



# **Drought Management and Mitigation Plan**

## **City of Cortez**

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Department of Public Works  
110 W. Progress Circle  
Cortez, CO 81321

**Public Water System ID Number: CO0142200**

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## **1. Declaration of policy, purpose, and intent**

### **1.1. Executive Summary**

Since the beginning of the 21<sup>st</sup> century, the increasing regularity of arid conditions in Southwestern Colorado has been threatening the reliability of water supplies for agricultural, tribal, and municipal users, as well as wildlife. The occasional wet years endured during this same time period have not provided enough water to offset the overall aridity trend. As more users continue to draw more water from public systems and water ways, the impact of increasing demand is worsened as the overall volume of water entering these systems simultaneously continues to decrease. In response to the ongoing presence of these conditions, drought is seen as a normal condition that will demand an ongoing response. This response should be proportionate to drought conditions as set forth in this document.

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety as well as minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Cortez (the “City”) hereby adopts this Drought Management and Mitigation Plan (the “Plan”), with an anticipation that many of the planning techniques and concepts will be implemented through subsequent regulations adopted by the City. Subsequent regulatory documents may then be implemented and/ or repealed in response to changing drought conditions.

The Plan is a framework of forward-leaning planning for scenarios and objectives, managerial and technical actions, and potential response systems in order to prevent, or better respond to, a drought-related emergency or critical situation. The overall goal of the Plan, and the planning process, is to facilitate appropriate responses to varying drought conditions, escalating to rapid emergency response if needed. The intention of the Plan is to be functional, flexible, and easy to implement, and also serve as a tool for outlining control techniques over the events or limiting the risk of loss of control. The Plan will be periodically updated.

The primary focus is placed on best management practices to manage water use demand, while evaluating options for alternative water supply sources. Water uses that are recommended to be regulated or prohibited under the Plan are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water, which subjects the offender(s) to be subject to penalties implemented in subsequently adopted regulations.

### **1.2. Water use priorities**

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The risks to public health from water shortages could be high and include issues of water quality, water quantity, agricultural production, food supply, sanitation, hygiene for personal use, and food preparation. As a result of this, the Plan establishes the following priorities for use in developing demand reduction programs and allocations during a water shortage emergency. Priorities for use of available water, from highest to lowest priority, are:

- A. Health and safety: residential home interior uses, sanitation, and firefighting.
- B. Commercial, industrial, and governmental: maintain jobs and economic base.
- C. Agriculture: maintain jobs, economic base, viable food production for local populations, and maintain virtual ‘reservoirs’ for emergency use of higher water priorities.
- D. Existing landscaping: commercially valuable landscaping, trees, shrubs.
- E. New demand: projects without permits when shortage is declared.

### **1.3. Application**

The Plan applies to all customers and property utilizing water provided by the public water system in the City, including but not limited to irrigation water for agricultural use. This may also include water brought into the public system, either in replacement or supplement, by the provisions of this Plan, such as the use of reclaimed water and greywater recycling. If so, reclaimed and greywater provisions will be subject to design and usage requirements as set forth by 5-CCR-1002-84 and 5-CCR-1002-86.

## **2. Drought task force**

A drought task force (the “Task Force”) will be created by the City Council in order to help manage, update, and implement this Plan and to assist in further developing and implementing effective drought monitoring, mitigation, and response actions as part of normal City operations. The Task Force may consist of representatives from the following:

- City Council
- City Manager
- Department of Public Works
- Planning Department
- Interested Citizens
- Local Fire Department
- Local Police Department
- Critical water users, e.g. health clinics, schools

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The Task Force should be responsible for monitoring and assessing drought conditions using criteria established in Sections 11 and 12, as well as monitoring and reporting on the success of measures implemented in Section 13. The Task Force will report to the City through the Public Works Director, who shall be the designated leader of the Drought Task Force and be responsible for its size, scope, and membership. The Public Works Director shall report to the City Manager and ultimately City Council for final review, approval, and or repeal of provisions outlined by this Plan and suggested for implementation by the Task Force. The Task Force will be responsible for identifying needs to be communicated with local, state, and federal agencies as outlined in Sections 11-13. All such communications will be directed to the Public Works Director, who will then review said communications with the City Manager and City Council prior to dissemination to the appropriate agency.

### **3. Authorization**

The designated official listed below, or his/her designee (the “Designated Official”), is hereby authorized and directed to prepare for implementation the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The Designated Official should have the authority to bring to Council for approval appropriate actions to initiate or terminate drought or other water supply emergency response measures as described in this Plan. If the conditions represent a dire emergency whereby delayed response may result in real damages, the City Manager may convene an emergency session of City Council for immediate approval of provisions as outlined by the Plan. The City Manager is the authorized Designated Official.

### **4. Definitions -**

For the purposes of this Plan, the following definitions apply:

- A. Aesthetic water use:** water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.
  
- B. Commercial and institutional water use:** water use that is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings. The term is also referred to as non-residential water use.
  
- C. Conservation:** those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

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- D. Customer:** any person, company, or organization using water supplied by the City’s water system.
- E. Domestic water use:** water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence. The term is also referred to as residential water use.
- F. Drought level or stage:** severity of the drought conditions indicated by the impact and/or vulnerability triggering criteria for the water source and capacity to meet demand, and corresponding best management practices to mitigate impacts.
- G. Even number address:** street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.
- H. Industrial water use:** the use of water in processes designed to convert materials of lower value into forms having greater usability and value.
- I. Landscape irrigation use:** water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.
- J. Non-essential water use:** water uses that are neither essential nor required for the protection of public, health, safety, and welfare.
- K. Non-residential water use:** the term is also referred to as commercial or institutional water use.
- L. Odd numbered address:** street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.
- M. Public water system:** a system for the provision to the public of water for human use and consumption through pipes or other constructed conveyances. The term is also referred to as the City water system.
- N. Residential water use:** the term is also referred to as domestic water use.
- O. Agricultural water use:** the use of water for irrigation and other uses related to the production of agricultural products

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## **5. Previous water shortage conditions**

Living in the western region of the United States, residents of the City are accustomed to natural variations in climate cycles. Drought conditions have impacted the area since before recorded history. Severe drought conditions endured in 2002 served as a reminder that our water resource is vulnerable and the potential of extended drought conditions need to be addressed and prepared for. Furthermore, arid conditions occurring for the majority of the last 20 years may continue and possibly worsen in the future.

In response to drought conditions, the City has already implemented the following response actions:

- Voluntary watering restrictions based on time of day
- Public education notices at Third Thursday events

To address future drought conditions, the City may implement ordinances to make these voluntary restrictions mandatory during the peak water use season, generally from May to October. This is considered a Level 1 Drought Response and may be implemented at any successive stages of drought.

## **6. Criteria for initiating and termination of drought response stages**

The Designated Official and Public Works Director should monitor water supply on a periodic basis as determined by the severity of the drought, and determine when conditions warrant initiation or termination of each stage of the Plan based on the specified triggering criteria. The triggering criteria are based on public health risks (likelihood and impacts) and an analysis of the anticipated vulnerability of the water source under drought conditions, and system capacity limits. Monitoring should include, but not be limited to:

- SNOTEL snowpack observations
- NOAA Colorado Basin River Forecast Center
- April 1 water announcement from DWCD
- May 1 water announcement from DWCD
- November carryover announcement from DWCD

## **7. Coordination with regional partners**

The public water system(s) is in or adjacent to an area with other potential regional partners. As

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appropriate, this Plan will be or has already been provided to other regional partners for the purpose of effective and efficient planning and coordination of resources for drought emergency response. The regional partners for drought emergency response may include, but are not limited to:

- A. Dolores Water Conservancy District (DWCD)
- B. Montezuma County Water District #1 (Blue Door)
- C. Montezuma Valley Irrigation Company (MVI)
- D. Montezuma County
- E. Ute Mountain Ute Tribe
- F. McElmo Mutual Ditch Company

## 8. Public involvement

Opportunities for public response to implementations suggested by the Plan may be provided by the following methods, including but not limited to:

- Holding a public meeting to accept input on the Plan
- Making the Plan available on the official City Website
- Providing the Plan to anyone requesting a copy
- Accepting comments on the Plan at a designated office

## 9. Public education and notification

Community outreach, education, and notification about the Plan will include information about the conditions under which each stage is to be initiated or terminated, the drought response measures to be implemented in each stage, and the specific actions required of the public.

The more severe the water shortage, the more vigorous the public information campaign will need to be. Any public communications strategy undertaken in connection with a water shortage should contain the following fundamental attributes:

- **Timely:** Information should be disseminated well in advance of voluntary or mandatory actions that are to take effect, repeated often, and updated at regular intervals.
- **Credible:** Information should strive to be clear, professional, consistent, straight forward, reasoned, and honest to build trust and community support.
- **Multi-modal:** Information should be made available to the public using a variety of methods; for example, using the internet, newsletters, radio, and public meetings.

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- **Open:** The City and its Water Department Staff shall actively listen to, engage, and involve its customers, solicit feedback, address identified concerns, and respond to public input in a manner that is respectful, appreciative, welcome to creative solutions, and acknowledges each individual's sacrifice, inconvenience, and contribution to the solution.
  - **Coordinated:** The City and its Water Department Staff shall collaborate with other Tribal departments and other impacted entities to ensure that the community as a whole has a synchronized and coordinated approach.
  - **Action-oriented:** Information should always contain positive action steps people can take to help foster a spirit of cooperation and create an overall atmosphere that encourages the people to conserve water for the public good.

A valuable technique in communication is to have a prepared and concise public message for each stage of the water shortage as described in the Plan. These statements are included within the response action for each stage, and intended to help communications be consistent, stay on message, and set the tone for subsequent communications through the duration of the incident.

There are various methods to carry out communications and public outreach. The Designated Official will consider the following techniques and methods to notify the public:

- Announcement at public events and meetings
- Presentations and open forums at community meetings
- Social media posts and updates
- Publication in a newspaper of general circulation
- Press releases using other local media; e.g. television, radio, E-mail
- Direct mail to each customer; e.g. utility bill inserts
- Telephone hotline
- Public service announcements
- Signs posted in public places; e.g. posting a bulletin at the tribal offices
- Take-home fliers/posters at schools, churches, libraries, grocery stores
- Public information booths at events
- Outdoor signs
- Drought response center
- Announcements on the official tribal Website
- Notifying other tribal offices, departments, schools, and other agencies as appropriate

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The Designated Official will notify the following agencies of the City’s adaptation of the Plan and subsequent actions as outlined by the Plan:

- Montezuma County Residents (i.e. Blue Door customers)
- Ute Mountain Ute Public Works
- Local Fire Department
- Local Police Department
- Critical water users, e.g. health clinics, schools
- County Office of Emergency Services (OES) Director

## **10. Summary inventory of water supply and demand**

### **10.1. Water supply**

The City water system is currently supplied by water from the Dolores Watershed through McPhee Reservoir. All water currently used by the City is diverted from McPhee Reservoir through the Dolores Tunnel.

A brief description of each source is provided in the following table. Ditch rights and MVI shares are general flow rates permissible during irrigation season, typically April through October. DWCD project lease water is now owned outright by the City and is part of a pool of water specified for municipal and industrial use by DWCD.

The Ute Mountain Ute Tribe has right to 1000 acre-feet of DWCD lease water. The City currently treats and delivers potable water to the Tribe through the same diversion point and water treatment plant used by the City for the City water supply. In 2023, the Tribe is estimated to have 2134 members; 2022 census population is 1126. The 2023 census estimated population of Cortez is 8885.

<b>Table 1</b>				
<b>Water Supply Inventory</b>				
Owned Rights <sup>1</sup>		Allowed Use	Flow rate (cfs)	Flow rate (ac-ft)/season
	Sheek Ditch	M&I	1.1	399.25
	Illinois Ditch	M&I	1.1	399.25
	Giorgetta Ditch	M&I	1	362.95
	Dunham & Johnson Ditch	M&I	<u>1</u>	<u>362.95</u>
	<b>Subtotals</b>		<b>4.2</b>	<b>1524.4</b>
Irrigation Shares <sup>2</sup>				
	Montezuma Valley Irrig. District	Agricultural	2.2	804.46
Dolares Water Cons. Dist. <sup>3</sup>		M&I		2300
Yearly totals for M&I				2300
Yearly total for city open space				804.46
Future yearly totals for M&I upon future storage for ditches				1524.4
				3824.4
1 Irrigation water flows through Dolores intake but have no ability to store for M&I use				
2 Agricultural use only, city uses for golf courses and open space				
3 Stored in McPhee, have access to but DWCD stores 70,000 ac-ft for municipal and industrial use, % could change based on future annual allocations				
1 cfs = 1.984 (ac-ft)/dy				
1.1 cfs = 2.18 (ac-ft)/dy				
399.25/2.18 = 183 days				
1 cfs = 448.8 gpm				
1.1 cfs (448.83) = 493.7 gpm				
493.7 gpm * 60 min/hr * 24 hr./dy * 183 days = 130,099,824 gps				

## 10.2. Water demand

The City water system has current water demand from uses including residential, commercial, irrigation, and a consecutive water system as defined in 5 CCR 1002-11.3(14). A brief description of each water use demand is provided in Table 2. Municipal and Industrial water use put to beneficial use within the City for agricultural purposes, such as private or community gardens, has not been tabulated separately and is included within these figures.

<b>Table 2</b>				
<b>Water Demand Inventory</b>				
Customer Type		# of connections	Total water demand (gal/yr.)	Total water usage (ac-ft)/yr.
Residential				
	Single family	3,278.00	277,586,000	
	Multi family	155.00	75,057,000	
Subtotal		3,433.00	352,643,000	1083
Industrial				
	Commercial		118,476,000.00	
	Government		23,015,000.00	
	Government Ag <sup>1</sup>			
	Churches		5,565,000.00	
	Schools		23,285,000.00	
	Fire Dept.s		1,167,000.00	
	Subtotal		171,508,000.00	527
Co-Mingled Use				
	MWD #1		20,876,000.00	64
	Ute Mt. Tribe <sup>2</sup>		215,349,000.00	661
	Subtotal		236,225,000.00	725
Overall total			760,376,000	2335
1 MVI water use for agricultural uses only				
Ute Tribe has water rights to 1000 (ac-ft)/yr.				

**The average water was determined as follows:**

- [ 231 ] [ gpd per single family residential connection]
- [ 1326 ] [ gpd per multi-family residential connection]
- [ 740 ] [ gpd per industrial connection]
- [ 512 ] [ gpd per average connection]
- [ 169 ] [ gpd per capita, City of Cortez]
- [ 277 ] [ gpd per capita, Towaoc]
- [ 190 ] [ gpd per capita all users]
- \*gpcd= gallons per connection per day

Actual water use data for the wintertime (November through February) has been utilized to evaluate the water use allotments for the most restrictive stages. Wintertime water use is considered to be more representative of actual minimum domestic water use because it consists primarily of domestic uses, as exterior water use is likely to be minimal during this time of year (e.g. limited use for lawn irrigation, swimming pools, etc.). Averages from 2012-2022 are given in the following table.

Mar-Oct	782,691,782	654,244,295	690,071,743	646,524,103	682,280,892	716,915,899	761,562,596	606,859,000	681,917,000	655,815,000	616,730,000	681,917,000
daily	3,207,753	2,681,329	2,828,163	2,649,689	2,796,233	2,938,180	3,121,158	2,487,127	2,794,742	2,687,766	2,527,582	2,794,742
Nov-Feb	151,301,651	159,442,578	148,841,912	150,137,025	161,189,099	160,600,958	162,262,120	144,977,000	149,057,000	145,445,000	153,069,000	151,301,651
daily	1,247,849	1,314,990	1,227,562	1,238,244	1,329,395	1,324,544	1,338,244	1,195,687	1,229,336	1,199,546	1,262,425	1,247,849

\*all values in gallons

Wintertime demand production 10-year average is 1.25 MG/ day for the months of November-February. Demand production 10-year average for the remaining eight months is 2.80 MG/ day. Peak summertime demand can see production demand reaching 6 MG/ day. Overall average use per connection per day is 307 gpcd in the winter months and 687 gpcd in the remaining months. The roughly 45% usage reduction in the winter months is indicative of the maximum water conservation volume the City is capable of achieving during summer months without overly adverse impact.

## 11. Determining if a water shortage is imminent

In normal or wet years when the water supply outlook is favorable, there is generally sufficient supply to meet the existing demand. The combined right to usage at the current water treatment plant between the City and the Ute Mountain Ute Tribe is 3300 acre feet, current usage between the City and the Ute Mountain Ute Tribe is 2335 acre feet. The current water treatment plant should be expanded to provide the full 3300 acre feet capacity for future planning, funds for such are the subject of analysis of potential future water rate increases.

In the case of an unusually dry winter or period of consecutive dry years, there is an increased likelihood the water supply cannot meet demand. It is critical during this situation to undertake an analysis of whether water supplies will be deficient relative to the estimated future water needs. If possible, the analysis should be performed at the end of the prior irrigation season and in time to decide appropriate actions and to provide adequate notice to the public. There is a chance that late winter rains will change the water supply outlook, and therefore, the situation often remains dynamic through the end of April of the current year.

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Generally, the period of May 1 to October 31 is considered the critical period for the purpose of defining the degree of water supply shortfall and for selecting the appropriate demand reduction strategy and goals. During this period is often when water supply availability is the lowest and water demand is the highest, potentially creating a summer water supply shortage situation.

There may often be no single criterion, trigger, or definition that is used to determine if a water shortage exists. The determination of a water shortfall involves consideration of all the relevant factors listed in the Plan that generally involves both the water supply and demand. Generally, forecasting water supplies available from all potential sources (e.g. surface water and ground water sources) may involve a range of uncertainty due to the variability of historic information and variance in weather patterns and subsurface conditions. Using the best available information, the Public Works Director will determine the degree of the water shortfall and propose the appropriate drought stage action to the Designated Official for timely implementation. This can be evaluated on a monthly or an as-needed basis.

## **12. Triggering criteria and stages of action**

One of the key elements of the Plan is a framework of incremental or staged triggering criteria for the drought severity or water shortage and corresponding response actions. Each stage is triggered by an anticipated or actual water shortage condition, and each stage has several triggering criteria. The triggering criteria described below are based on an analysis of the vulnerability of the water source under anticipated drought conditions and system capacity limits. The drought condition stage, water shortage triggering criteria, and corresponding demand reduction goals are presented in Table 3. Stage 4 and 5 reservoir elevations represent the top and bottom elevations of the Dolores Tunnel inlet pipe, respectively.

**Table 3: Level of water shortage, triggering criteria, and demand reduction goals**

<b>Stage Level</b>	<b>Stage title</b>	<b>Water shortage condition and triggering criteria</b>	<b>Demand reduction goal</b>	<b>Program type</b>
1	Normal	Normal conditions and/ or persistent aridity trends	<160 GPD	Voluntary restrictions and public awareness programs
2	Alert	DOLC2 gauge streamflow in 50-75% drought exceedance and/or DOLC2 observed accumulation up to 50% below normal accumulation	15%	Voluntary restrictions and public awareness programs
3	Warning	DOLC2 gauge streamflow in 76-90% drought exceedance and/or DOLC2 observed accumulation up 51-90% below normal accumulation	30%	Voluntary restrictions, public awareness programs, and mandatory infrastructure investment
4	Critical	McPhee elevation at or below 6858.81' (top of Dolores Tunnel intake structure)	50%	Mandatory restrictions, public awareness programs, and mandatory infrastructure investment
5	Emergency	McPhee elevation at or below 6855.00' (bottom of Dolores Tunnel intake structure)	TBD	Mandatory restrictions, emergency implementations, emergency funding

GPCD= Gallons per capita per day

DOLC2= NOAA Colorado Basin River Forecast Center designated gauge location upstream of McPhee reservoir

A water shortage may trigger any stage of response actions and include best management practices for supply management and demand reduction. The Designated Official will determine the most appropriate stage to implement based on determinations made by the public works direction who shall evaluate actual conditions at the time of the event. Successive stages of response actions will be declared only after exhausting efforts to make a prior stage successful or upon progressive worsening of drought conditions.

In some cases, it may be necessary for the Designated Official to immediately implement an advanced stage of the Plan. This may occur due to information that indicates likely increased

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severity in the drought conditions (e.g. to serve as a preemptive action) or when the health and safety of the community are at an increased risk. The response actions are designed to be flexible so that there is an appropriate response to the specific situation occurring at a particular time. The conditions that may trigger specific stages of the Plan are specified in Table 3. Other situations not identified as part of a drought related emergency, but that still may impact the availability of municipal water, such as but not limited to disruption of raw water delivery or disruption of water treatment facilities, may also be construed as any stage level of this Plan as deemed appropriate by the Public Works Director and implemented by the Designated Official.

### **13. Response actions**

The Plan provides stages of response actions to manage and mitigate the impacts indicated by each triggering criteria and condition. The response actions provide for a combination of best management practices for both water supply management and reduction in water demand. The response approaches are designed to be flexible so that there is an appropriate action to the specific drought situation occurring at a particular time.

The response actions included in each stage are cumulative, meaning that if Stage 2 is implemented then all of the measures in Stages 1 and 2 should be implemented. Likewise, if ultimately Stage 4 is implemented, all of the measures in Stages 1, 2, and 3 should be implemented as well. During a Stage 5 emergency, all available and properly appropriated funds should be contributed to meeting daily minimum water demand for the population as is necessary to maintain human life and well-being.

A brief description of the response actions for each stage of the Plan are specified below.

#### **13.1. Stage 1 response actions**

##### **13.1.1. Target and public message**

**Target:** Achieve a reduction in average daily per capita water use of less than 160 gallons per person per day as an annual average for the foreseeable future.

**Public message:** *Refer to City ordinances for voluntary watering restriction guidelines. Please consider using the turf replacement program to replace water inefficient landscapes with native and drought tolerant plants. Conserve water whenever possible because Water Is Our Future!*

##### **13.1.2. Communication, coordination, and planning**

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Communication, coordination, and planning activities may include, but not be limited to the following:

- A. Initiate public information outreach campaign to:
  - Prepare and distribute educational information
  - Notify customers of the need to conserve water, and the importance of significant water use reductions
  - Notify customers with large landscapes of irrigation restrictions
  - Provide customers with practical information on ways to improve water use efficiency
  - Implement customer meter reading program
  - Third Thursday indoor and/ or outdoor water conservation kits
- B. Notify Federal (e.g. FEMA, BOR, BIA, IHS, EPA, etc.), State, and Local (County) entities if applicable.
- C. Begin initial evaluation of potential temporary and/or long-term needs for infrastructure improvements and funding opportunities.

### **13.1.3. Supply management best management practices**

Best management practices for supply management may include, but not be limited to the following:

- A. Reduce flushing of water mains.
- B. Evaluate leak detection and repair program.
- C. Budget for highest priority, highest impact, lowest cost water infrastructure improvements.

### **13.1.4. Demand reduction best management practices**

Best management practices for demand reduction may include, but not be limited to the following:

- A. City Ordinance
  - Watering restrictions from April 1<sup>st</sup> to October 31<sup>st</sup> every year.
  - Watering of yards and gardens will not be allowed between the hours of 9:00 AM and 6:00 PM.
  - Even street address properties should only water on even calendar days and odd street address properties should only water on odd calendar days.

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- Water should not escape the property premises onto public property.
  - Washing vehicles, structures, driveways, sidewalks, parking areas, or other impervious surfaces with an open hose should be restricted or prohibited.
  - Operating a permanently installed irrigation system with a broken head/ emitter or with more than 10% overspray onto non-irrigated land should be restricted or prohibited.
  - Failing to repair a controllable leak should be prohibited.

## **13.2. Stage 2 response actions**

### **13.2.1. Target and public message**

**Target:** Achieve a voluntary reduction of 15% of total daily water demand.

**Public message:** *To maintain the availability and quality of water, all water users are encouraged to achieve a 15% reduction in use.*

### **13.2.2. Communication, coordination, and planning**

Communication, coordination, and planning activities may include, but not be limited to the following:

A. Increase public information outreach campaign to:

- Notify customers of reduction strategies
- Notify customers of the water shortage, the need to conserve water, and the importance of significant water use reductions
- Generate publicity about customers demonstrating significant water savings
- Consult with major customers to develop conservation plans
- Publicize weekly water consumption graph/data

B. Identify priorities for water supplies.

C. Begin to coordinate with Federal (e.g. FEMA, BOR, BIA, IHS, EPA, etc.), State, and Local (County) entities and in particular the County Office of Emergency Services (OES).

D. Accelerate existing planned water infrastructure projects. Fifteen percent (15%) of the water capital investment fund should be applied to water conservation infrastructure and/or water infrastructure projects. City should additionally match fund investment for that calendar year for maintenance of emergency allocation/ reserve funds.

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- E. Expand scope of existing projects and/or propose potential temporary and/or long-term needs for infrastructure improvements and funding opportunities (e.g. FEMA, BOR, BIA, IHS, EPA, USDA/RD, State, etc.).
  - F. Develop strategy to mitigate revenue losses.
  - G. Prepare plan for use of an alternative water source(s), including but not limited to deep aquifer extraction, purchase of additional project water (if available), irrigation sub-lease agreements, emergency interconnects, and irrigation seepage recapture.

### **13.2.3. Supply management best management practices**

Best management practices for supply management may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Discontinue flushing of water mains; except in emergency situations only.
- B. Intensify leak detection and repair program.
- C. Propose program for water waste patrols.
- D. Design system for Category 1 treatment levels of reclaimed water per 5-CCR-1002-84 and greywater per 5-CCR-1002-86. Use of reclaimed water for non-potable purposes should be intended for commercial users in Level 1 treatment applications.

### **13.2.4. Demand reduction best management practices**

Best management practices for demand reduction may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Use of water from hydrants should be limited to firefighting-related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the City.
- B. Use of water from hydrants for construction purposes without a permit or any other purposes other than firefighting will be prohibited.
- C. Reducing City irrigated landscaped areas up to fifteen percent to maintain adequate watering intensity on remaining landscaped areas.

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### 13.3. Stage 3 response actions

#### 13.3.1. Target and public message

**Target:** Achieve voluntary reduction of 30% of total daily water demand.

**Public message:** *A serious water shortage emergency due to prolonged drought is present. To conserve the available water supply for the greatest public benefit while minimizing impacts on our local economy; our goal is to reduce water demand by 30%. While water allocation amounts are adequate for normal domestic needs, significant cuts to outdoor water use may be necessary. All customers are urgently asked to make every effort to conserve water and abide by watering restrictions or face further reductions in water allotments.*

#### 13.3.2. Communication, coordination, and planning

Communication, coordination, and planning activities may include, but not be limited to the following by further ordinance and/ or resolution (if applicable):

- A. Intensify and expand public information outreach campaign to:
  - Notify customers of the water use allocations
  - Inform customers of ban on open burning
  - Expand and strengthen water conservation education, activities, and programs
- B. Coordinate with Federal, State, and Local (County) entities, and in particular, the County Office of Emergency Services (OES), and any mutual aid assistance.
- C. Coordinate with local health directors to assess public health threats and take appropriate actions if applicable.
- D. Provide regular situational reports to Federal entities and County OES if applicable.
- E. Accelerate existing planned water infrastructure projects. Thirty percent (30%) of water capital investment fund to be mandatorily applied to water conservation infrastructure and/ or water infrastructure projects. City to additionally match fund investment for that calendar year for emergency allocation/ reserve.
- F. Invoke ban on open burning.
- G. Increase customer service training for staff.

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- H. If applicable, implement progressive water rate schedule.
  - I. Budget for implementation of plan for use of an alternative water source(s), including but not limited to deep aquifer extraction, purchase of additional project water (if available), irrigation sub-lease agreements, emergency interconnects, and irrigation seepage recapture.
  - J. Prepare/ update cost estimates and feasibility studies for emergency pumping of McPhee inactive pool into Dolores Tunnel intake.

### **13.3.3. Supply management best management practices**

Best management practices for supply management may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Discontinue flushing of water mains; for emergency purposes only.
- B. Intensify leak detection and repair program.
- C. Deploy program for water waste patrols; e.g. increase staff.
- D. City to implement system for Category 1 treatment levels of reclaimed water per 5-CCR-1002-84 and greywater per 5-CCR-1002-86. City to design system for Category 2 treatment levels of reclaimed/ grey water. Use of reclaimed water for non-potable purposes should be required for commercial users in Level 1 treatment applications.

### **13.3.4. Demand reduction best management practices**

Best management practices for demand reduction may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Use of water from hydrants should be limited to firefighting related activities.
- B. Use of water for dust control should be restricted.
- C. Reduce City-irrigated landscaped areas up to 30% to maintain adequate watering intensity on remaining landscaped areas.
- D. Washing City property and/ or infrastructure should be restricted.
- E. Water plant back flushing should be delayed, if possible, until winter
- F. City water dock rates may be increased up to 30%.

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## 13.4. Stage 4 response actions

### 13.4.1. Target and public message

**Target:** Achieve a mandatory reduction of 45% of total daily water demand.

**Public message:** *Due to continuing deterioration and scarcity of the available water supply, all customers are subject to reduced water allocations. The current water shortage has become very severe. We must all continue to conserve water to the maximum extent possible and strive to maintain water use within our established water allocation limits as long as the drought endures in order to prevent a water crisis.*

### 13.4.2. Communication, coordination, and planning

Communication, coordination, and planning activities may include, but not be limited to the following by further ordinance and/ or resolution (if applicable):

- A. Continue to intensify public information outreach campaign to:
  - Notify customers of the water use allocations
  - Publicize daily water consumption graph/data
  - Open a centralized drought public outreach position for issues on conservation, water use allocations, etc.
  - Set-up and/or confirm emergency notification lists for high priority water users including health clinics, schools, stores and restaurants, and other large or critical users
- B. Coordinate with Federal, State, and Local (County) entities, and in particular, the County Office of Emergency Services (OES), and any mutual aid assistance.
- C. Coordinate with local health directors to assess public health treats and take appropriate actions.
- D. Provide regular situational reports to Federal entities and County OES.
- E. Continue use of water supply augmentation measures such as emergency interconnection, use of existing water wells, use of new water wells, water hauling, new trans-basin diversions, etc.
- F. Continue ban on open burning.

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- G. Plan with local partners for potential movement of vulnerable populations out of areas with limited or no water supply.
  - H. No new water infrastructure projects should be implemented, funds should be held available on standby for emergency water hauling.
  - I. Update cost estimations for pumping inactive capacity of McPhee into Dolores Tunnel intake, initiate planning for rapid implementation.
  - J. Prepare existing plans for subterranean extraction for immediate emergency deployment.
  - K. Update cost estimates for water hauling sufficient to provide minimum target values per Table 5.
  - L. City should allocate funds for the accelerated deployment of an emergency pump to lift water from McPhee inactive pool into the Dolores Tunnel Intake.

#### **13.4.3. Supply management best management practices**

Best management practices for supply management may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Discontinue flushing of water mains; for emergency purposes only.
- B. Intensify leak detection and repair program.
- C. Intensify program for water waste patrols and consider expansion to 24/7 with additional staff if necessary.
- D. City to implement system for Category 2 treatment levels of reclaimed water per 5-CCR-1002-84 and greywater per 5-CCR-1002-86. City to design system for Category 3 treatment levels of reclaimed/ grey water. Use of reclaimed water for non-potable purposes should be required for commercial users in Level 2 treatment applications. Demand reduction requirements may be waived for users who offset their demand reduction requirement by creation of compliant water reclamation systems for Level 2 and Level 3 treatment applications.
- E. Implement/ deploy planned infrastructure for utilization of alternative water resources.

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#### **13.4.4. Demand reduction best management practices**

Best management practices for demand reduction may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Implement Stage 4 water consumption allocations for all customers (see Table 4).
- B. Irrigation of landscaped areas is prohibited.
- C. Use of water to wash any motor vehicle, motorbike, boat, trailer, or other vehicle is prohibited from any type of water emitting device or at any establishment with the exception of ANS de-contamination devices at water reservoirs connected to the public water system.
- D. The watering of golf course tees is prohibited.
- E. No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind should be approved, and time limits for approval of such applications are hereby suspended for such time as the drought response stage.
- F. City should draft mandatory restrictions. Restrictions should be sufficient to provide minimum target values in table 5 for the duration of the water emergency.
- G. City should re-evaluate costs of hauling water sufficient to maintain human life and well-being, if needed additional funds should be augmented to reserve for emergency water hauling.

#### **13.5. Stage 5 response actions**

##### **13.5.1. Target and public message**

**Target:** All water demand needs to be satisfied by severe rationing of existing water, and/ or importation of water, including but not limited to trucking, alternate pipeline delivery, subterranean extraction, and/ or pumping inactive supply from local reservoirs. Daily allotment should be determined by availability of any single available source or combination of available sources as determined by the Task Force and City Council.

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To prevent local water stockpiling, simultaneously upon declaration of Stage 5/ rationing conditions the City water dock located at the City Service Center would become the water allocation source. The City shall coordinate with DWCD to shut off other diversion points for non-potable sources. All taps between fresh water storage tanks at the water treatment plant and the City Water Dock should be simultaneously shut off upon declaration of rationing conditions and locked in the off position. Additional trucking costs need to be considered to transit members of the Ute Mountain Ute Tribe to the water dock and/ or transit water to tribal headquarters. The specific tap locations are specified below.

- **Water main line valves to close:**

- ❖ At Tank #3 - close the valves that feed the Talcott and Hwy 145 lines.
- ❖ At Tank #2 - close the Ute Tribe transmission line valve.
- ❖ Close valve after the Mary Jane PRV that interconnects with the water line in Road L.
- ❖ Close the S. valve in the Carpenter area by the walking trail.
- ❖ Close the main line valve in front of 1111 Lebanon Road.
- ❖ Close valve that goes into Sagebrush Circle.
- ❖ Close both valves on the west side of Blueberry Hill Loop.

- **Individual meters to close:**

- ❖ 11741 HWY 145
- ❖ 11749 HWY 145
- ❖ 11751 HWY 145
- ❖ 10965 Road 26
- ❖ 10821 Road 26
- ❖ 10659 Road 26
- ❖ 1111 Lebanon Road
- ❖ 1240 Lebanon Road
- ❖ 1531 Lebanon Road
- ❖ 1545 Lebanon Road
- ❖ 1480 Industrial Road
- ❖ 1803 Industrial Road
- ❖ 1880 Industrial Road
- ❖ 2002 Industrial Road

**Public message:** *The community is confronted with a critical water shortage emergency of unprecedented proportions. At this time, there exists barely enough drinking water for the most essential human health, sanitation, and safety needs. As a result, all outdoor water use is prohibited. We understand the hardship this extraordinary condition poses to every customer, and we appreciate the sacrifices people are making to ensure the water system does not run dry. Everyone is urgently requested to do whatever necessary to maintain water use within or below their allotted amount.*

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### **13.5.2. Communication, coordination, and planning**

Communication, coordination, and planning activities may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Continue to intensify public information outreach campaign to:
  - Notify customers of the water use allocations
  - Notify customers of public water points; e.g. for bottled water or portable water storage tanks
  - Notify vulnerable populations of potential movement/relocations
- B. Identify priorities for water supplies.
- C. Coordinate with Federal, State, and Local (County) entities, and in particular, the County Office of Emergency Services (OES), and any mutual aid assistance.
- D. Coordinate with local health directors to monitor and assess public health threats and take appropriate actions.
- E. Provide regular situational reports to Federal entities and County OES.
- F. Continue use of water supply augmentation measures such as emergency interconnection, use of existing water wells, use of new water wells, water hauling, temporary pumping, etc.
- G. Continue ban on open burning.
- H. Plan with local partners for monitoring and potential movement of vulnerable populations out of areas with limited or no water supply.

### **13.5.3. Supply management best management practices**

Best management practices for supply management may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Discontinue flushing of water mains; for emergency purposes only.
- B. Intensify leak detection and repair program.
- C. Intensify program for water waste patrols.

- D. City to implement system for Category 3 treatment levels of reclaimed water per 5-CCR-1002-84 and greywater per 5-CCR-1002-86. City to design system for Category 3+ treatment levels of reclaimed/ grey water. Use of reclaimed water for non-potable purposes should be required for commercial users in Level 3 treatment applications. Demand reduction requirements may be waived for users who offset their demand reduction requirement by creation of compliant water reclamation systems for Level 3 and Level 3+ treatment applications.
- E. Implement/ deploy additional infrastructure for utilization of alternative water resources.
- F. Deploy temporary pumping of inactive capacity water from McPhee into Dolores Tunnel Intake.

**13.5.4. Demand reduction best management practices**

Best management practices for demand reduction may include, but not be limited to the following by further ordinance and/ or resolution:

- A. Implement Stage 5 water consumption allocations for all customers (see Table 4).
- B. Water use reduced to health and safety needs only. All other uses are prohibited.

**14. Water use allocations**

**14.1. General**

In the event that water shortage conditions threaten public health, safety, and welfare, the Designated Official is authorized to allocate water according to the following water allocation plan in the Table listed below.

**Table 4: Stage water use example allocations**

<b>Customer/connection type</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>	<b>Stage 5</b>
Residential	Normal or 160 gpcd	Normal or 145 gpcd	Normal or 110 gpcd	Normal or 80 gpcd	Supply based rationing
Commercial/institutional	Normal	90% of average	70% of average	50% of average	Supply based rationing
Landscape irrigation	Normal	90% of average	50% of average	0% of average	0% of average

Note: gallons per capita per day is **gpcd**

The residential water use allocations are based on water use priorities for health and safety and were calculated based on minimum domestic uses including drinking, cooking, personal washing, sanitation, and washing clothes. In addition, these water uses have been compared to actual data, in particular during the wintertime period.

The Table below provides a more detailed presentation of the basis for the residential water uses and requirements for Stage 4, 5, and extended rationing water allocations. Extended rationing requirements will apply if the available water supply is predicted to be inadequate to meet Stage 5 suggested criteria (Table 5) for more than one billing period of (30) calendar days. Stage 5 rationing targets are based on a population of 9,995 or the census population of all users including Towaoc and Cortez.

Daily allocation is based on number of users drawing from water from Tanks #1, #2, and #3 at the Cortez water treatment plant for thirty (30) days. These numbers will need to be updated periodically to ensure that treated water held in storage at the treatment plant can provide a minimum 30-day supply to the current service population at Stage 5 rationing targets.

**Table 5: Suggested Stages 4, 5, and extended rationing water use allocation requirements**

<b>Residential water uses</b>	<b>Stage 4 voluntary targets (gpcd)</b>	<b>Stage 5/ rationing targets (gpcd)</b>	<b>Extended rationing requirements (gpcd)</b>
Drinking	5.0	2.5	2.0
Cooking	10.0	2.5	1.0
Personal washing	15.0	10.0	5.0
Sanitation	10.0	2.5	1.0
Washing clothes	10.0	2.5	1.0
Cleaning home	10.0	0	0
Growing food/garden	20.0	0	0
<b>Total</b>	<b>80</b>	<b>20</b>	<b>10</b>

#### **14.2. Residential customer single-family**

The allocation to residential water customers residing in a single-family dwelling should be based on the persons per household at the level given in Table 4. A “household” means the residential premises served by the customer’s water service line and/or water meter. Persons per household include only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It will be assumed that a particular customer’s household is comprised of two (2) persons unless the customer notifies the Designated Official of a greater number of persons per household.

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It will be the customer's responsibility to go to the office of the Designated Official to complete and sign the necessary form claiming more than two (2) persons per household. New customers may claim more persons per household at the time of applying for water service on the form prescribed by the Designated Official. When the number of persons per household increases so as to place the customer in a different allocation category, the customer may notify the Designated Official and the change will be implemented in the next practicable billing period.

If the number of persons in a household is reduced, the customer will notify the Designated Official in writing within two (2) days. In prescribing the method for claiming more than two (2) persons per household, the Designated Official will adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with negligence falsely reports the number of persons in a household or fails to timely notify the Designated Official of a reduction in the number of persons in a household should be fined not less than \$500, or as otherwise determined by the City.

During rationing, residential water customers should pay the following example surcharges:

- For the first ten (10) gallons over allocation: \$500
- For the second ten (10) gallons over allocation: \$1000
- For the third (10) gallons over allocation: \$2000
- For each additional ten (10) gallons over allocation beyond the third occurrence: \$5000

Surcharges should be cumulative.

### **14.3. Residential customer master-metered multi-family**

The allocation to residential water customers residing in a single-family dwelling should be based on the persons per household at the level given in Table 4. A "household" means the residential premises served by the customer's water service line and/or water meter. Persons per household include only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It will be assumed that a particular customer's household is comprised of two (2) persons unless the customer notifies the Designated Official of a greater number of persons per household.

It will be the customer's responsibility to go to the office of the Designated Official to complete and sign the necessary form claiming more than two (2) persons per household. New customers may claim more persons per household at the time of applying for water service on the form prescribed by the Designated Official. When the number of persons per household increases so as to place the customer in a different allocation category, the customer may notify the Designated Official and the change will be implemented in the next practicable billing period.

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If the number of persons in a household is reduced, the customer will notify the Designated Official in writing within two (2) days. In prescribing the method for claiming more than two (2) persons per household, the Designated Official will adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with negligence falsely reports the number of persons in a household or fails to timely notify the Designated Official of a reduction in the number of persons in a household should be fined not less than \$500, or as otherwise determined by the City.

During rationing, residential water customers should pay the following example surcharges:

- For the first ten (10) gallons over allocation: \$500
- For the second ten (10) gallons over allocation: \$1000
- For the third (10) gallons over allocation: \$2000
- For each additional ten (10) gallons over allocation beyond the third occurrence: \$5000

Surcharges should be cumulative.

#### **14.4. Commercial customers**

A monthly water allocation will be established by the Designated Official, or his/her designee, for each non-residential commercial customer. The non-residential customer's allocation will be based on Table 4 and the customer's usage for corresponding month's billing period for the previous 12 months, except for in Stage 5 and/ or rationing restrictions, in which case commercial users will be subject to the requirements of Table 5 per each commercial tap. If the customer's billing history is shorter than 12 months, the monthly average for the period for which there is a record will be used for any monthly period for which no history exists.

The Designated Official should give his/her best effort to see that notice of each non-residential customer's allocation is mailed to such customer. If, however, a customer does not receive such notice, it will be the customer's responsibility to contact the Designated Official to determine the allocation. Upon request of the customer or at the initiative of the Designated Official, the allocation may be reduced or increased if, (1) the designated period does not accurately reflect the customer's normal water usage, (2) one non-residential customer agrees to transfer part of its allocation to another non-residential customer, or (3) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation to the Designated Official. Allocations cannot be adjusted or appealed during water rationing stages.

Customers billed from a master meter under this provision could pay the following example monthly surcharges:

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- For the first ten (10) gallons over allocation: \$1,000
  - For the second ten (10) gallons over allocation: \$2,000
  - For the third ten (10) gallons over allocation: \$5,000
  - For each additional ten (10) gallons over allocation beyond the third occurrence: \$10,000

Surcharges should be cumulative.

## **15. Enforcement**

This Plan is designed to place the responsibility for managing the water resources during a water shortage emergency on the entire community. Care has been taken in the design of the Plan not to penalize any customer who has undertaken good-faith and diligent measures to conserve water. However, for the protection of the water resources and ability to provide sufficient water for public health and safety priorities, enforcement and penalties are required for those customers who knowingly or intentionally use water in a manner contrary to the Plan and will be specifically defined in subsequent measures implemented by the City.

Example enforcement provisions may include, but not be limited to the following by further ordinance and/ or resolution:

- A. No person shall knowingly or intentionally allow the use of water from the public water system for any purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by the Designated Official in accordance with provisions of this Plan.
- B. Any person who violates this Plan should be fined:
  - 1. For the first incident, the fee will be deferred for customers who attend a course in water conservation. The deferral should be conditioned upon the customer's successful completion of a water conservation course provided by the authorized Designated Official and the customer not having an additional incident of water wastage within a one-year period. The deferred fee should be collected if a second incident of water wastage occurs within a one-year period.
  - 2. For the second incident, the fee should be not less than designated in Sections 14.2-14.4 during water rationing. Each day that one or more of the provisions in this Plan is violated should constitute a separate offense.
  - 3. If a person is convicted of a third incident or more distinct violations of this Plan within a one-year period, the Designated Official should, upon due notice to the customer, be authorized to:

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- i. Require the customer to repair any defects in the water system of such customer within 14 days of notice;
  - ii. Installation by the Designated Official of flow restrictors or termination of water service for exterior use;
  - iii. Termination of all water service to a customer unless in the opinion of the Designated Official such termination would result in an unreasonable risk to the health and safety of the persons;
  - iv. Services discontinued under such circumstances should be restored only upon payment of a re-connection charge, hereby established at the calendar year published re-connect fee, and any other costs incurred by the public water system in discontinuing service. In addition, suitable assurance must be given to the Designated Official that the same action will not be repeated while the Plan is in effect.
  - v. Compliance with this plan may also be sought through injunctive relief in the City Municipal Court.
- C. Any person, including a person classified as a water customer of the public water system, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property should constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents should be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control should constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.
- D. Any police officer, or other Designated Official, may issue a citation to a person he/she reasonably believes to be in violation of this Plan. Service of the citation should be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over fourteen (14) years of age who is a member of the violator's immediate family or is a resident of the violator's residence.

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## 16. Variances

The Designated Official may in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

- Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect, and
- Alternative methods can be implemented that will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Plan would need to file a petition for variance with the public water system within five (5) days after the Plan or a particular drought response stage has been invoked. All petitions for variances should be reviewed by the Designated Official and may include, but not be limited to the following:

- A. Name and address of the petitioner(s).
- B. Purpose of water use.
- C. Specific provision(s) of the Plan from which the petitioner is requesting relief.
- D. Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Plan.
- E. Description of the relief requested.
- F. Period of time for which the variance is sought.
- G. Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
- H. Other pertinent information.

Variances granted by the public water system should be subject to the following conditions, unless waived or modified by the Designated Official:

- Variances granted should include a timetable for compliance.
- Variances granted should expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance should be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance. All variances shall be considered public/ open record.

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## **17. Revenue and expenditure analysis**

### **17.1. Potential revenue impacts**

The City water system's revenues from water use charges are derived from customers and uses including residential, commercial, irrigation and a consecutive water system (Bluedoor). Water service to the customer is billed based on metered usage and an existing rate structure. Therefore, as customer water use decreases based on the mandatory restrictions and water allocations, the revenue would decrease to base billing levels.

### **17.2. Potential expenditure impacts**

During a water shortage and activation of this Plan, the expenditures for water-related services may be impacted. Expenditures may increase based on numerous factors including:

- Increased water conservation program costs to implement, monitor, and enforce new or more intensive activities.
- Increased staffing costs for operation and maintenance of facilities to ensure efficient operation of available facilities

With assumed increases in certain expenditures, overall water expenditures may increase during the various stages of the Plan. These increases in expenditures, coupled with reductions in revenue for metered rate customers, could potentially impact the Cortez water system's budget and financial status.

### **17.3. Proposed measures to overcome revenue and expenditure impacts**

Measures that may be implemented to overcome revenue and expenditure impacts may include, but not be limited to the following by further ordinance and/ or resolution (if applicable):

- Water rate increases
- Use of reserve funds
- One-time drought surcharge/ fee
- FEMA funding or state emergency funding.

## **18. Mechanism for determining actual water use reductions**

The system's water production from McPhee Reservoir is continuously monitored by the water plant and DWCD. During Stage 1 or Stage 2, monthly water production figures should be

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monitored by the Public Works Director and/ or the Designated Official. The Designated Official will then compare the monthly production to target production and verify that the reduction goal is being achieved. Monthly reports would then be forwarded to the appropriate personnel. If the reduction goals are not met, the Designated Official will notify the Task Force and consider potential corrective actions; e.g. implementation of additional water use restrictions.

During Stage 3 or Stage 4, the procedure would remain the same, but on a weekly basis, with an additional weekly report being provided to the Task Force and other appropriate personnel.

During Stage 5, the procedure would remain the same, but on a daily basis, with the addition of a daily or on-demand report being provided to the Task Force and other appropriate personnel.

During rationing and/ or extended rationing, water use will be monitored hourly.

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**APPENDIX I: Sample Plan Cost Estimations using 2023 USD**  
(not adjusted for inflation)

**Emergency Barge Pump**

Would pump water from the inactive pool in McPhee reservoir up into the Dolores Tunnel intake structure if water flow into the structure were inadequate due to reservoir elevation providing insufficient head.

- Initial Cost \$85,000 to \$130,000
- Daily operational cost \$2,700 to \$3,600 per day of operation

**Emergency Water Hauling**

Would bring water from adjacent sources via truck on state highway system. Assumes an adjacent water source within a 50-mile delivery radius (i.e. Groundhog Reservoir)

- Delivery fee average of \$3/ mile and \$0.10/ gallon
- Average cost of \$33,320 per day of operation

**Aquifer Management**

Assumes that aquifer in Montezuma County is accessible, initial data from USGS suggests the aquifer is present and accessible; however, at the time of this report no physical exploration has been performed. Exploration is suggested at various stages of the Plan. Assuming a volume of 3300 acre feet per year, median cost of managed aquifer extraction and recharge is estimated at \$407,000 per year