



**Town of Cave Creek**  
**Water Shortage and Drought Management Plan**

Cave Creek Water  
Public System ID: 04-07-016  
&  
Desert Hills Water  
Public System ID: 04-07-026

**2022 Update**  
*(Adopted November 21, 2022, by Resolution R2022-22)*

**Town of Cave Creek**  
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# TABLE OF CONTENTS

BACKGROUND .....	1
Introduction and Overview .....	1
Water Sources & Supplies .....	3
Resource Planning and Redundancies .....	4
Types of Town Water Uses.....	5
DROUGHT DECLARATIONS AND PLAN ADMINISTRATION.....	6
Water Shortage and Drought Declarations.....	6
Water Supply Shortage Response Stages .....	6
Chain of Command.....	8
RESPONSES TO WATER SHORTAGES.....	9
Demand Reduction Response Strategies.....	9
PLAN ENFORCEMENT .....	16
Appeal of Assessment of Violation Surcharges.....	16
APPENDIX.....	17
Map 1 – Cave Creek Water Service Area.....	18
Map 2 – Desert Hills Water Service Area .....	19
Map 3 – Carefree Sub-Basin & East Salt River Valley Sub-Basin .....	20
Example of Water Shortage and Drought Declaration Calculation .....	21

# BACKGROUND

## Introduction and Overview

The 2022 Water Shortage and Drought Management Plan (WSDMP), ensures the Town of Cave Creek (Town) has planned in advance to take specific actions during Town water supply shortages or droughts. A Town water shortage can occur at any time, including during Colorado River drought shortage conditions, or when large water supply infrastructure fails. This WSDMP plan can help the Town address short-term or long-term changes in the water supply deliveries to the Town to best meet the serious challenges to maintain the health, safety, and economic wellbeing of the community.

The Town operates and maintains two water systems, the Cave Creek Water System and the Desert Hills Water System. Refer to Map 1 and Map 2 in the Appendix. This WSDMP is intended to apply to all water customers in both water systems. This WSDMP is not intended to apply to residents that are not existing water customers of the Town (for example, private well owners or lots without an active water service connection). This plan is also not intended to cover short-term local infrastructure failures such as street water main breaks that are addressed under separate emergency provisions.

The Town uses wells to withdraw groundwater to serve the Desert Hills Water System. However, the available groundwater is not sufficient alone to meet the current Desert Hills water system customer demands. The Town supplements groundwater supplies with Central Arizona Project (“CAP”) water. The Town anticipates that the available groundwater supplies in Desert Hills will continue to decrease over time.

The Town currently uses 100% CAP water for water uses within the Cave Creek Water System, except for one customer that purchases the Town’s limited amount of treated wastewater effluent for a landscape irrigation use. The Town owns several groundwater wells with currently unknown production capacity. These wells have not been used for years due to the relatively poor local aquifer conditions. The Town has no current plan to use groundwater for the Town’s normal water supply needs but may consider rehabilitation and use of one or more wells for future recovery of stored water or a future significant water shortage.

Because the Town currently serves groundwater and CAP water in its two separate water systems, a water shortage or drought condition occurs when the Town reasonably believes that the Town will be unable to supply all the water the customers would likely use in the absence of such a shortage. In circumstances where less significant water shortages occur, affecting primarily the Town’s ability to use its full normal year allocation to store water for future use, the Town will focus on seeking voluntary customer conservation through measures that allow customers maximum flexibility in choosing how they wish to conserve water within their own residences and businesses. At this level, the Town will focus on education and assistance measures to promote

conservation. More significant water shortages will be addressed with more significant and mandatory measures to reduce overall customer water demands.

The Town must estimate the actual conservation results that can be achieved by water customers with the response measures in this plan. The actual water use reductions obtained will depend on customer participation. The plan includes data monitoring so that the actions can be updated more effectively over time to better meet the Town's water supply reduction requirements.

During water supply shortages, the Town has the following plan priorities:

1. First, to protect human health and safety and public health
2. Second, to protect the economic wellbeing of the Town's water customers
3. Third, to avoid adverse impacts to public activities
4. Fourth, to save excess water resources in the current period for future use

The WSDMP identifies five stages (Stage 0 through Stage 4) of Town water supply shortages accompanied by progressively more stringent actions the Town will take or may take to address each circumstance.

The planned response measures include actions that are:

- (1) specific tasks for Town staff,
- (2) voluntary steps expected to be taken by customers,
- (3) required steps to be taken by customers, and/or
- (4) steps that are proposed to be included in future ordinance requirements.

The Town prefers to reduce water use during a shortage through education and voluntary measures that allow customers choices in how they conserve. However, the Town must also necessarily establish mandatory compliance measures for those painful choices that will need to be made during a significant shortage.

Water is a precious natural resource, vital to our desert community and essential for everyday life. The Town is dedicated to conserving, protecting, and enhancing water resources to ensure a safe and reliable water supplies.

## **Water Sources & Supplies**

The primary water source for the Cave Creek water system is renewable surface water from the Colorado River, delivered to the Town through the Central Arizona Project (CAP) canal. The Town has two CAP water subcontracts: (1) a municipal and industrial (M&I) priority subcontract for delivery of 2,228 acre-feet per year<sup>1</sup> in normal water supply years, and (2) a non-Indian agricultural (“NIA”) priority subcontract for up to 386 acre-feet per year. The NIA subcontract has a lower priority than other CAP water supplies and is expected to be unavailable in more years than the Town’s municipal and industrial priority subcontract water supply. In addition, the Town’s wastewater treatment plant currently produces approximately 210 acre-feet per year of treated effluent that the Town sells to the Rancho Manana golf course for a portion of the total water needed for golf course landscape irrigation. The Town’s effluent water supply is expected to increase in the future but will likely still not be enough to meet golf course irrigation needs.

In 2021, the Town delivered 1,018 acre-feet of CAP water to the Cave Creek water system customers<sup>2</sup>. This amount is expected to increase over time as new water customers are added to the Cave Creek water system.

The Desert Hills area water system is partially dependent on decreasing groundwater from the East Salt River Valley Aquifer (See Map 3 in Appendix). Currently there are three municipal groundwater wells operating in the Desert Hills water system. In 2021, 207 acre-feet of groundwater was delivered to customers in the Desert Hills water system. In 2020, in an effort to address the health and safety of existing water customers, the Town requested that Clear Creek Associates assess the current and future groundwater supplies available to the Desert Hills area water system. The assessment was conducted to determine if the Town should agree to add new water service connections or otherwise increase water service obligations outside the Town’s municipal limits. The Town determined that the groundwater supplies in the Desert Hills water system are likely to decrease over time. Accordingly, it is not in the best interest of existing customers to continue allowing new water service connections or increase water service obligations outside the Town’s municipal boundaries unless the Town is obligated to do so by statute or an existing contract, as supported by the Water Resource Policy.

To meet current service demands of customers in the Desert Hills water system, the Town provides supplemental treated CAP water from the Cave Creek Water System to the Desert Hills Water System through an interconnect site. In 2021, the Town delivered 563 acre-feet of CAP water to the Desert Hills water system. This amount is expected to increase as groundwater supplies decrease over time.

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<sup>1</sup> The Town’s CAP contract is for delivery of 2,606 acre-feet per year, but the Town of Cave Creek and Town of Carefree agree that 378 acre-feet per year will be transferred to Carefree as part of the service area division. The quantity anticipated to be available to the Town of Cave Creek in 2023 and future years is 2,228 acre-feet per year.

<sup>2</sup> This total does not include the 299 AF delivered to accounts located within Carefree as those accounts are being converted to Carefree Water during 2022/23.

The Town may have access to additional local, state, or regional water supplies (such as Arizona Water Bank Authority firming water) during a water shortage that are not enumerated above, but those quantities, if any, are not yet known. The Town staff will take any unplanned supplies into account in determining the level of water shortage that exists as described in this plan.

<b>TABLE 1 – NORMAL WATER SUPPLIES VS. 2021 DELIVERIES</b>		
	<b>NORMAL SUPPLIES (AF)</b>	<b>2021 USAGES (AF)</b>
CAP M&I Priority Water		
Deliveries to Cave Creek customer <sup>1</sup>		1,018
Deliveries to Desert Hills customers		536
Deliveries to Rancho Manana golf course		234
CAP M&I Priority Water Totals	2,228	1,788
CAP NIA Priority Water <sup>2</sup>	386	0
Desert Hill Ground Water	207	207
<b>2021 Totals</b>	<b>2,821</b>	<b>1,995</b>

1. The Cave Creek deliveries does not include the 299 AF delivered to Carefree customers in 2021 as those accounts are being transferred to the Carefree Water system.
2. The Town has already been informed that available NIA CAP water delivers will be reduced by 25% for 2023

In summary, using 2021 totals as an initial planning number for future years, the total normal water supplies available for Town water customers (other than the effluent customer) would be approximately 2,821 acre-feet per year. In 2021, the existing Town customers used approximately 71% of the total available supplies. Due to both (1) decreasing groundwater supplies and (2) customer growth over time, this percentage use is expected to increase over time. The Town plans to update this data with the most recent available water use data in determining the drought stage in future periods and implementing the response actions in this plan. Because this customer water usage percentage is expected to increase over time and intra-period usage trends and data collected in arrears, or factors such as weather, could adversely impact the Town’s response to water shortages, it is reasonable for the Town to add a conservative buffer in its shortage stage determinations of plus one percent.

### **Resource Planning and Redundancies<sup>3</sup>**

The Town is facing changes in its water service areas, increased economic development, changes in water regulations and potential shortage challenges to our long-term water supply portfolio. The Town utility department staff will on a regular and

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<sup>3</sup> The Town’s efforts to achieve water treatment and delivery infrastructure reliability and efficiency are addressed in separate Town planning documents.

continuous basis study these changes and adjust or recommend actions to the Town Council that support the pursuit of a more resilient water supply portfolio.

The Town recently completed a new subcontract for 386-acre feet of NIA CAP water. This new NIA water allocation is intended, when available, to help replace a portion of the Town’s municipal and industrial CAP priority water that is being transferred to the Desert Hills water system annually. NIA water should be ordered when available and usable for this purpose.

The Town has obtained water storage permits that allow the Town to recharge unused CAP water at both CAP and Phoenix recharge facilities. These recharge facilities may help the Town store CAP water for future recovery and use, but the Town continues to work on a plan to efficiently store and recover such water closer to the Town’s water treatment and distribution system. The Town should continue to pursue recharge and recovery improvements where feasible. A shortage in the Town’s available CAP water supplies for storage will impact these efforts, warranting customer conservation even during full customer delivery years.

The Town will investigate the suitability of its existing wells and any needed rehabilitation that could occur so that one or more wells could provide a partial backup supply during a significant water shortage.

**Types of Town Water Uses**

The Town’s water customers are mostly residential water users. In 2020, the Town delivered water to the following categories of users by percentage:

<b>Customer Type</b>	<b>Amount of Water Delivered as Percentage of Total Town Water Deliveries</b>
Churches	0.6%
Commercial	5.8%
Irrigation	1.6%
Multifamily	0.6%
Commercial Pools	0.2%
<b>Residential</b>	<b>88.5%</b>
Restaurants	2.4%
Schools	0.1%

Because most of the Town’s water by volume is delivered to residential users, the Town’s water shortage responses will need to come primarily from residential customers.

# DROUGHT DECLARATIONS AND PLAN ADMINISTRATION

The Town of Cave Creek intends to implement this WSDMP plan with a relatively simple 5-stage drought declaration process and response actions to be taken at each drought stage. Town ordinances must be amended to implement this plan for customers in Cave Creek. Customers in the Desert Hills service area will be subject to this plan as a matter of policy and the requirements of the existing water service agreements.

## **Water Shortage and Drought Declarations**

The five water shortage stages developed in this plan (see next section) are intended to be declared by the Town at a public meeting and advertised on the Town's website on a regular basis. Updates will occur annually or more frequently as conditions warrant.

The water shortage stage will be determined by a number estimated by the Town's Utility Director, the "**Water Shortage Percentage**." The Water Shortage Percentage is defined as the **projected percentage shortage in the Town's water supplies**, determined by (1) **the amount of water projected to be available to the Town's customers for the upcoming year**<sup>4</sup> divided by (2) **the updated projected customer water demand for the same period**, multiplied by 100, plus a one percent conservatism buffer. This percentage will be projected by the Utilities Director at least annually in normal conditions and will be reevaluated on a monthly basis if a shortage is probable or occurring. For example, if in 2025, the Town expects to have access to only a total water supply of 2,000 acre-feet, and if the Town estimates based upon the most recent data that the customer water demands will be 2,100 acre-feet, then the shortage would be 100 acre-feet (a 5% shortage), plus a 1% buffer, and the shortage stage (see stages below) would be determined by the need to cut overall deliveries by 6%.

The Town staff will continually monitor CAP water supply stakeholder information to inform the Town's projections of CAP water availability. The Town staff will regularly monitor groundwater levels and well production conditions in Desert Hills to inform the projections used in determining projected water shortages. A baseline for the aquifer water level will be set and then the aquifer will be monitored for any precipitous or extraordinary unforeseen drops in groundwater levels. Well production levels will be regularly monitored.

## **Water Supply Shortage Response Stages**

The WSDMP includes five (5) Response Stages ranging from Stage 0 to Stage 4. Stage 0 is where the Town will remain at all times that are not declared to be Stages 1, 2, 3, or 4. The Town staff will evaluate the Water Shortage Percentage at least once

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<sup>4</sup> The Town may make a shortage stage declaration on a yearly, monthly, or other schedule as conditions warrant.

per year, or more frequently if conditions warrant, and will report the Water Shortage Percentage and recommend a Response Stage declaration to the Town Council. The Response Stages are:

**Response Stage 0** (Water Shortage Percentage is 1% or Less and CAP Water is Available for Future Storage)

**Stage 0 is the “Water Smart” Stage.** Cave Creek is a desert community. The Town’s goal is to continually conserve and store water consistent with living in an arid environment to maintain water demand at a level that is continuously below safe supply levels. This is a proactive condition that is year-round. During this stage, the Town will endeavor to find feasible and reasonable ways to store water that could be recovered for future use. The Town will educate and assist customers to live water smart through providing water savings information, outreach, and will pursue good operation and maintenance practices for Town facilities. The Town will encourage water conservation through its tiered water rate structure as a normal practice.

**Response Stage 1** (Water Shortage Percentage is 1% or Less with No CAP Water Available for Future Storage)

**Stage 1 is the “Water Watch” Stage.** At this stage, Town customers are expected to be able to receive most or all of the water they would take in a normal year, but the Town is unable to fulfill its future water storage goals due to CAP water shortages.

**Response Stage 2** (Water Shortage Percentage is between 1% and 6%)

**Stage 2 is the “Water Alert” Stage.** At this stage, Town customers must reduce their normal water use through intentional water saving actions, but the Town anticipates that voluntary actions can achieve the level of savings needed to match the available water supply. The Town is unable to fulfill its future water storage goals due to CAP water shortages.

**Response Stage 3** (Water Shortage Percentage is between 7% and 25%)

**Stage 3 is the “Water Emergency” Stage.** At this stage, Town customers must significantly reduce their normal water use through intentional and more difficult water saving actions. The Town anticipates that voluntary actions may not be sufficient to achieve the level of savings needed to match the available water supply. The Town is unable to fulfill its future water storage goals due to CAP water shortages.

**Response Stage 4** (Water Shortage Percentage is more than 26%)

**Stage 4 is the “Water Crisis” Stage.** At this stage, Town customers must reduce their normal water use through intentional water saving actions, but the Town anticipates that voluntary actions will be insufficient for the Town to achieve the level of savings required to match the available water supply. Strict limitations on water usage during this stage will be needed to reduce overall water demand. The Town is unable to fulfill its future water storage goals due to CAP water shortages.

## **Chain of Command**

The Town Council through the Mayor will announce all Water Supply Shortage Response Stage determinations at a public meeting and on the Town's web page. Prior to making such a determination, the Town Council will consult with the Utilities Director regarding the data available to support a determination of the Water Shortage Percentage anticipated for the relevant period of time.

The Utilities Director, in consultation with the Town Manager, will execute or delegate within the Town's staff the performance of the activities indicated for the Town staff to perform within this plan. The Utilities Director, in consultation with the Town Manager, will identify and make recommendations for the Town Council's consideration that requires a Town Council vote to implement any part of this plan, such as whether to fund an additional public outreach employee position to support public outreach.

**Nothing in this plan is intended to stop or delay the Mayor, the Town Manager, the Utilities Director, or other Town official or employee from immediately taking any emergency action reasonably needed to protect health and safety in a water shortage.**

# RESPONSES TO WATER SHORTAGES

## Demand Reduction Response Strategies

Demand reduction strategies incorporate a variety of automatic voluntary and involuntary measures, and optional measures as needed, to reduce water demand to match the available water supply. The plan includes five (5) levels of demand reduction strategies to be taken that correlate to each Response Stage above.

The Town is unsure of the specific quantity of overall water savings that can be achieved with each of the response strategies listed below as most of the savings will depend upon the reactions of the Town's residents to the measures.

The Town's water use is primarily residential but depending on the season the amount of outdoor water usage can vary greatly. The Town's summer peak water demands are almost double the winter demands. Summer demands typically occur from May to September but can last through October depending on the weather. Using data comparisons between the winter and summer months, the Town estimates that roughly 40 percent of the Town's overall water supply is used by customers for outdoor uses. Reduction of outdoor water uses will be important to achieving needed overall water use reductions, but the strategies must also address indoor water use.

The Town has a relatively small proportion of commercial and institutional water users that might have more flexible water demands. The Town may best address those users with targeted consultations to advise them regarding conservation options.

Overall water demand is likely to decrease with price increases set at an appropriately high level. Unfortunately, the relative levels of customer sensitivity and price among the Town's water customers may vary from customer-to-customer and vary from other communities where price sensitivity has been studied. Water shortage surcharges may be implemented by the Town and noticed to water customers. Surcharges on water use in less serious shortages should be focused on the highest water users rather than those customers already using small quantities of water.

The Town intends to avoid drastic prohibitions on water uses that will likely result in loss of landscaping or use of property unless such measures are needed to protect health and safety, but this plan addresses those circumstances.

The plan requires the Town staff to measure and report customer demand responses. This will allow adjustments to be made to increase water reduction amounts if and as needed throughout a shortage.

The demand reduction response strategies are:

### Stage 0 Responses

The goal in Stage 0 is to prevent water waste and to live “water smart.” The automatic response strategies to be taken during Stage 0 are:

- **Education and Outreach.** Town staff will, consistent with other staff duties and time demands, take the following actions:
  - Prepare and circulate public information regarding water conservation
  - Educate Town water customers regarding Town water policies, the Town’s water supply outlook, and customer water usage trends
  - Monitor grant opportunities and apply for grants for water conservation program elements such as water efficient plumbing devices, smart meters, and other infrastructure upgrades or program funding
  - Periodically audit customer water usage data to identify potential leaks and notify customers of apparent leaks
  - Provide indoor and outdoor water use audit services to customers
- **Tiered Water Rates.** Town will maintain its multi-tiered inverted block water rate structure that encourages water conservation by charging more per unit for higher water quantities
- **Town Housekeeping.** Town staff will continually work to reduce water leakage and waste in Town’s water infrastructure and facilities and will:
  - Track water usage data and water supply data for all customer accounts on a regular basis
  - Identify and replace broken or obsolete water meters on a regular basis
  - Update and implement a water loss reduction program on a regular basis with a continuous improvement goal
- **Ordinance Review and Updates.** Town staff will review and propose updated ordinances for Town Council consideration that will address all 5 stages in this plan.

## Stage 1 Responses

The goal in Stage 1 is to reduce customer water demands overall by at least 3%. The Town believes that, with adequate public information and encouragement, the following mostly-voluntary actions will allow the Town to reach its Stage 1 goal.

- **Continue Responses.** All of the responses in Stage 0 will continue to be pursued in Stage 1
- **Public Request for Specific Actions.** Request that customers voluntarily conserve 3%-5% of their normal water use quantity. Request that all customers do this by adopting as many of the following actions as each customer selects to reach the desired reduction:
  - Repair water leaks promptly and inspect frequently for leaks
  - Stop washing outdoor surfaces with a hose
  - Turn off outdoor misting systems
  - Empty unused fountains or pools
  - Wash vehicles and equipment less often, and only at car wash facilities that recycle wash water
  - Flush toilets less often
  - Take shorter showers
  - Wash laundry only when machines are full
  - Replace appliances with more water-efficient models
  - Replace plumbing fixtures with lower water use models
  - Turn off the tap when brushing teeth or lathering hands
  - Reduce outdoor watering times and/or days
  - Consider permanently replacing higher water use landscaping with low or no water use landscaping
  - Turn off automatic landscape water timers for a cycle after it rains
  - Install smart irrigation water timers/controllers.

- Run the dishwasher only when full of dirty dishes
- Restaurants should only serve water upon customer request and should take other steps to minimize dishes to be washed
- Hotels should encourage guests staying more than one night to forego daily clean towel replacement and cleaning to conserve water
- **Increase Town Education and Outreach Efforts.** The Town may add additional water conservation outreach employees or consultants to expand the Town staff ability to implement Stage 0 and Stage 1 public outreach, audits, and grant writing for conservation programs
- **Town Housekeeping.** Town staff will take further steps to:
  - Reduce fire hydrant flushing, but consistent with good operation and maintenance practices
  - Reduce washing of Town vehicles
  - Reduce outdoor watering at Town facilities

**Response Stage 2** (Water Shortage Percentage is between 1% and 6%)

The goal in Stage 2 is to reduce overall customer water demands by 6%, with the reductions to occur in a manner consistent with the Town’s plan priorities (see priorities on page 4, above)

- **Continue Responses.** All of the responses in Stages 0 and 1 will continue in Stage 2
- **Stage 2 Water Shortage Surcharge.** Town will charge a water shortage surcharge to both encourage further conservation and the proceeds of which will be used to cover any unrecovered fixed costs attributable to decreased water sales and to support the Town’s water conservation program. The amount of the Stage 2 surcharge will be a commodity price (price per gallon) set by the Town Council and will be charged only for a customer’s water usage that occurs in the Town’s three highest usage rate tiers (usage above 20,001 gallons per month).
- **No Construction Water.** The Town will cease selling construction water for projects through fire hydrants or other types of meters.
- **Optional Requirements Town May Impose as Needed to Reach Goal.** The Town may take any or all of the following additional measures as Town determines are needed to meet the goal:

- Require that outdoor landscaping be watered during certain hours or only up to twice per week during the warm season months, and only once during cool season months as directed by the Utilities Director.
- Prohibit outdoor water misting systems
- Prohibit outdoor water washing of hard surfaces with a hose
- Prohibit use of ornamental water fountains
- **Measure and Report.** Town staff will gather and report monthly water use data to the Town Council that compares current water use trends for the Town water systems for the same months in multiple periods with projections of the results of conservation efforts for the year or relevant shortage period. The Town Council will use the data to determine if additional response measures must be taken to meet the goal.

**Response Stage 3** (Water Shortage Percentage is between 7% and 25%)

The goal in Stage 3 is to reduce water demands by at least the total amount needed to match the actual water shortage need up to 25%. Because this stage is anticipated to require more data monitoring and flexibility in responses, in this stage, the Town, either by act of Town Council or by the Mayor pursuant to Town Code, may make emergency declarations at any time that require water customers to take additional actions to reduce water use.

- **Continue Responses.** All of the responses in Stage 0, Stage 1, and Stage 2 will continue in Stage 3
- **Stage 3 Water Shortage Surcharge.** Town will charge a water shortage surcharge to encourage further conservation. The proceeds of the surcharge will be used to cover any unrecovered fixed costs attributable to decreased water sales and to support the Town’s water conservation program. The amount of the Stage 3 surcharge will be a commodity price (price per gallon) set by the Town Council and will be charged only for a customer’s water usage that occurs in the Town’s three highest usage rate tiers. The Stage 3 surcharge should be set at a level the Town Council believes will achieve the reductions needed based upon the data and recommendations provided by the Town Utility Director, and the amount may be reset by the Town Council as more data regarding the success of the response becomes available.
- **Optional Requirements Town May Impose as Needed to Reach Goal.** The Town may take any or all of the following additional measures as Town determines are needed to meet the goal:

- Require that outdoor landscaping be watered during certain hours or only up to twice per week during the warm season months, and only once during cool season months as directed by the Utilities Director.
- Prohibit outdoor water misting systems
- Prohibit outdoor water washing of hard surfaces with a hose
- Prohibit use of ornamental water fountains
- Prohibit outdoor landscape watering
- Prohibit filling public or private swimming pools
- Increased enforcement of water waste ordinance
- Installation of flow restrictors on water service lines to high water use customers (including leaks) that repeatedly fail to comply with Town-required conservation or corrective actions
- **Measure and Report.** Town staff will gather and report monthly water use data to the Town Council that compares current water use trends for the Town water systems for the same months in multiple periods with projections of the results of conservation efforts for the year or relevant shortage period. The Town Council will use the data to determine if additional response measures must be taken to meet the goal.

#### **Response Stage 4** (Water Shortage Percentage is more than 26%)

The goal in Stage 4 is to reduce water demands by at least the total amount needed to match the actual water supply available. Because this stage is anticipated to require more data monitoring and flexibility in responses, in this stage, the Town, either by act of Town Council or by the Mayor pursuant to Town Code, may make emergency declarations at any time that require water customers to take additional response actions to reduce water use.

- **Continue Responses.** All of the responses in Stage 0, Stage 1, Stage 2, and Stage 3 will continue in Stage 4
- **Stage 4 Water Shortage Surcharge.** Town will charge a water shortage surcharge to both encourage further conservation and the proceeds of which will be used to cover any unrecovered fixed costs attributable to decreased water sales and to support the Town's water conservation program. The amount of the Stage 4 surcharge will be a commodity price (price per gallon) set by the Town Council and will be

charged for water use at all levels of use, but may be a higher charge at higher levels of use. The Stage 4 surcharge should be set at levels the Town Council believes will achieve the reductions needed based upon data and recommendations by the Town Utility Director, and the amount may be reset by the Town Council as more data regarding the success of the response becomes available.

- **Optional Requirements Town May Impose as Needed to Reach Goal.** The Town may take any or all of the following additional measures as Town determines are needed to meet the goal:
  - Require that outdoor landscaping be watered during certain hours or only up to twice per week during the warm season months, and only once during cool season months as directed by the Utilities Director.
  - Prohibit outdoor water misting systems
  - Prohibit outdoor water washing of hard surfaces with a hose
  - Prohibit use of ornamental water fountains
  - Prohibit outdoor landscape watering
  - Prohibit filling public or private swimming pools
  - Increased enforcement of water waste ordinance
  - Installation of flow restrictors on water service lines to high water use customers (including leaks) that repeatedly fail to comply with Town-required conservation or corrective actions
- **Temporary Groundwater Use and Use of Stored Water.** The Town will investigate and, if feasible, pursue the use of local groundwater and/or water previously stored underground to supplement the Town's water supply
- **Measure and Report.** Town staff will gather and report monthly water use data to the Town Council that compares current water use trends for the Town water systems for the same months in multiple periods with projections of the results of conservation efforts for the year or relevant shortage period. The Town Council will use the data to determine if additional response measures must be taken to meet the goal.

## **PLAN ENFORCEMENT**

All Town water customers are expected to comply with all plan response measures on a voluntary basis. It is the Town's goal to assist water customers as much as possible in fulfilling the goals in this plan. However, to protect all the Town's customers' fair access to available water, it may become necessary to enforce the provisions of this plan with more than consultation and encouragement for those customers that do not voluntarily reduce their water use in the expected manner.

The Town Code may include specific enforcement provisions, and it is not the intent of this plan to vary from the Town Code. This plan should be read together with the Town Code. All Town water customers within the Desert Hills water system, located outside the Town's incorporated boundary, are expected to comply with this plan and the Town Code as a condition of continuing to receive water service from the Town.

The enforcement methods that may be used at the Town's discretion considering the circumstances of each case are as follows:

- ❖ First written notice of violation and request to correct
- ❖ Second written notice of violation and demand to correct with doubling of water shortage surcharge until correction made
- ❖ Third written notice of violation and demand to correct with tripling of water shortage surcharge until correction made
- ❖ Installation of flow restrictors on water service lines where violations have not been promptly corrected
- ❖ Cost recovery actions for flow restrictor installation and removal costs and for any damage caused by customer violations
- ❖ Permanent termination of water service
- ❖ Any other enforcement actions authorized by law including injunctions and termination of service pursuant to Town Code.

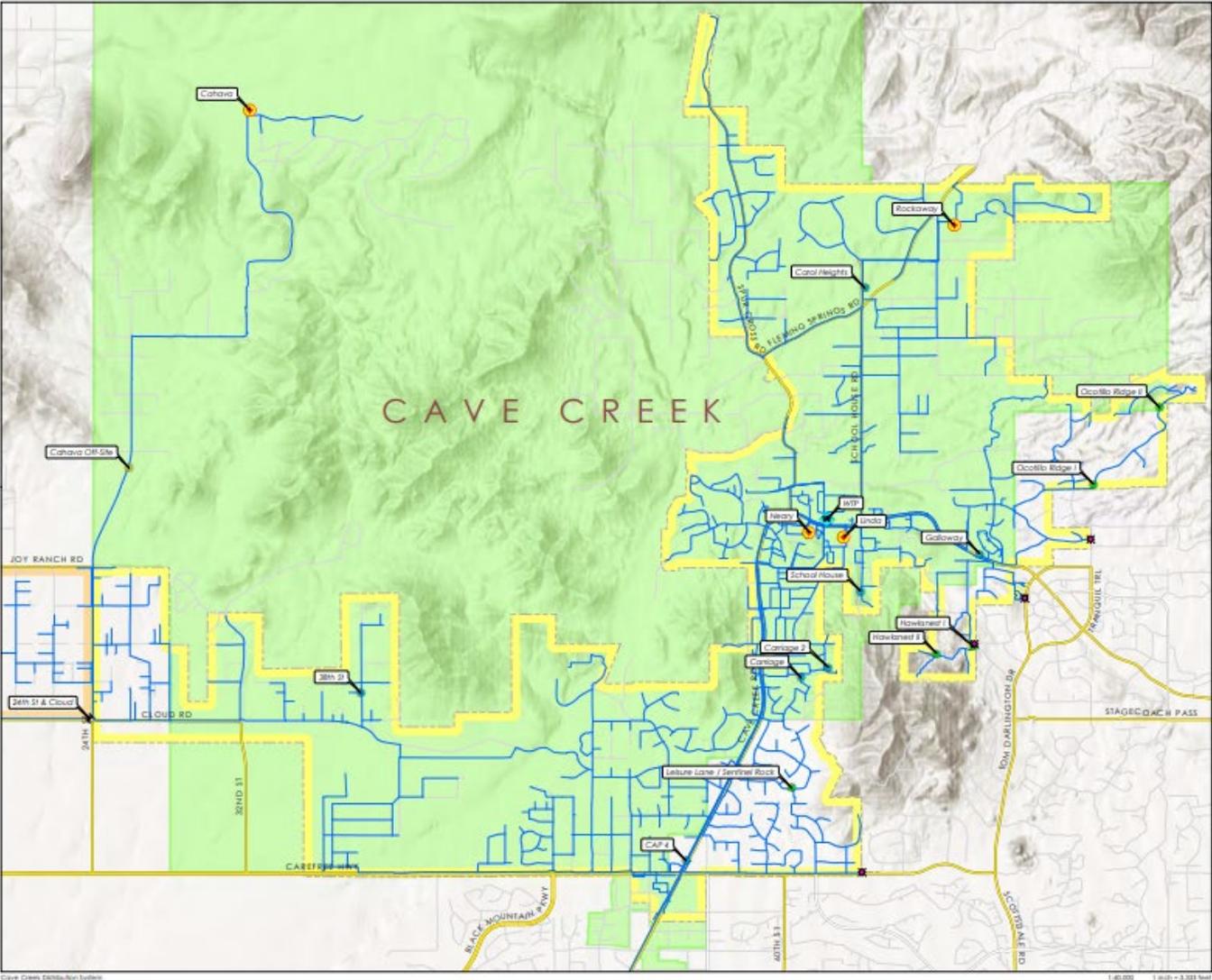
### **Appeal of Assessment of Violation Surcharges**

Pursuant to Title III, Chapter 31 of the Town Code, Customers desiring to dispute the violation surcharges described in the previous section of this plan must file a written request for the Town to reconsider the violation surcharge along with full payment of the violation surcharge within 30 days of being notified of a violation. Upon receipt of such request, the Town's appointed Civil Hearing Officer shall convene a hearing on the matter within 30 days of receiving the request. In the event the customer's appeal is successful, the payment, together with any interest accruing thereto, shall be returned to the customer.

# APPENDIX

**Map 1 – Cave Creek Water Service Area**

The Town of Cave Creek Service Area with associated distribution mains and significant sites are displayed on the map. (GIS data source: Town of Cave Creek, 2022)



**Cave Creek**  
Distribution System  
**Cave Creek**  
Water Service Area

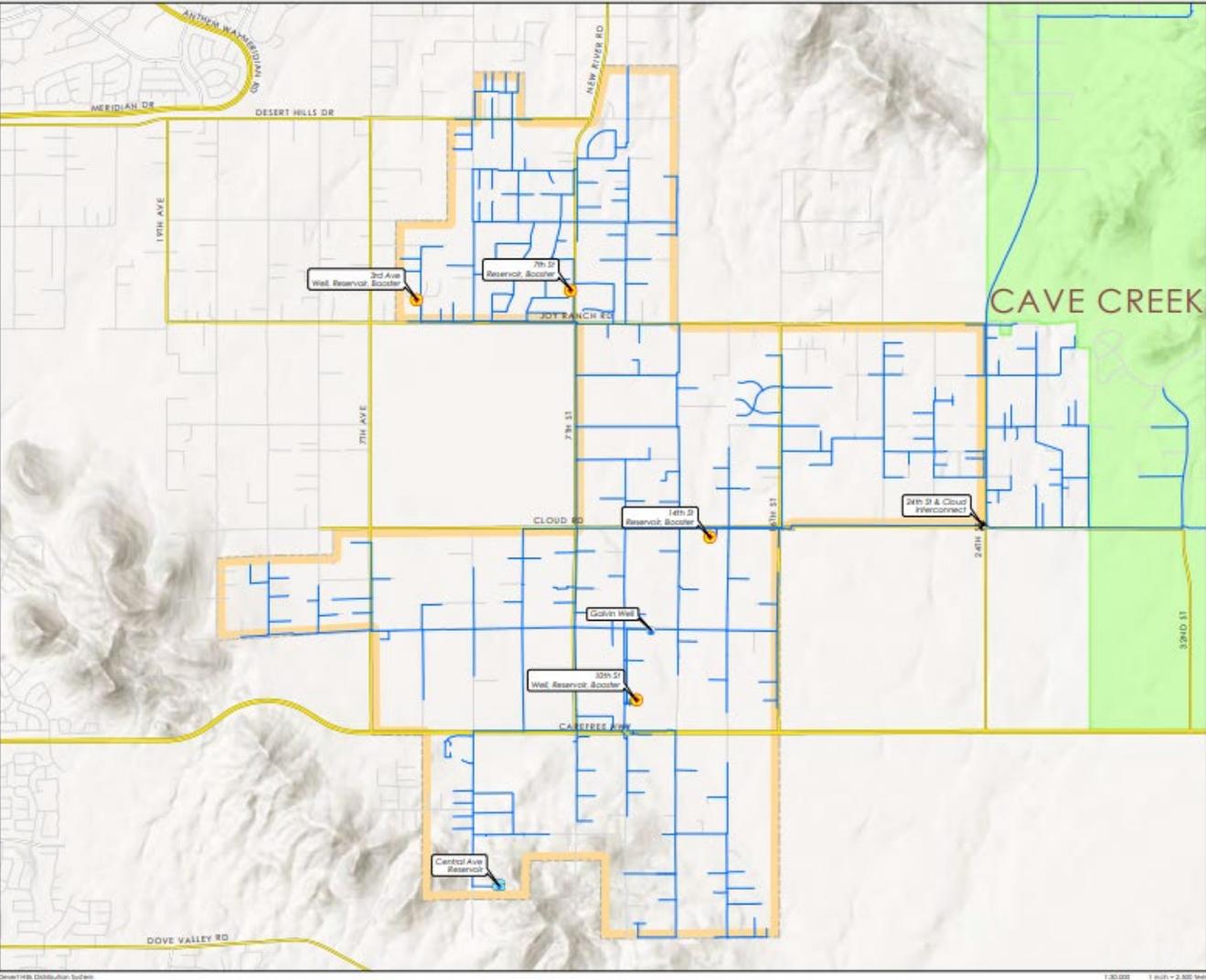


**Legend**

- Distribution Main**  
Main Status
- Active
  - Cave Creek Service Area
  - Desert Hills Service Area
  - Cave Creek Town Limits

**Map 2 – Desert Hills Water Service Area**

The Desert Hills Water Service Area with associated distribution mains and significant sites are displayed on the map. (GIS data source: Town of Cave Creek, 2022)



**Cave Creek**  
Distribution System  
**Desert Hills**  
Water Service Area



**Legend**

- Distribution Main
- Main Status
- Active
- Desert Hills Service Area
- Cave Creek Town Limits

Desert Hills Distribution System

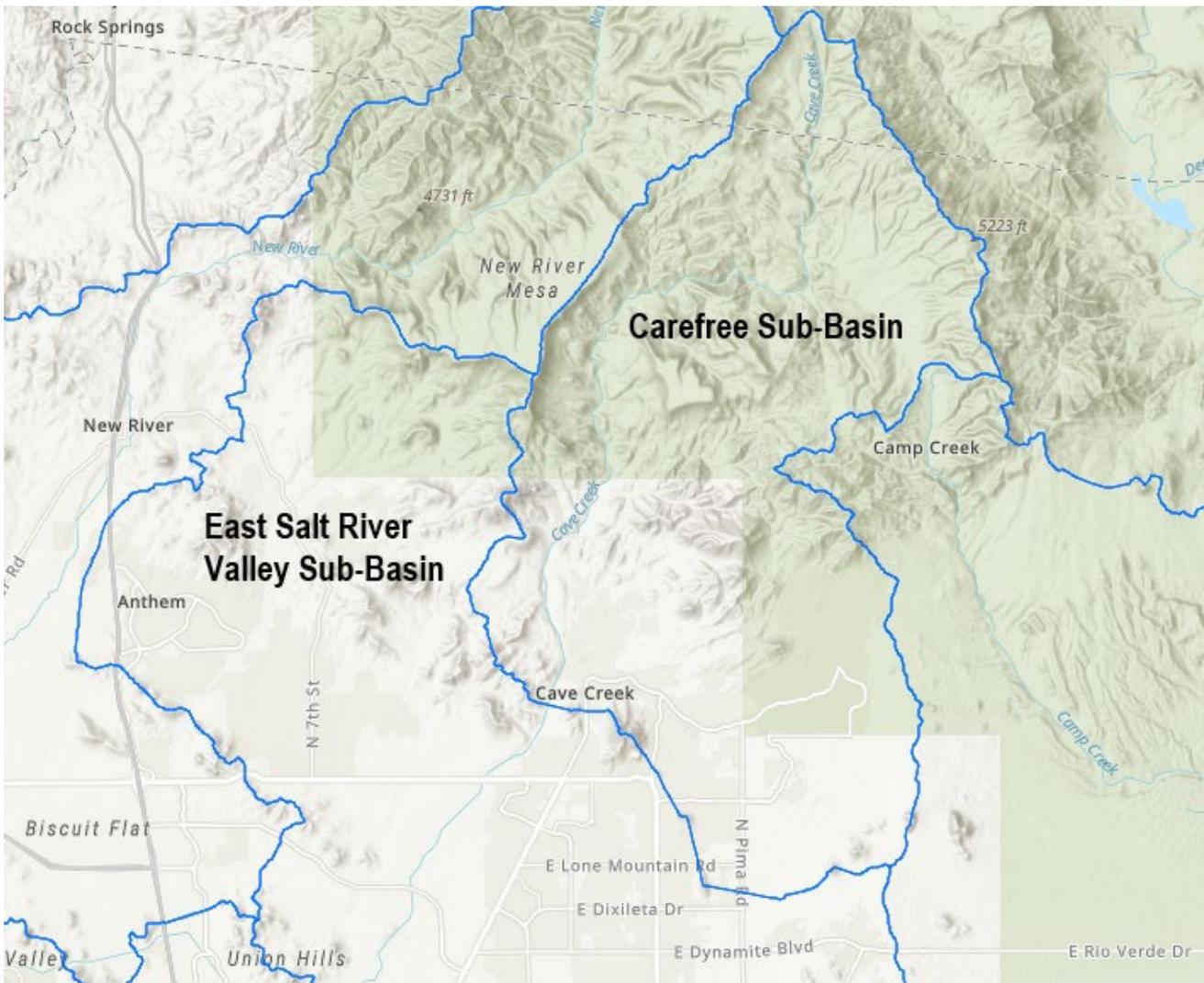
1:20,000 1 inch = 2,000 feet

1/24/2022

**Map 3 – Carefree Sub-Basin & East Salt River Valley Sub-Basin**

The Phoenix Active Management Area (Phoenix AMA) contains seven sub-basins, including West Salt River Valley, Hassayampa, Lake Pleasant, Carefree, Fountain Hills, East Salt River Valley, and Rainbow Valley Sub-basins.

The Town service area lies in the northern portion of the East Salt River Valley Sub-basin and the central portion of the Carefree Sub-basin, as shown on the map. (GIS data source: Arizona Department of Water Resources, 2022)



### Example of Water Shortage and Drought Declaration Calculation

The following is an example of the Water Storage calculations to be used in projecting the Drought Response Stage

<b>NORMAL WATER SUPPLIES VS. ESTAIMATED DELIVERIES</b>			
	<b>NORMAL SUPPLIES (AF)</b>	<b>PROJECTED FUTURE SUPPLIES (AF)</b>	<b>PROJECTED CUSTOMER USAGES (AF)</b>
CAP M&I Priority Water			
Deliveries to Cave Creek customer <sup>1</sup>			1,200
Deliveries to Desert Hills customers			650
Deliveries to Rancho Manana golf course			234
<b>CAP M&amp;I Priority Water Totals</b>	<b>2,228</b>	<b>2,005 <sup>1</sup></b>	<b>2,084</b>
CAP NIA Priority Water <sup>2</sup>	386	0 <sup>2</sup>	0
Desert Hill Ground Water	207	150 <sup>3</sup>	150 <sup>4</sup>
<b>Sub Total Future Projections</b>	<b>2,821</b>	<b>2,105</b>	<b>2,234</b>
<b>1% Buffer</b>			<b>22</b>
<b>Available for Recharge</b>	<b>440</b>		<b>0</b>
<b>Total Future Projection</b>			<b>2,256</b>
<b>Est Water Shortage Percentage</b>			<b>93%</b>
<b>Drought Response Stage (% of Supplies available to meet demands 1-6%)</b>			<b>Stage 3</b>

#### Footnotes

1. Assume 10% reduction in CAP M&I water supplies
2. Assume 100% reduction in CAP NIA water supplies
3. Assume future reductions in Desert Hills well production
4. Assume a total Desert Hill demand of 800 AF to be made up of CAP and Groundwater