Carmichael Water District

Water Shortage Contingency Plan

June 2016

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1.0 Summary

Carmichael Water District (District) maintains a Water Shortage Contingency Plan (WSCP) for use during drought periods or times of supply shortages. The WSCP is updated to reflect new conditions for the District or other changing supply scenarios. This update includes the considerations of the District's surface water treatment plant, contaminant plume from Aerojet Rocketdyne (Aerojet), Water Forum Agreement (WFA), American River flow standard negotiations, and regional efforts to standardize drought stage definitions. The WSCP serves as a guide for the District in responding to water supply shortages and responding to regional and state-wide impacts from drought or a catastrophic event (e.g., flooding) that impairs the District's water supply.

The District identifies five levels of water conditions. Except for the Normal Supply Stage, each water shortage stage presents a goal for increased demand reductions to meet the projected decreased supplies. Demand reductions are designed to minimize impacts to the District's customers and the community. The following principles were used to develop the demand reduction requirements for each stage.

- Maintain water quality, safe operating conditions, and fire flow capability at all times;
- Provide flexibility to residential customers while also promoting the efficient use of water during decreased demand requirements;
- Preserve landscaping as much as possible, with permanent plantings such as trees and shrubs receiving more importance than replaceable plantings such as turf and annuals;
- Maintain public fields as long as possible;
- Minimize economic impact to District customers and;
- Present regionally coordinated water shortage stage definitions to enhance public outreach and messaging simplicity.

The District's five levels of water conditions are listed. The levels are coordinated with the other water providers in the region in order to provide a consistent drought and water cutback message throughout the region. Each water provider uses these levels as their basis, and may customize specific actions under each stage to address the special needs of their specific customer base.

Normal Water Supply

Stage 1. Water Alert (up to 20 percent reduction).

Stage 2. Water Warning (up to 30 percent reduction).

Stage 3. Water Crisis (up to 40 percent reduction)

Stage 4. Water Emergency (Health and Safety Only) (up to 50 percent reduction)

2.0 Introduction

The District adopted a WSCP in 1992 and updated its plan in 2010. This 2016 revision updates the demand projections, modifies stage reduction targets/triggers, and incorporates a financial analysis from the District's 2015 Business Plan/Rate Study.

The Sacramento region has faced periodic drought conditions since the formation of the District in 1916. The more recent drought periods occurred during the 1976-1977 water year, 1987 to 1994 water years, and 2013 - 2015. The District has also faced water shortage conditions in recent times due to catastrophic events, such as occurred during the flood of 1997. In this instance, the District's Ranney collectors (intake structures) were damaged, reducing surface water supplies more than any prior drought. The District responded to this flood event with mandatory conservation measures including two day a week outdoor watering limits, increased water waste patrols and a heavy reliance on groundwater to meet all demands. These examples of prolonged drought and catastrophic event illustrate how the District has historically relied on its groundwater capacity and customer demand reduction. However, the current water supply situation is more complicated compared to previous years as water supplies and demands are now evaluated on a local, regional, and state-wide basis.

During the 2013-2015 drought, the District's appropriative water rights were curtailed by the State Water Resources Control Board (SWRCB) and made unavailable for use from May through October in 2014 and 2015. In addition the SWRCB adopted an emergency regulation that established tiers of required water reductions that emphasized reduced outdoor water use. In the SWRCB's regulatory framework, the District was placed in the highest tier requiring a 36% reduction in produced water compared to 2013. In response the District, under the authority of Section 350 of the California Water Code, declared a water shortage emergency condition and enacted reduction requirements under the existing WSCP. In addition The District entered into a Remediated Groundwater Purchase and Sale Agreement with Aerojet/Rocketdyne, Inc. (Aerojet) to immediately mitigate the impacts of the District's water shortage.

This WSCP is organized to give a summary of the District's current capabilities, summary of the potential threats to supplies, water shortage stages, and proposed District responses to implement during a water shortage condition. The District's supplies are summarized with a brief description of the local, regional, and ongoing state-wide issues that now impact the District and must be factored into decisions during water shortages or drought conditions. Drought stage declarations are based on the District's supply portfolio, but also factor in the supply conditions of neighboring water agencies, groundwater basin conditions region-wide, American River flows, and actions by the State of California. Supply options and demand management strategies for each stage are listed with proposed goals. Demand reduction strategies are presented along with a listing of additional efforts, including public outreach, to meet the goals of each stage. Implementation steps and efforts are summarized in a response table to be used for public outreach efforts and to serve as a program summary for District use.

3.0 Supplies and Demands

The District utilizes surface water and groundwater supplies to meet customer demands. A comprehensive discussion of supply sources, volumes, reliability, and current/future demands is presented in the latest version of the Urban Water Management Plan (2015 UWMP). The supply and demand information from the UWMP is summarized in this section.

3.1 Supplies

The District supplies a mix of surface water and groundwater to its customers. Surface water is collected in three Ranney collectors from underneath the American River. The raw water is treated through membrane filtration at the Bajamont Water Treatment Plant (WTP) and pumped into the distribution system. Groundwater is available from five wells to be pumped into the distribution system. In general, during normal years, the District relies on groundwater to meet about 15 to 30 percent of its total supply, and 70 to 85 percent from surface water on an annual calendar year basis. These values will vary depending on time of year, American River flow conditions, maintenance requirements, water shortage conditions, or other factors.

The District's surface water supplies are secured through two licensed water rights and one permitted water right. The District utilizes these three post-1914 appropriative rights to the natural flow of the American River to divert up to 50 cubic feet per second (cfs), depending on the season of use and the correlating hydrological conditions. The WTP is rated for a maximum day capacity of 22 million gallons per day (mgd).

The District operates five groundwater production wells, with four of these wells providing the primary groundwater supply for daily peak demand management, and one well serving as backup that is activated when necessary to maintain adequate system pressure. The groundwater estimated available supply is 6,646 acre-feet per year. The wells are generally located in the northern and western portions of the District's service area. All wells pump from the North American Groundwater Subbasin. The subbasin is used by all the region's groundwater pumping agencies north of the American River. Subbasin operations are subject to a Groundwater Management Plan developed through the Sacramento Groundwater Authority (SGA) in 2008. The District is a member of the SGA.

The District recently negotiated a remediated groundwater supply agreement with Aerojet that will supply water to the District in average and critically dry years. Aerojet has agreed to provide 2,200 acre-feet per year of water to the District.

3.2 Interconnections with Other Agencies

The District maintains six interconnections with four other neighboring water agencies. There are four interties with Sacramento Suburban Water District, one with Citrus Heights Water District, one with Fair Oaks Water District, and one currently under construction with Golden State Water Company. These interconnections can be used by either agency to provide emergency supplies in the event of short-term outages.

Although not used for long-term supply service yet, the interconnections could technically be used to augment supply to either agency.

3.3 Regional Planning Efforts

Three regional planning efforts impact the supply strategies for most of the public water agencies in the Sacramento area. These efforts include the Water Forum Agreement (WFA), The Regional Water Authority (RWA), and the SGA.

The WF is a stakeholder-based process that was initiated to address water resources issues in the Sacramento region. The WF process created the WFA in January, 2000. Each of the water agencies participating in the process signed a purveyor-specific agreement that defines supply and demand management options for three types of hydrologic years.

The RWA and SGA are sister agencies that work together to implement supply and demand management efforts that help support the WFA agreements. The RWA is the lead planning agency for the integrated resources water management plan (IRWMP), which was created from previous regional planning efforts. The IRWMP provides the framework for regional conjunctive use strategies.

The SGA is the groundwater-specific regional planning agency. The SGA Groundwater Management Plan was created, in part, to address the declining groundwater levels the basin has experienced for many years and the contamination plumes known throughout the basin. The basin is generally described to be in recovery. The intent of the plan is to create a conjunctive use operating strategy amongst all the pumping agencies in an effort to stabilize the basin level and control the contaminate plumes. The Groundwater Management Plan is now used as a key element in the IRWMP to support conjunctive use strategies.

3.4 WFA Supply Restrictions

Efforts from the WFA, RWA, and SGA impact the District's supply availability and reliability. As part of the planning efforts and negotiated agreements, the District agreed to certain supply limitations, related to the District's ability to divert water from the lower American River, in order to improve the management, condition, and use of the region's water resources. The following lists the supply restrictions.

The WFA addresses three water supply scenarios and assigns water supply volumes for each agency. The District's WFA agreement is as follows:

1. **Normal/Wet Year:** Projected March through November inflow to Folsom Reservoir is greater than 950,000 acre-feet.

   Supply Impact. No impact to District's surface water supply. District is allowed to divert up to 14,400 acre-feet. It is assumed that District diversions will be reduced to baseline value of 12,000 acre-feet per year by 2030.

2. **Drier Years (Hodge Year):** Projected March through November inflow to Folsom Reservoir is less than 950,000 acre-feet and equal to or greater than 400,000 acre-feet.

   Supply Impact. No impact to District's surface water supply. District is allowed to divert up to 14,400 acre-feet. It is assumed that District diversions will be reduced to baseline value of 12,000 acre-feet per year by 2030.

3. **Driest Years (Conference Year):** Projected March through November inflow to Folsom Reservoir is less than 400,000 acre-feet.

   Supply Impact. No impact to District's surface water supply. District is allowed to divert up to 14,400 acre-feet. It is assumed that District diversions will be reduced to baseline value of 12,000 acre-feet per year by 2030. However, in these years, there may not be enough water to provide to all surface water diverters on the Lower American River, and a conference may be required to develop management and allocation procedures.

The SGA Groundwater Management Plan and other regional planning efforts by RWA and its predecessors have identified groundwater pumping limitations. For the District, the groundwater pumping limitation is set at no more than 40 percent of total system demand. The 2015 UWMP lists the planned groundwater supply available to the District at 6,646 acre-feet per year. Supplies and demands are summarized after the demand discussion presented herein.

3.5 Other Impacts to Supply

There are many other potential impacts to supply that the District will need to monitor. As these issues are better understood, the District will incorporate the potential supply or demand impacts into its water supply planning programs.

Retention of Conserved Water. The District's conservation program results in a supply surplus due to saved water. The Board of Directors has passed a resolution (05182009-1) retaining ownership and control of all conserved water. This allows the District an added flexibility in its conjunctive use strategy and potential surface water management options related to water transfers.

Aerojet Plume. A groundwater contamination plume attributed to Aerojet historical operations was first detected in groundwater south of the American River in 1979. Since that time, Aerojet has installed groundwater treatment facilities and has conducted other efforts to treat and control the plume migration. However, in 2004 the plume was detected north of the river, in a monitoring well located near Ancil Hoffman Regional Park. The District responded with a coordinated effort consisting of Aerojet and Federal, State, and County regulatory agencies. Groundwater Extraction and Treatment (GET)

facilities have been constructed near the American River side of the District's service area, with the treated water used to irrigate the Ancil Hoffman Regional Park and golf course. The remaining treated water is discharged to the American River. Still, the groundwater contamination plume serves as a threat to groundwater quality for water agencies nearest the plume. If the plume contaminates these agency's production wells, the wells may be removed from service, resulting in a corresponding supply loss. Any supply loss by these agencies may impact the supplies of its neighboring agencies as they may need to purchase new water or alter pumping operations to limit losses from the plume.

Other groundwater contamination. There are other sources of groundwater contamination within the District. Gas stations and dry cleaning facilities can often times be the source, but contamination can come from a wide variety of sources. These types of contamination are usually more localized than a widespread plume, such as the Aerojet plume. However, if located near a production well, the effect is the same in that the well may be removed from service. Any loss of production capacity will impact the District's supply reliability and will require a pumping and operational strategy adjustment.

Catastrophic. Catastrophic losses are defined as sudden and complete loss of supply. Losses can be caused by floods, power outages, contaminating spills, security breaches, equipment failure, or others. However, the loss is assumed to be short term as opposed to the permanent or long-term loss of a supply. These types of events are addressed in the District's emergency response plan. Depending on the length of supply loss, the District may be required to declare a water shortage and implement reduction stage rules in order to decrease demands to the available supplies at that time. If the water treatment plant production capacity is lost, the District will most likely need to implement demand management measures to meet peak day requirements.

3.6 Demands

The District's service area is mostly built out with only infill development projects expected in the coming years. The District has experienced less than 0.2 percent annual growth over the last 10 years, and 10 percent total growth projected by 2050. 2025 demand projection for the District are estimated at 10,300 acre-feet per year (2015 UWMP). An underlying assumption in the WFA is that the District will reduce its 2030 demands down to 12,000 acre-feet per year through demand management measures. The District has already experienced a reduction in demand following the completion of its meter installation program. The District has fully met its current WFA reduction goals. With a full conservation program in place, including demand management measures, the District projects demands to stabilize at 10,334 acre-feet per year by 2040.

3.7 Supply to Demand

The 2025 projected demand is used as a conservative demand forecast to compare to supplies under the identified shortage scenarios in Table 1 and Table 2. Theoretically,

the District has sufficient supplies to meet all but the Driest Year conditions when there is insufficient American River flow to meet the District's needs. However, the District acknowledges that water resources management must consider the regional perspective in order for each agency to meet its customer demands. There are many agencies in the region that do not have as-senior water rights, or any surface water at all. Agencies with lower supply reliability rely on water transfers, increased groundwater pumping, and other exchanges that impact the region's supply picture during water shortages. For these reasons, the District's drought response triggers are impacted by regional supply scenarios as well as District-only supply issues.

Table 1. Supply to Demand Comparison (acre-feet per year)

	Average/Wet Years	**Single Dry Year**	**Driest /Multiple Years**
Surface Water	32,627	14,480	14,480
Groundwater	6,646	6,646	6,646
Total Supply:	39,273	21,126	21,126
Projected 2025 Demand	10,300	10,300	10,300
Surplus	28,973	10,826	10,826
Shortage	--	--	--

Although Table 1 indicates sufficient supplies even during the Driest Years, the supply situation throughout the State is changing rapidly. The values in Table 1 reflects the 2015 UWMP. However, ongoing supply and infrastructure issues throughout the region and State may impact future supply reliability.

During times of extreme statewide water supply shortage, the SWRCB may deem that water supply in the Sacramento River watershed is insufficient to meet the needs of all water rights holders. The SWRCB could order the District to immediately stop diversions of water from the American River. In such extreme cases, curtailments would render the District's supplies vulnerable during certain months of the year. This was the case during the 2013-2015 drought, when the District's appropriative water rights were curtailed and made unavailable for use from May through October in 2014 and 2015.

Table 2 reflects these monthly supply shortages that would trigger the WSCP reduction stages.

Table 2. Monthly Drought Supply to Demand with Curtailment (acre-feet per year)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Surface Water Supply	2719	2719	2719	2719	0	0	0	0	0	0	2719	2719	16314
Ground Water Supply	554	554	554	554	554	554	554	554	554	554	554	554	6646
GET Supply	183	183	183	183	183	183	183	183	183	183	183	183	2200
Projected 2025 Demand	415	415	445	735	1140	1340	1450	1340	1040	940	625	415	10300
Surplus	2858	2858	2828	2538	0	0	0	0	0	0	2648	2858	16587
Shortage	0	0	0	0	403	603	713	603	303	203	0	0	2827
Conservation Target	0%	0%	0%	0%	35%	45%	49%	45%	29%	22%	0%	0%	

4.0 Water Shortage Stages and Triggers

Supply scenarios are used as triggers to declare water shortage stages. Demand reduction goals and supply and demand management strategies are then implemented for each stage. The District also uses other factors as triggers for water shortage stages. The WFA restrictions, the regional supply scenario, supply needs of adjacent water agencies, or State mandates can trigger stages. This section presents the District's water shortage stages, potential triggers, and recommended demand reductions.

4.1 Water Shortage Contingency Plan Principles

The intent of this drought plan is to limit the impact to customers from reduced supply situations. Customer compliance with early water shortage stages should minimize the requirements for the severe cutbacks listed in later stages. The District created the requirements for each stage based on the following principles.

- Maintain water quality, safe operating conditions, and fire flow capability at all times;
- Provide flexibility to residential customers while also promoting the efficient use of water during decreased demand requirements;
- Preserve landscaping as much as possible, with permanent plantings such as trees and shrubs receiving more importance than replaceable plantings such as turf and annuals;
- Maintain public fields as long as possible;
- Minimize economic impact to District customers and;
- Present regionally coordinated water shortage stage definitions to enhance public outreach and messaging simplicity.

4.2 Water Shortage Stages and Triggers

Although the supply and demand analysis indicates the District's supply reliability is relatively high, there are situations that may require the District to declare water shortage stage conditions. The District's policy is to factor in WFA conditions or regional drought stages when declaring its own drought stage. This supports the region's efforts to collectively manage the groundwater basin, and prepares the District for potential changes to supply sources to avoid extreme water shortages within certain neighboring districts. This approach is intended to minimize confusion among the region's many water agency customers and to promote an equitable supply management strategy for the entire region. Table 3 lists each drought stage, potential triggering events, and recommended demand reduction goals.

The region's water agencies coordinate closely with water supply planning issues, implementing conjunctive use strategies, and potential supply shortages. The stages listed below in Table 3 are used by many agencies in the region. However, each agency will declare its own drought stage based on its specific supply and demand scenario.

Table 3. Stages and Triggers

Stage	Triggering Conditions	Demand Reduction Goal
Normal Water Supply	All demands can be met by the conjunctive use of groundwater and surface water.	Customer demand is within assigned normal year water budget or within 12,000 acre-feet per year per the WFA.
Stage 1 – Water Alert	A shortage is predicted to occur in the coming months and customers should begin demand cutbacks. Several water agencies in the region have declared a shortage requiring up to 20 percent cutback. It is up to discretion of Board of Directors to determine if other agency stage declaration is significant enough to cause a triggering event.	Up to 20 percent.
Stage 2 – Water Warning	Supply is up to 30 percent less than normal demand. Several water agencies in the region have declared a shortage requiring up to 30 percent cutback. It is up to discretion of Board of Directors to determine if other agency stage declaration is significant enough to cause a triggering event. Curtailment of one or more license/permit is issued from the State. State has issued Emergency reduction requirements.	Up to 30 percent.
Stage 3 – Water Crisis	Supply is up to 40 percent less than normal demand. Several water agencies in the region have declared a shortage requiring up to 40 percent or more in demand cutback. It is up to discretion of Board of Directors to determine if other agency stage declaration is significant enough to cause a triggering event. Curtailment of one or more license/permit is issued from the State. The State has issued Emergency reduction requirements.	Up to 40 percent.
Stage 4 – Water Emergency (Health and Safety Only)	One of supply sources is unavailable. Supply more than 50 percent less than normal demand. Another water agency in the region has declared a shortage requiring up to 50 percent or more in demand cutback. It is up to discretion of Board of Directors to determine if other agency stage declaration is significant enough to cause a triggering event. Curtailment of all license/permit is issued from the State and replacement supplies are unavailable. The State has issued Emergency reduction requirements.	Demand reduction based on specific circumstance of supply failure to be determined by District. Initial minimum demand cutback set at 50 percent pending District's evaluation of supply loss.

4.3 Supply Trigger Monitoring

Water supply availability is monitored on a continual basis. There are multiple elements monitored to establish drought or water shortage stages. Each condition will have its own specific circumstances used to determine which stage to declare.

Water Forum - Folsom Reservoir Inflow. Inflow values are used by the WFA to determine hydrologic year type and subsequent supply availability. The District's surface water supply is currently not impacted by this trigger except during extreme drought. In extreme drought there may be insufficient flows in the Lower American River to meet the District's supply permit.

Bajamont WTP Capacity. Available production capacity is monitored to indicate any potential decreases. Production capacity could be decreased by scheduled maintenance within the plant, mechanical failure of equipment, or if river flow is less than 500 cfs. The Ranney collectors have also been susceptible to flood events. At high flows in the river, the collectors can either be ineffective or unusable, creating a supply shortage.

Groundwater Well Capacity. Groundwater production capacity could be decreased by scheduled maintenance for a well, mechanical failure of equipment, power outage, or other natural disaster events. Wells can also be impacted by water quality. All wells are monitored on a regular basis for water quality standards. If water quality is decreased to below acceptable standards, a well may be placed out of service until the situation is remedied. In the case of contaminated groundwater, the well may have to be placed out-of-service indefinitely. The impact to overall supply reliability will then be reevaluated by the District.

Aerojet Plume. The contaminated groundwater plume from the Aerojet site in Rancho Cordova has been detected on the north side of the American River, in and around Ancil Hoffman Regional Park. Monitoring wells have been installed to monitor the progress of the plume. Should the plume approach current production wells, the District will determine the impact to supplies and update the supply reliability analysis and strategy.

Neighboring Agency Intertie Activity. A neighboring agency may request emergency supply through one of the existing interconnections. The District will work with the requesting agency to determine the volume and duration requested and impacts to District supplies. Based on the situation, the District may decide to implement demand reduction measures.

Regional Supply Situation. Other agencies in the region may experience supply shortages that require water shortage declarations. The District will monitor these declarations and corresponding demand reduction requirements for consideration in determining the District's water shortage stage.

State Supply Situation. Similar to the Regional Supply Situation, other regions in the state may suffer supply shortage and need to declare water shortage stages. Depending on the extent and impact of statewide issues, the SWRCB may issue emergency production reduction goals or requirements for all water users. Additionally the State may curtail surface water rights (as was the case in 2014 and 2015). The District will monitor statewide issues and actions to determine impacts to District supplies.

5.0 Response Plan

Each water shortage stage is assigned a water demand reduction goal. This section presents the options for implementation to achieve demand reductions with each stage. Penalties for violations are presented at the end of this section.

5.1 Water Forum Response Plan

The District supplies are not impacted by WFA restrictions, except in extreme instances. If the Folsom Reservoir falls to below 400,000 acre-feet, there may not be enough water in the American River to meet all demands, and a conference will be convened to resolve supply allotment. However, the supplies of many other water agencies in the region are reduced through the various flow conditions addressed in the WFA. To support the WFA, other local water agencies, and the goals of regional water supply management, the District may implement a response plan when WFA restrictions are in place.

1. Public Information. Develop special message regarding WFA restrictions on regional water supplies. Utilize District website, lobby notices, bill notes, newsletters, outreach and speaking opportunities to deliver message.

5.2 Normal Water Supply

Prevention of waste and unreasonable use of water in effect as follows:

Restrictions

1. Unnecessary and wasteful uses of water are prohibited.
2. No water runoff from property allowed.
3. All water plumbing, fixtures, or heating or cooling devices must not be allowed to leak or discharge. All known leaks must be repaired within seven (7) days or less depending on the severity of the leak.
4. Free flowing hoses are prohibited for any use, all hoses must have an automatic shut-off control nozzle capable of completely shutting off the flow of water.
5. Car washing must use a bucket and hose with an automatic shut-off control nozzle.
6. All pools, spas, decorative or ornamental fountains, ponds and water features must be equipped with a recirculation pump and maintained leak free. Internal and external water leaks must be repaired within seven (7) days or less depending on the severity of the leak.
7. All landscapes must be watered during cooler morning or evening hours to reduce evaporation and minimize landscape runoff. No watering allowed between the hours of 10 a.m. and 7 p.m.

8. No irrigating turf or ornamental landscapes during and 48 hours following measurable precipitation.

Recommendations

1. Pool covers should be used to minimize evaporation.
2. During summer, outdoor watering three days a week is usually sufficient for typical landscape.
3. Use high efficiency plumbing fixtures and washing full loads of laundry and dishes.
4. No serving of drinking water other than upon request in food and beverage establishments.

Actions

1. Water rate structure in normal rate conditions. See rate structure for detailed information.
2. Water Efficiency Program. Normal conditions. See implementation plan for conservation program details.
3. Public Information. Efforts and messages to promote the efficient use of water.

5.3 Stage 1 – Water Alert (up to 20 Percent Reduction)

All Normal Water Supply conditions are in effect unless more restrictive measures are listed for Stage 1.

Restrictions

1. Outdoor watering restricted to three (3) days per week according to odd/even schedule. Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.
    a. Watering schedule to be developed specifying days and times allowed.
2. New landscape installations should be limited to drought-tolerant plants and natives.
3. Car washing only on designated watering days using a bucket and hose with an automatic shut-off control nozzle.
4. Washing sidewalks, patios, and other hard surfaces is prohibited unless required for public health and safety needs.
5. Restaurants to only serve water to customers on request.

Actions

1. Top 20 percent of water users in each parcel acreage category are contacted and offered water efficiency and other program services.
2. Water Efficiency Program. Additional staff and resources may be allocated to conduct an expected increase in requests for water audits, water efficiency device distribution, landscape budgets, and other programs offered as part of the Districts water efficiency program.
3. Public Information. Increase frequency of public campaign through usual media content. Develop/revise message and content to reflect Stage 1 issues and requirements.
    a. Utilize regional partnerships for messaging and implementation.
    b. Update District website.
    c. Push info to media outlets (radio, print, web, TV) with message and results to date.
    d. Develop and distribute drought information to customers.

5.4 Stage 2 – Water Warning (up to 30 Percent Reduction)

All Stage 1 requirements and actions are in effect unless more restrictive measures are listed for Stage 2.

Restrictions

1. No filling of swimming pools, ornamental fountains, water features, or ponds allowed, except to maintain levels or for health and safety (waiver must be filed with District explaining health and safety conditions).
2. Outdoor watering restricted to two (2) days per week according to odd/even schedule. Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.
    a. Watering schedule to be developed specifying days and times allowed.
    b. Further restrictions may be enacted during cool/wet season.

Actions

1. District to evaluate and enact drought surcharge rates if necessary.
2. Conservation Program. The District will consider retrofit programs and advertising through public outreach efforts. District to determine cost effectiveness and whether or not to offer rebates. i.e. evapo transpiration - controllers, high efficiency washer, etc.
3. Public outreach. Update message for up to 30 percent demand reduction.
    a. Increase school presence by offering presentations and materials.
    b. Display signs alerting public of reduction drought stage.
    c. Update website with current demand reduction information.
    d. Offer presentations to all local civic groups, HOAs, and neighborhood associations. Work with groups to post District literature or links on respective websites, email lists, or meetings.
    e. Special mailing to customers notifying drought stage and copy of Stage 2 requirements.
    f. Coordinate message with RWA depending on purpose of stage declaration.
    g. Update drought message with local media outlets regarding requirements.

5.5 Stage 3 – Water Crisis (up to 40 Percent Reduction)

All Stage 2 requirements are in effect unless more restrictive measures are listed for Stage 3.

Restrictions

1. Outdoor irrigation. Outdoor irrigation only allowed one (1) day per week according to odd/even schedule. Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.
    a. Watering schedule to be developed specifying days and times allowed.
    b. Further restrictions may be enacted during cool/wet season
2. Filling of swimming pools, ornamental fountains, water features, or ponds will require prior approval from the District and will be evaluated on a case-by-case basis.

Actions

1. Main flushing program modified for only emergency needs.
2. District to enact or modify drought surcharge rates if necessary.
3. Irrigation of public spaces only allowed to maintain irreplaceable trees and shrubs. Playing field irrigation allowed on a case-by-case basis per District evaluation.
4. Public outreach. Update message for 40 percent demand reduction.
    a. Repeat increased school presence.
    b. Update signage.
    c. Update website with current demand reduction information.
    d. Repeat offer of presentations to all local civic groups, HOAs, and neighborhood associations. Work with groups to post District literature or links on respective websites, email lists, or meetings.
    e. Special mailing to customers notifying drought stage and copy of Stage 3 requirements.
    f. Coordinate message with RWA depending on purpose of stage declaration.
    g. Update drought message with local media outlets regarding requirements.

5.6 Stage 4 – Water Emergency (Health and Safety Only) (Up to 50 Percent Mandatory Reduction)

Under Stage 4, water should only be used for health and safety reasons. All Stage 3 requirements are in effect unless more restrictive measures are listed for Stage 4.

Restrictions

1. No irrigation allowed.
2. Water use for public health and safety purposes only.

Actions

1. If local shortage only, attempt to obtain additional supply through emergency connections or additional surface water diversions.
2. Maintain drought surcharge rates and modify as necessary.
3. Public outreach. Update message for required mandatory demand reduction.
    h. Repeat increased school presence by offering presentations and materials.
    i. Update website with required percent demand reduction information.
    j. Repeat offer of presentations to all local civic groups, HOAs, and neighborhood associations. Work with groups to post District literature or links on respective websites, email lists, or meetings.
    k. Special mailing to customers notifying drought stage and copy of Stage 4 requirements.
    l. Coordinate message with RWA depending on purpose of stage declaration.
    m. Update drought message with local media outlets regarding requirements.

5.7 Penalties

The following lists the fines and fees for violation of the WSCP requirements. Violations and penalty assignment are at the discretion of the District. It is the District's intent to promote awareness and provides assistance to its customers to meet both normal and drought stage requirements. Should customer actions warrant, the District will issue violations and levy fees and fines as appropriate. Customer may appeal to the District, who will act in a timely manner to resolve the issue.

Each day that a violation occurs may be considered a separate offense. In cases of severe flooding or property damage the District may discontinue water service prior to any verbal or written communication. Fines and fees may be imposed at the District's discretion. Penalties for failure to comply with any provisions of the WSCP are as follows:

1. First Violation: The District will provide a written or verbal warning and a copy of WSCP requirements to the account owner. It is up to the discretion of the District to also attempt to contact the resident verbally regarding the violation.
2. Second Violation: A second violation is punishable by a fine of fifty dollars ($50). Nonpayment will be subject to the same remedies as nonpayment of basic water rates.
3. Third Violation: A third violation is punishable by a fine of two hundred dollars ($200). Nonpayment will be subject to the same remedies as nonpayment of basic water rates.
4. Fourth and Subsequent Violations: A fourth and any subsequent violation is punishable by a fine not to exceed five hundred ($500). Nonpayment will be subject to the same remedies as nonpayment of basic water rates. In addition, the District may choose to disconnect service.

   Discontinuing Service: the District may disconnect a customer's water service for willful violations of mandatory restrictions in this WSCP. District will send written notice of intent to disconnect service to the customer. The customer will have five business days to correct violation and pay all accrued fines and fees. District will disconnect service after the sixth business day after receipt of notice to the customer. If service is disconnected Shut Off/Disconnection/Reconnection fees will apply based on current fiscal year fee schedule. All other applicable fines listed above shall apply.

   All fines and fees must be paid in full prior to service reconnection. Nonpayment will be subject to the same remedies as nonpayment of basic water rates.

6.0 Implementing the Water Shortage Contingency Plan

Implementing each stage of the plan will require District pre-planning, training, budgeting, staffing, and communications. This section presents the main elements required for each stage. Implementation requirements are presented to maintain the plan and for each stage declaration. The District will develop implementation details and schedules that are specific to the circumstances for each stage declaration.

6.1 Maintaining the Water Shortage Contingency Plan and Proactive Demand Management Measures

Achieving demand reductions during water supply shortages relies on maintaining a continuous proactive demand management strategy. The District's water efficiency program, leak detection program, and rate program provide the tools to manage demands. Maintaining these programs and efforts will greatly improve supply and demand management scenarios during water shortages.

The District prepares for water shortage stages by maintaining the WSCP current and by updating its water efficiency program, leak detection strategy, and rate structure. The WSCP is updated to reflect new supply and demand conditions, new supply and reliability issues, and new or modified policies. The water efficiency program is updated to reflect implementation results and water savings.

The leak detection strategy focuses on testing an average of 10 percent of the system every year. This program ensures water loss is kept at a minimum. As of 2015, the distribution system loss is estimated to be 9 percent.

6.2 Revenue and Expenditure Impacts

The District's rate structure is reviewed and updated generally on a five-year cycle. The District's current rate structure is based on the following elements:

- A two-tier water usage rate structure for single-family customers. The initial tier rate will apply to the first 12 CCF of water use by each customer during a two-month (bimonthly) billing cycle (1 CCF = 100 cubic feet = 748 gallons). The second tier rate will apply to all bimonthly water usage above 12 CCF. A uniform water usage rate is applied to condominium, multi-family and non-residential customers.
- A consistent and uniform set of bimonthly service charges based primarily on the size of the water meter.

The District's finances can be affected in several ways by water shortage conditions. Changes in operating and maintenance costs and revenues can include:

- Reduced water sales and water sales revenue;
- Reduced pumping and other water production and treatment costs;
- The need to purchase water and incur water purchase costs; and
- Increased water conservation program costs.

While the reduction in water sales revenue will be partially offset by reduced production and treatment costs, revenue will decline more than costs creating a financial deficit. Increased water conservation program costs, and the potential need to purchase water, add to the financial deficit created by water shortage.

The District's 2015 Business Plan/ Rate Study identified the following potential courses of action in response to water shortage, and the financial deficit created:

- Using money available in the Rate Stabilization Reserve Fun;
- Supplementing water rate revenues through imposition of water shortage rate surcharges when certain conditions exist; and
- In the more severe conditions of shortage, reducing the annual transfer from the General Operating Fund to the Capital Fund to preserve cash for operations.

In 2015 the District's Board of Directors adopted water shortage rate surcharges that are tied to District water shortage declarations requiring mandatory water conservation. The water shortage rate surcharges are calculated as a percentage of the water usage rates in effect in a given year. If enacted, the water shortage surcharges would be temporary, lasting only during the period of water shortage, and would incrementally increase water usage rates. Bimonthly service charges would be unaffected by the surcharges.

Table 4. Water Shortage Surcharge

	Normal Supply	**Water Alert**	**Water Warning**	**Water Crisis**	**Water Emergency**
Use Reduction Goals	None	1% to 20%	21% to 30%	31% to 40%	41% to 50%
Water Shortage Surcharge (1)	**None**	**None**	**30%**	**40%**	**50%**
Water Usage Rates, with Illustrated Surcharge Applied (2)					
Single Family Customers					
Tier 1 (0 to 12 CCF/2-mo.)	$ 1.19	$ 1.19	$ 1.55	$ 1.67	$ 1.79
Tier 2 (>12 CCF/2 mo.)	$ 1.47	$ 1.47	$ 1.91	$ 2.06	$ 2.21
Condominium, Multi-Family and Non-residential Customers (3)					
All Water Usage	$ 1.40	$ 1.40	$ 1.82	$ 1.96	$ 2.10
Bimonthly Service Charges (4)					
All Meter Sizes	Varies		No Change to Service Charges		

Notes:

(1) Water shortage surcharges are incremental increases in normal water usage rates applied during Water Warning, Water Crisis, and Water Emergency conditions declared by the Board of Directors.
(2) This section shows water shortage surcharges applied to proposed FY 2015-2016 water rates, for illustrative purposes. The percentages shown would be applied to any then-current water rates in future years.
(3) Multi-Family includes duplexes, triplexes, fourplexes, and apartment complexes. Non-Residential includes commercial, parks, schools, dedicated irrigation service connections.
(4) There will be no changes to the fixed bimonthly service charges as part of the Water Shortage Surcharges during water shortages.

The District will monitor local, regional, and state-wide supply situation and policy issues for potential impacts to the District. District staff will update the Board of Directors of any new or ongoing situations.

6.3 Drought Stage Implementation

At the time of a water shortage emergency, the Board of Directors will consider adopting a Water Shortage Emergency Resolution. When the Board of Directors cannot assemble to adopt the Water Shortage Emergency Resolution, the General Manager, or his/her designee in case of absence, is authorized to implement the appropriate stage of the WSCP based on the reduction in water supply. The General Manager's determination to implement the WSCP shall remain effective until the Board of Directors meeting immediately following such determination, at which time the Board of Directors will consider adopting an Emergency Water Shortage Resolution. The Board of Directors may elect to authorize the General Manager to declare further stage reductions if conditions merit.

The following lists main elements for the District to address while preparing for each respective stage declaration.

Normal Water Supply Implementation

- Maintain conservation program, water waste ordinance, and rate structure during Normal Supply conditions.
- Financial service staff – educate on each stage requirement, staffing plan for increased hours, training for new/cross-department staff providing customer service, identify additional budget requirements.
- Water Efficiency Program – staffing plan for increased water efficiency surveys, customer contacts, incentive programs, water patrols, budget for increased customer participation.
- Board of Directors level – update Board of Directors on supply status, present implementation plan and budget and present and gain approval for additional budget requirements, drought rates if necessary, and other items.

- Public Outreach – begin messaging as soon as possible. Develop content and staffing assignments as necessary prior to messaging. Establish outreach schedule with reoccurring media contact reminders, special interview opportunities, and list of potential new media outlets to incorporate.

Water Emergency Stage Implementation

If Water Emergency Stage is required due to a catastrophic supply loss, implementation will rely more on public outreach and immediate and comprehensive customer participation to reduce demands by the required amount. In this scenario, the District will need a two-stage implementation strategy. The first stage is to immediately implement public information and outreach efforts to get full customer participation, as there will not be enough time to plan and implement stage restrictions and process to meet the immediate demand reduction needs. If a backup supply source cannot be obtained in a timely manner, or if the main supply cannot be restored in a timely manner, the second part of Stage 4 will be implemented. Actions taken by the District in this scenario follow the District's emergency response plan for catastrophic supply loss. The second part will compress the previous stages into one stage, with all the requirements and policies implemented at once. This will undoubtedly be difficult and time consuming to achieve, especially under the circumstances that the District has had a catastrophic supply loss, and considerable staff time will be needed in securing new supplies or resolving the supply loss issue. The extent and effort on drought stage requirements will be determined specific to each catastrophic event.

6.4 Water Shortage Contingency Plan Stage Reduction

Returning to normal supply conditions will require a transition period. Issues that may arise include the following:

- Lag time in drought rates and billing and coordinating return to normal rate structure with meter reading schedule.
- Policies regarding penalties and fines.
- Public information message should relate reduction of restrictions but encourage maintaining water efficiency practices.
- District should try to capitalize on demand reduction gains and maximize permanent customer behavioral and retrofit changes.
- Clearing backlog of maintenance and water quality activities.
- Clearing backlog of other tasks postponed due to staff reassignment.