a city facility equipped with wash water recycling.
- **Utilize reclaimed water for landfill dust control.** Reclaimed water would be delivered to the landfill and used to maintain Clean Air Act compliance at the facility in lieu of potable water. Construction of the necessary reclaimed water distribution system for the landfill site would be required.
- **Utilize reclaimed water for street sweeping.** Reclaimed water would be used for street sweeping purposes. This would be limited to the city's older model street

sweepers, as the city's newest PM10 street sweepers are vacuum type sweepers and do not use water for the cleaning process.

- **Prohibit the washing of sidewalks, driveways, and walkways.** Prohibit the washing of sidewalks, driveways or walkways, unless deemed to be a health or safety risk and a high-pressure cleaning system is used.
- **Drought surcharge on water bill.** Establish a drought surcharge to be implemented when drought conditions worsen and warrant such action. The drought surcharge is designed to both discourage high or normal water use and to make up the water utility funding gap caused by lower than normal water sales caused by the drought.

The drought pricing structure is a surcharge on the cost of each unit or block of water used beyond an established baseline amount. This surcharge would be implemented as a percentage of the baseline cost of each unit or block of water for a particular meter size.

The need for a drought surcharge will be presented to the City Council at the time of a Stage 3 Drought Declaration or a Stage 4 Drought Emergency. The exact structure and amount of a drought surcharge will be determined by the City Council.

**Exemptions.** Requests for an exemption other than those specifically stated must be made in writing to the City Manager. Individual exemptions may only be granted for the protection of public health and welfare. The exemption request should include supporting documentation. Each request will be reviewed on a case-by-case basis.

**Residential and Business Water Use Restrictions.** Residential and businesses water use restrictions apply to all non-city government water use. Under its police power as a municipal corporation, and water service provider, the city has the authority to implement mandatory restrictions on water use for parties connected to its water system, for the maintenance of public health and welfare. This authority does not extend over other governmental jurisdictions, such as school districts, county, state, or federal facilities, which may be connected to, and served by, Glendale's water system. It is the city's intent to request voluntary cooperation from these jurisdictions during a drought.

Water users receiving Salt River Project urban irrigation service are not required to adhere to the irrigation restrictions. The Salt River Project will reduce the amount of water delivered to these lands during drought conditions that impact Salt River Project water availability.

- **Restrict outdoor watering/landscape irrigation.** Limit landscape irrigation and outdoor water use to occur only on selected days. Allow odd numbered street addresses to water only during odd number calendar dates. Allow even number street addresses to water only during even number calendar dates. Further restrict irrigation on turf landscaping if drought conditions worsen and warrant such action. Irrigated areas using 100% direct use effluent/reclaimed water are exempt.

- **More strictly prohibit water wasting.** Strengthen the current restriction on water wasting in Drought Stages 3 and 4 by prohibiting the escape of water from any private property onto a street, gutter, alley, sidewalk, public utility easement, right-of-way, or parking area that travels more than 250 feet from the original water source or accumulates in an area 200 square feet or more.
- **Restrict winter grass.** Initially, discourage over seeding of winter grass. Prohibit any over seeding with winter grass if drought conditions worsen and warrant such action. Irrigated areas using 100% direct use effluent/reclaimed water are exempt.
- **Prohibit the use of private ornamental water fountains and other water features.** Initially, prohibit the use of private fountains and water features, unless the water is re-circulated. Prohibit any use of fountains and water features, if drought conditions worsen and warrant such action. Fountains and water features using 100% direct use effluent/reclaimed water are exempt. Fishponds are exempt. Private fountains and water features deemed by the city to be of high importance may be exempted on a case-by-case basis.
- **Discourage water misting systems.** Discourage the use of outdoor misting systems.
- **Restrict motorized vehicle/boat washing.** Initially, prohibit vehicle and boat washing unless conducted at a commercial car washing facility or if equipped with a shutoff nozzle.
- **Prohibit the washing of sidewalks, driveways, and walkways.** Prohibit the washing of sidewalks, driveways or walkways, unless deemed to be a health or safety risk and a high-pressure cleaning system is used.
- **Drought surcharge on water bill.** Establish a drought surcharge to be implemented when drought conditions worsen and warrant such action. The drought surcharge is designed to both discourage high or normal water use and to make up the water utility funding gap caused by lower than normal water sales caused by to the drought.

The drought pricing structure is a surcharge on the cost of each unit or block of water used beyond an established baseline amount. This surcharge would be implemented as a percentage of the baseline cost of each unit or block of water for a particular meter size.

The need for a drought surcharge will be presented to the City Council at the time of a Stage 3 Drought Declaration or a Stage 4 Drought Emergency. The exact structure and amount of a drought surcharge will be determined by the City Council.

- **Moratorium on new residential water connections.** In a worst case situation whereby Glendale is experiencing a severe drought and is unable to provide sufficient water supplies after implementing other best management measures, the city may need to be prepared to place a temporary moratorium on new water connections, as a

measure of last resort. This restriction would be placed on water connections for new residential units only.

**Exemptions.** Requests for an exemption other than those specifically stated must be made in writing to the City Manager. Individual exemptions may only be made for the protection of public health and welfare. The exemption request should include supporting documentation. Each request will be reviewed on a case-by-case basis.

## **2. Measures Considered, but Not Recommended**

A number of other drought mitigation best management practices were considered, but were not recommended at this time. Some of these were:

- **New city water conservation ordinance.** During the next year, the city Water Conservation Office will recommend specific improvements to strengthen the existing Water Conservation Program. The improvements are likely to require additional resources.
- **Temporarily decreasing the water system pressure.** Reducing water pressure does not necessarily reduce water consumption. Reducing water pressure can result in the failure of back flow prevention devices designed to protect public health, and impact public safety activities, such as fire fighting.
- **Mandatory indoor water use restrictions.** Most indoor water uses are directly related to promoting public health and proper hygiene. National efficiency standards already exist for plumbing fixtures. Restricting restaurant water service only upon request, is contained within other existing programs.
- **Prohibit the filling of private swimming pools.** Prohibitions on filling private swimming pools could lead to poorly maintained pools and pool plaster damage.
- **Moratorium on all new water connections.** Moratoriums on non-residential development could result in loss of economic development and employment opportunities.

## **C. MONITORING AND ENFORCEMENT OF RESTRICTED WATER USE**

The Water Conservation Office will administer the implementation of the city's Drought Management Plan, including enforcement. During the first two drought stages (Drought Watch and Drought Alert) the Water Conservation Office will work closely with affected city departments to ensure Glendale city operations comply with municipal water use restrictions. Since the first two drought stages encourage and promote voluntary water use reductions by residential and business water users there is no need for an active enforcement until the enactment of a Stage 3 Drought Declaration.

The city will implement a more active enforcement program when residential and business water use restrictions are mandated. The enforcement program will include routine staff patrols and prompt investigations to customer complaints of improper water use. Staff from the Water Conservation Office will be empowered to issue civil citations, which can result in fines.

The first citation would result in a written violation. The violation letter would be coupled with educational materials on water conservation. This violation letter is usually sufficient to correct most cases.

The second citation would result in a second written notice of violation and a fine. The amount of the fine will depend on the drought stage in which the citation was issued.

The third and subsequent offenses would result in additional citations and fines for each subsequent or continuing offense.

It is anticipated that most of the offenses will be corrected with the first letter of violation. Fines will be incorporated into the list of miscellaneous customer service fees (City Code Article II, Section 33-83) and will be imposed on the customer's water service account. Failure to pay any portion of a water user's account, including any fines imposed, would subject water service account to termination. A person will have the option to contest the citation through the existing water services administrative hearing process (City Code, Article II, Section 33-79).

# Table 1: Stage 1-Drought Watch

<b>City is capable of providing normal water service, but drought conditions exist.</b>		
<b>Supply Management Measures</b>	<b>Municipal Demand Reduction Measures</b>	<b>Residential, Commercial, &amp; Industrial Demand Reduction Measures</b>
<ul style="list-style-type: none"> <li>• Monitor available surface water supplies.</li> <li>• Purchase excess Central Arizona Project Water (if available).</li> <li>• Maximize groundwater pumping capacity.</li> <li>• Apply to Arizona Department of Water Resources for drought groundwater pumping exemption.</li> <li>• Utilize stored water credits to offset groundwater pumping, which is not covered under the drought pumping exemption.</li> </ul>	<ul style="list-style-type: none"> <li>• Water use reduction goal of 5%.</li> <li>• Conduct water use audits at city parks, golf courses, cemetery, rights-of-way, and any other high water use facilities.</li> <li>• Irrigation of city parks will not exceed 75% of the state’s recommended water use to maintain landscaping.</li> <li>• Restrict turf watering/landscape irrigation to low water demand timeframes (9pm-6am).</li> <li>• Prohibit the washing of sidewalks, driveways, and walkways, unless the area is determined to be a public health/safety problem, and a high pressure cleaning system is used.</li> <li>• Public information and drought awareness campaign.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide water conservation technical assistance.</li> <li>• Promote voluntary water use reductions.               <ul style="list-style-type: none"> <li>○ Monitor / Reduce outdoor water use.</li> <li>○ Repair Leaks.</li> </ul> </li> <li>• Public information and drought awareness campaign.</li> </ul>

Requests for an exemption, other than those specifically stated, must be made in writing to the City Manager, and include all documentation supporting the request. Individual exemptions may only be made for the protection of public health and welfare.

This list of best management practices is not all-inclusive and may be amended as necessary, excluding implementation of non-voluntary water use restrictions on businesses and the public.

Implementation of the recommended best management practices may be done selectively and/or progressively at the time of initial Stage 1 Drought Watch or at any time during a Stage 1 Drought Watch.

## Table 2: Stage 2-Drought Alert

<b>City is not capable of providing normal water service, 10% reduction goal for city operations, voluntary 5% reduction goal for non-city uses.</b>		
<b>Supply Management Measures</b>	<b>Municipal Demand Reduction Measures</b>	<b>Residential, Commercial, &amp; Industrial Demand Reduction Measures</b>
<ul style="list-style-type: none"> <li>• All supply management measures from previous drought stage</li> </ul>	<ul style="list-style-type: none"> <li>• All municipal demand reduction measures from previous drought stage</li> <li>• Water use reduction goal of 10%.</li> <li>• Irrigation of city parks will not exceed 75% of the state’s recommended water use to maintain landscaping.</li> <li>• Restrict winter grass except in high use areas and for priority events, unless 100% effluent/reclaimed water is used.</li> <li>• Restrict turf watering/landscape irrigation, at city facilities other than parks and right-of-way, to odd numbered calendar dates for odd number street addresses; even numbered calendar dates for even numbered street addresses, unless 100% effluent/reclaimed water is used.</li> <li>• Prohibit use of ornamental fountains and other water features, unless water is recirculated or 100% effluent/reclaimed water is used.</li> <li>• Restrict motorized vehicle washing unless conducted at a commercial facility, or a city facility equipped with wash water recycling.</li> </ul>	<ul style="list-style-type: none"> <li>• All residential demand reduction measures from previous drought stage</li> <li>• Water use reduction goal of 5%.</li> <li>• Request voluntary water use reductions.               <ul style="list-style-type: none"> <li>○ Monitor / Reduce outdoor water use.</li> <li>○ Repair Leaks.</li> </ul> </li> </ul>

Requests for an exemption, other than those specifically stated, must be made in writing to the City Manager, and include all documentation supporting the request. Individual exemptions may only be made for the protection of public health and welfare.

This list of best management practices is not all-inclusive and may be amended as necessary, excluding implementation of non-voluntary water use restrictions on businesses and the public.

Implementation of the recommended best management practices may be done selectively and/or progressively at the time of initial Stage 2 Drought Alert or at any time during a Stage 2 Drought Alert.

# Table 3: Stage 3-Drought Declaration

<b>The city is only able to provide 90% of normal demand. 15% reduction goal for city operations, 10% reduction goal for non-city uses.</b>		
<b>Supply Management Measures</b>	<b>Municipal Demand Reduction Measures</b>	<b>Residential, Commercial, &amp; Industrial Demand Reduction Measures</b>
<ul style="list-style-type: none"> <li>• All supply management measures from previous drought stage(s)</li> </ul>	<ul style="list-style-type: none"> <li>• All municipal demand reduction measures from previous drought stage(s)</li> <li>• Water use reduction goal of 15%.</li> <li>• Irrigation of city parks will not exceed 65% of the state’s recommended water use to maintain landscaping.</li> <li>• Restrict winter grass, unless 100% effluent/reclaimed water is used.</li> <li>• Prohibit use of ornamental fountains and other water features, unless 100% effluent/reclaimed water is used.</li> <li>• Drought surcharge on water used above base amount.</li> </ul>	<ul style="list-style-type: none"> <li>• All residential demand reduction measures from previous drought stage(s)</li> <li>• Water use reduction goal of 10%.</li> <li>• Discourage water misting system use.</li> <li>• Restrict winter grass, unless 100% effluent/reclaimed water is used.</li> <li>• Restrict outdoor watering/landscape irrigation to odd numbered calendar dates for odd number street addresses; even numbered calendar dates for even numbered street addresses, unless 100% effluent/reclaimed water is used.</li> <li>• Prohibit the use of ornamental fountains and other water features, unless water is recirculated or 100% effluent/reclaimed water is used.</li> <li>• Restrict motorized vehicle/boat washing unless conducted at a commercial facility equipped with wash water recycling, or with a hose equipped with a shut off nozzle.</li> <li>• Prohibit the washing of sidewalks, driveways, and walkways, unless the area is determined to be a public health/safety problem</li> <li>• Drought surcharge on water used above base amount</li> </ul>

Requests for an exemption, other than those specifically stated, must be made in writing to the City Manager, and include all documentation supporting the request. Individual exemptions may only be made for the protection of public health and welfare.

This list of best management practices is not all-inclusive and may be amended as necessary

Implementation of the recommended best management practices may be done selectively and/or progressively at the time of initial Stage 3 Drought Declaration or at any time during a Stage 3 Drought Declaration.

# Table 4: Stage 4-Drought Emergency

<b>City is only able to provide 80% of normal demand. 20% reduction goal for city operations, 20% reduction goal for non-city operations.</b>		
<b>Supply Management Measures</b>	<b>Municipal Demand Reduction Measures</b>	<b>Residential, Commercial, &amp; Industrial Demand Reduction Measures</b>
<ul style="list-style-type: none"> <li>• All supply management measures from previous drought stage(s)</li> </ul>	<ul style="list-style-type: none"> <li>• All municipal demand reduction measures from previous drought stage(s)</li> <li>• Water use reduction goal of 20%.</li> <li>• Restrict turf watering/landscape irrigation, unless 100% effluent/reclaimed water is used.</li> <li>• Utilize effluent/reclaimed water for dust control at landfill.</li> <li>• Utilize effluent/reclaimed water for mechanical street sweeping activities.</li> <li>• Moratorium on new residential water connections.</li> </ul>	<ul style="list-style-type: none"> <li>• All residential demand reduction measures from previous drought stage(s)</li> <li>• Water use reduction goal of 20%.</li> <li>• Additional drought management measures as determined necessary, and approved by City Council.</li> </ul>

Requests for an exemption, other than those specifically stated, must be made in writing to the City Manager, and include all documentation supporting the request. Individual exemptions may only be made for the protection of public health and welfare.

This list of best management practices is not all-inclusive and may be amended as necessary

Implementation of the recommended best management practices may be done selectively and/or progressively at the time of initial Stage 4 Drought Emergency or at any time during a Stage 4 Drought Emergency.