

City of Yuma  
Drought Preparedness and Response Plan  
2022



## INTRODUCTION

Drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. In the most general sense, drought originates from a deficiency of precipitation over an extended period of time, resulting in a water shortage for some activity, group, or environmental sector. It is the most complex of all natural hazards, and it affects more people than any other hazard. Analysis shows that it can be as expensive as floods and hurricanes.

The Southwestern region of the United States is prone to periodic drought as reflected in historic records. The periodic regional droughts and location in a desert climate places the Yuma region in nearly constant alert mode as competing interests target the Yuma region's water as an augmentation source.

However, the current research confirms the Southwest is in the midst of a historic multi-year drought placing a tremendous strain on Yuma's primary water supply, the Colorado River. In 2022, due to the ongoing historic drought and low runoff conditions in the Colorado River Basin, the U.S. Bureau of Reclamation declared a Tier One Water Shortage. The shortage declaration will require Arizona to reduce its share of Colorado River water.

As part of its efforts to prepare for and manage drought, the City of Yuma has updated this Drought Preparedness and Response Plan which provides a framework for:

- Managing drought conditions when they occur
- Preventing the need to implement drastic water use reduction measures including water rationing
- Planning for future droughts

## BACKGROUND

It is the goal of the City of Yuma Utilities Department to deliver a cost-effective, adequate and reliable supply of high quality water to Yuma customers. The majority of the City's water supply is surface water from the Colorado River delivered through the facilities of the Yuma County Water Users Association and the Gila Gravity Canal System. In addition to surface water, the water supplied to the eastern portion of the Yuma service area can be augmented with groundwater from the Agua Viva well field.

Currently the City has a federal allocation of 50,000 acre-feet of Colorado River water per year. In addition to the federal allocation, the City has acquired delivery rights to additional Colorado River water. The federal allocation agreement also allows the City to receive a return flow credit for water returned to the Colorado River.

Approximately 35% of the water produced by the City is returned to the Colorado River as treated effluent water. The City treats its wastewater to near drinking water quality and

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discharges it to the Colorado River under an Arizona Pollution Discharge Elimination System (AZPDES) permit, or to an aquifer under the provisions of an Aquifer Protection Permit. A majority of Colorado River water delivered to users by the City is utilized for turf and landscape irrigation purposes, and not returned to the City's wastewater collection system.

From an operational perspective, effective drought management comes from having adequate well and wellhead treatment capacity to meet water demands when surface water supplies are reduced. The City's Agua Viva Water Treatment Facility currently includes a well field which enables the City to supplement surface water supplies during times of drought or other surface water related emergencies.

To improve efficiency in metering and promote conservation efforts, the City has implemented a Water Meter Replacement Plan that includes replacing meters to maintain the highest amount of meter accuracy with minimal water loss. Additionally, the City has adopted an Automated Meter Reading (AMR) program. The City's AMR system provided monthly billing cycles and custom reports including high use and leak alerts. The City has a system to notify customers of high use/leak alerts that provides notifications directly to customers for voluntary corrective action. Both of these projects promote water use efficiency and the halting of water loss on an on-going basis at the point of metering.

Since drought conditions can prevail for extended periods, it may be necessary to initiate water use restrictions. The impact of such restrictions on Yuma's citizens is obvious and significant. In an effort to engage our citizens in the management of water resources, the City of Yuma actively promotes and encourages voluntary water conservation regardless of the amount of water available.

## DROUGHT PLAN

The City of Yuma's Drought Preparedness and Response Plan is designed to complement its ongoing water resource management and operational planning. It is intended to be a flexible tool for the planning, response and mitigation of drought conditions. Central to the management of drought is the Drought Management Team.

Members of this team shall include, but not be limited to:

- Utilities Department
- Finance Department
- Parks and Recreation Department
- Information Technology Department
- City Administration Office
- City Attorney Office
- Public Works Department



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The Director of Utilities or his representative will monitor drought signals on an ongoing basis and send out information at least biannually regarding the condition of relevant watersheds to members of the Team. Upon the recommendation of the Director of Utilities, the City Administrator will activate the Team when a drought has been identified on a federal, state, or local level as occurring or imminent.

The Team will be responsible for evaluating the severity of the drought and develop an action plan based on current and forecasted water supply and demand, and economic impact to the City.

Drought can vary in both length and severity. Factors typically used to evaluate the drought's impact include:

- Current and projected water supplies
- Current and projected customer demands
- Current and projected water infrastructure
- Volume in upstream surface water reservoirs
- Climate related projections of the magnitude and duration of the drought

Once the evaluation is complete, the Team will provide its analysis to the City Administrator:

- Evaluation of the probable impact on Yuma's water supply, probable financial impact of the drought, the need for and availability of alternative water supplies
- A recommendation regarding demand management and a change in water and/or wastewater rates
- A legal assessment

The Team will continue to monitor the impending drought and meet at least quarterly throughout the duration of the drought, updating strategies and evaluations as necessary. After the City Administrator determines that the drought has passed, the Team will prepare a report detailing the successes and failures of the strategies used during the drought, and develop a recommendation for on-going planning and preparation for the next drought.

The following criteria may be recommended when mandatory restrictions are invoked by a City Council action:

- The City's water use will be restricted prior to mandatory water use restrictions for residents and businesses (for water other than reclaimed water).
- Water users will be informed of the City's water supply condition.
- Automated Meter Reading (AMR) High Use and Leak Alert Reports will be produced. If available, notices will be sent to those customers indicated. The accounts will be monitored to identify large water users and those with chronic leaks.
- Water use restrictions will be designed to achieve water use reductions required with the

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least possible impact on the local economy.

- City Council may cease mandatory water use restrictions when it determines supplies are adequate to meet the following year's projected demands.
- The City's reclaimed water supplies are not reduced during times of drought; therefore reclaimed water use will not be restricted.
- The City will make every effort necessary to meet the requirements of water quality standards throughout any water supply reduction; however, it is noted that in drought conditions, source water quality degrades in relationship to the volume of water in the river.

## **DROUGHT STAGES AND IMPLEMENTATION MEASURES**

There are four stages in this plan. Each stage is based on the severity of water supply conditions and the City's ability to meet the demand of its users. The trigger for the drought response stages are based on the percent of projected water delivery reductions. Yuma has been one of the fastest growing communities in the nation, and as the City continues to experience increasing demands, the percent of water reduction assigned to each stage may vary. Staff will analyze the available water sources and demand for each drought as it occurs. The trigger for each drought stage may be adjusted depending on this analysis. Each stage has measures that will be implemented to ensure the basic water needs of Yuma's water customers are met. The measures below may be interchanged as needed to ensure that Yuma's water needs are met.

### **STAGE ONE TRIGGER – WATER WARNING**

The City Administrator may declare a Stage One – Water Warning when a prolonged surface water shortage is predicted to affect Yuma.

A prolonged reduction in surface water supplies can be predicted several months prior to the actual announcement of a reduction in surface water deliveries. At this stage, Yuma is capable of meeting demand through surface water supplies.

### **STAGE ONE RESPONSE**

Voluntary conservation measures may be implemented in Stage One. Examples of the types of measures that may be implemented in response to a Stage One – Water Warning event include:

- Increased monitoring of Colorado River surface water supply availability.
- Reporting by City Staff to the City Administrator and the City Council as water supply conditions change.
- Reduction of water use at City facilities, including but not limited to reduction of hours of operation of water features and limits on over-seeding.
- Development of a public awareness program to alert residents to water shortage



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conditions, the potential impact to Yuma’s water supplies, and impacts of continued shortage conditions.

- Frequent communication with customers regarding drought conditions and water status.
- Increased community education regarding water conservation.

## **STAGE TWO TRIGGER – WATER ALERT**

Upon the recommendation of the City Administrator, the Mayor and City Council may declare a Stage Two – Water Alert when Yuma’s deliveries of Colorado River water are in jeopardy of being reduced.

At this stage, Yuma is capable of meeting demand through its surface water supplies and wells. Additional voluntary water conservation measures may be implemented in Stage Two.

## **STAGE TWO RESPONSE**

In addition to the measures implemented during a Stage One – Water Alert event, more extensive demand management measures may be requested of all water customers, including these voluntary measures:

- Reduce water consumption by eliminating waste, repairing leaks, and eliminating unnecessary outdoor water use.
- Reduce the frequency of outdoor watering.
- Eliminate over-seeding in the fall.
- Cooling towers operating at less than three cycles of concentration will be evaluated to increase cycle times to three or higher.

Mandatory Measures:

- Discontinue potable water lawn and landscape watering between the hours of 7:00 a.m. and 7:00p.m.
- Eliminate use of decorative water features and outdoor misting systems utilizing potable water.
- Auto/truck washing is allowed only at commercial facilities or with pail and hose with a shut off nozzle.

## **STAGE THREE TRIGGER – WATER CRISIS**

Upon the recommendation by the City Administrator, the Mayor and City Council may declare a Stage Three – Water Crisis when deliveries of Colorado River water are reduced by, up to and including, 15% of the water delivered during the most recent non-drought year. At this stage, the City of Yuma is capable of meeting demand through its remaining water supplies and wells.

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Mandatory demand management strategies may be implemented in Stage Three beginning with non-essential water uses.

## **STAGE THREE RESPONSE**

One or more of the following measures shall be implemented in response to a Stage Three – Water Crisis:

Mandatory Measures:

- No person shall allow water to run in the street or sidewalk, or otherwise waste water for any period of time after such escape or loss of water should have been discovered and corrected.
- No use of potable water for construction or dust control between the hours of 8:00 a.m. – 4:00 p.m., unless provided written approval of the Director of Utilities; and except for such uses associated with firefighting activities.
- Auto/truck washing is allowed only at commercial facilities.
- Restaurants to serve water only upon request of customer.
- Large (500 k/gal peak month) commercial, industrial and institutional customers shall develop and implement (if not already in practice) a compliance plan considering the incorporation and use of the latest commercially available conservation technology consistent with reasonable economic return and provide annual reports to the Department on the implementation thereof.
- Limit lawn watering per a published schedule.

Additionally, the City of Yuma may take other actions necessary to achieve the reduction goal.

## **STAGE FOUR TRIGGER – WATER EMERGENCY**

Either through recommendation of the City Administrator or through federal, state or other local authority information, the Mayor and City Council may declare a Stage Four – Water Emergency when available water supplies are insufficient to meet current demand.

## **STAGE FOUR RESPONSE**

City Council may implement mandatory customer water use restrictions in Stage Four to ensure that basic water needs for City of Yuma residents and businesses will be met. In addition to the measures implemented during Stages One thru Three, City Council may implement one or more of the following measures in response to a Stage Four:

- Prohibit over-seeding winter grass except for designated areas as defined by Mayor and City Council.
- Residential swimming pools must be covered during day or drained.

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- Prohibit the sale of sod within city limits.
- Sale of all construction water by the City Utilities Department shall be prohibited.
- Hotel linen washing once per customer, towel replacement on request.
- Auto dealership vehicle washing once per week, schedule determined by the City.
- All residential customer water uses in excess of the Tier 1 Usage Charge as published on the Schedule of Water Rates during a billing cycle (7,480 gal/month) will be subject to a billing surcharge.
- All commercial, industrial, and institutional customer that uses over 500 kgal/month during a billing cycle will be subject to a billing surcharge.
- Water allocations may be enforced by the City through the use of water flow restrictors, water service shutoff, meter sizing, or other means as determined by the City of Yuma Utilities Department.
- Moratorium of new water connections.



The “Cochan” and “Searchlight” stern-wheel steamboats at Yuma.  
(1900-1909)



## PUBLIC AWARENESS & OUTREACH OPTIONS

An important component of the Drought Preparedness and Response Plan is informing the public when a shortage stage is declared and about conservation methods.

The purpose of this section is to outline various options for informing and educating customers and the public. It is not an all-inclusive list and will evolve as technology changes.

- Media briefings
- Press releases
- City of Yuma Website
- City of Yuma intranet
- Social media
- On-hold messages (for departments using this service)
- Utility bill messages
- Neighborhood Outreach meetings
- Posters/Ads (public places)
- Department, HOA, and other community newsletters
- Yuma Schools (i.e.: newsletters, educational programs)
- Newspaper ads
- Yuma Channel 73 news crawl
- Door hangers or flyers
- Chamber of Commerce outreach programs
- Workshops and educational programs
- Meetings with high usage customers
- Educational information/workshops for plumbing retailers, landscapers, others
- Conservation incentives



## Stage 1 – Water Warning

City is capable of providing normal water service, but supply reductions predicted. Water use reduction goal of 5%.		
Supply Management	City Reduction Measures	Residential, Commercial, and Industrial Reduction Measures
<ul style="list-style-type: none"> <li>• City Declare a Stage One – Water Warning</li> <li>• Convene the City Drought Management Team</li> <li>• Monitor available surface water supplies</li> <li>• Monitor groundwater well levels</li> <li>• Prioritize CIP projects related to water conservation and alternative sources</li> </ul>	<ul style="list-style-type: none"> <li>• Request employees to conserve water</li> <li>• Request City departments to identify possible reductions (1% - 5%) of water</li> <li>• Initiate Public Information/Awareness campaign</li> <li>• Water in the Street: Request City Inspectors and Customer Service Representative to identify and counsel customers on water waste</li> </ul>	<ul style="list-style-type: none"> <li>• Promote conservation measures</li> <li>• Educate customers on indoor/outdoor water saving techniques</li> <li>• Suggest potable water lawn and landscape watering between the hours of 7:00 a.m. and 7:00 p.m.</li> </ul>

**Description:** This stage will be characterized by increased monitoring and evaluation activities related to the water shortage. Customer water usage and the corresponding revenue generated will be compared to normal use. The Team may recommend more specific restrictions depending on conditions.

## Stage 2 – Water Alert

<p><b>City is capable of providing normal water service, but supply reductions predicted. Internal City policies to reduce water use at City facilities and measures implemented to encourage public conservation. Water use reduction goal of 10%.</b></p>		
Supply Management	City Reduction Measures	Residential, Commercial, and Industrial Reduction Measures
<ul style="list-style-type: none"> <li>• City Declare a Stage Two – Water Alert</li> <li>• Convene the City Drought Management Team</li> <li>• Monitor available surface water supplies</li> <li>• Monitor groundwater well levels</li> <li>• Prioritize CIP projects related to water conservation and alternative sources</li> </ul>	<ul style="list-style-type: none"> <li>• All municipal demand reductions measures from previous stage</li> <li>• Request City departments to identify possible reductions (5% to 10%) of water</li> <li>• Strengthen public information campaign initiated in Stage One</li> <li>• Limit routine hydrant flushing</li> <li>• Restrict turf watering/landscaping irrigation, at City facilities other than parks and right-of-way</li> <li>• Eliminate use of decorative water features and outdoor misting systems utilizing potable water</li> </ul>	<ul style="list-style-type: none"> <li>• Promote conservation measures</li> <li>• Educate customers on indoor/outdoor water saving techniques</li> <li>• Promote conservation with respect to operation and maintenance of swimming pools (i.e.: cover, leak repairs)</li> <li>• Discontinue potable water lawn and landscape watering between the hours of 7:00 a.m. and 7:00 p.m.</li> <li>• Eliminate use of decorative water features and outdoor misting systems utilizing potable water</li> <li>• Auto/truck washing is allowed only at commercial facilities or with pail and hose with a shut off nozzle</li> </ul>

**Description** In this stage it is anticipated that water shortage restrictions will become more severe. The Team will evaluate the need to recommend imposing mandatory water use restrictions on water use.

### Stage 3 - Water Crisis

**City is capable of providing normal water service, but surface water allocation is reduced.  
Water use reduction goal of 15%.**

Supply Management	City Reduction Measures	Residential, Commercial, and Industrial Reduction Measures
<ul style="list-style-type: none"> <li>• City Declare a Stage Three – Water Crisis</li> <li>• Convene the City Drought Management Team</li> <li>• Monitor available surface water supplies                             <ul style="list-style-type: none"> <li>○ Return backwash water to head of the plant at Main Street in lieu of discharging to East Wetlands (Optional)</li> </ul> </li> <li>• Monitor groundwater well levels</li> <li>• Prioritize CIP projects related to water conservation and alternative sources                             <ul style="list-style-type: none"> <li>○ Groundwater Well Fields</li> <li>○ Desert Dunes Return Flow Credits</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• All municipal demand reductions measures from previous stages</li> <li>• Request City departments to identify possible reductions (10% to 15%) of water</li> <li>• Intensify public information campaign initiated in Stage Two</li> <li>• Restrict winter grass, unless 100% effluent/reclaimed water is used</li> <li>• Reduce turf watering/landscaping irrigation, at City facilities other than parks and right-of-way</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibit construction water use between the hours of 8:00 a.m. – 4:00 p.m.</li> <li>• Limit over-seeding for winter lawn</li> <li>• Promote conservation with respect to operation and maintenance of swimming pools (i.e.: cover, leak repairs)</li> <li>• Restaurants to serve water only upon request of customer</li> <li>• Lawn, tree, and shrub watering using potable water is restricted to once per week, on a schedule determined by the Department</li> <li>• No person shall allow water to run in the street or sidewalk, or otherwise wastewater for any period after such escape or loss of water should have been discovered and corrected</li> </ul>

**Description:** In this stage it is anticipated that water shortage restrictions will become more severe. The Team will evaluate the need to recommend imposing mandatory water use restrictions on water use.

## Stage 4 - Water Emergency

<b>City is NOT capable of providing normal water service.                      Immediate action taken to meet water use reduction goal of 20%.</b>		
Supply Management	City Reduction Measures	Residential, Commercial, and Industrial Reduction Measures
<ul style="list-style-type: none"> <li>• City Declare a Stage Four – Water Emergency</li> <li>• Convene the City Drought Management Team</li> <li>• Monitor available surface water supplies                             <ul style="list-style-type: none"> <li>○ Return backwash water to head of the plant at Main Street in lieu of discharging to East Wetlands</li> </ul> </li> <li>• Prioritize groundwater pumping levels</li> <li>• Prioritize CIP projects related to water conservation and alternative sources</li> </ul>	<ul style="list-style-type: none"> <li>• All municipal demand reductions measures from previous stages</li> <li>• Request City departments to identify possible reductions (20%) of water</li> <li>• Intensify public information campaign initiated in Stage Three</li> <li>• Restrict winter grass, unless 100% effluent/reclaimed water is used</li> <li>• Eliminate turf watering/landscaping irrigation, at City facilities other than parks and rights-of-way identified by Council</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibit sale of construction water</li> <li>• Prohibit over-seeding for winter lawn</li> <li>• Sale of sod prohibited within city limits</li> <li>• Residential swimming pools must be covered during the day or drained</li> <li>• All commercial and industrial customer that uses over 500 kgal/month during a billing cycle will be subject to a billing surcharge</li> <li>• All residential customer water uses in excess of the Tier 1, Usage Charge – Schedule of Water Rates (7,480 gal/month) during a billing cycle will be subject to a billing surcharge</li> <li>• Water allocations may be enforced by the City through the use of water flow restrictors, water service shutoff, meter sizing, or other means as determined by the City of Yuma Utilities Department</li> <li>• Moratorium of new water connections</li> </ul>

**Description:** During this stage the primary focus of the Team response will be to maintain the health, safety, and economic vitality of the community to the maximum extent possible.