

# 2025 Water Shortage Contingency Plan for Joshua Basin Water District

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- B Joshua Basin Water District Adoption of WSCP
- C Standardized Tables
- D Local Hazard Mitigation Plan

## **Acronyms**

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AF	Acre-Feet
AFY	Acre-Feet per Year
AWWA	American Waterworks Association
CCF	hundred cubic feet
DWR	Department of Water Resources
GPCD	Gallons Per Capita Per Day
HMP	Hazard Mitigation Plan
JBWD	Joshua Basin Water District
LHMP	Local Hazard Mitigation Plan
MWA	Mojave Water Agency
SWP	State Water Project
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan

## DWR Checklist Table for WSCP

Water Code Section	Summary as Applies to UWMP/WSCP	2020 WSCP Location
<b>Subject: Water Shortage Contingency Planning   2020 UWMP Guidebook Location: Appendix J</b>		
10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Full Document
10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Section 2.5
10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Section 2
10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Section 3.1
10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Section 3.1
10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Section 3.3
10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Section 3.4
10632(a)(4)(C)	Specify locally appropriate operational changes.	Section 3.5
10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state- mandated prohibitions are appropriate to local conditions.	Section 3.7.4
10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Section 3.4, 3.7
10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Section 4.1
10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Table 4.1
10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Section 6
10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Chapter 3
10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Section 4.1
10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Section 7.1
10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Section 7.3
10632(a)(8)(C)	Describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought.	Table 7-1
10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Section 5.2
10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Section 1.4

10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Section 3.4
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## **Section 1: Introduction**

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Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought that limits supplies, an earthquake that damages water delivery or storage facilities, a regional power outage or a toxic spill that affects water quality. This Plan addresses the requirements in the California Water Code Section 10632, which requires that every urban water supplier shall prepare and adopt a Water Shortage Contingency Plan (WSCP, Plan) as part of its Urban Water Management Plan (UWMP). This WSCP serves as a guide for the intended actions by Joshua Basin Water District (JBWD, the District) during water shortage conditions to improve preparedness for droughts and other impacts on water supplies by describing the process used to address varying degrees of water shortages.

This plan describes the actions JBWD will take to identify and respond to water shortage per requirements of the Urban Water Management Act, Section 10632 of the California Water Code.

### **1.1 Declaration of Purpose of WSCP**

The WSCP adopts regulations and restrictions on outdoor water use through the six standard water shortage stages, including domestic (residential), commercial/institutional/industrial, landscape, parks, and golf courses, and agriculture. These regulations are effective immediately and shall be effective until the District Board of Directors (Board) finds that water shortage no longer exists.

The overall principle of the District's WSCP is to reliably meet water demands during shortages caused by droughts, supply reductions and emergency conditions.

The purpose of the WSCP is to:

- Monitor and compare anticipated supplies and demands consistent with Water Code Section Water Code Section 10632(a)(2);
- Keep water use within supply and delivery capability;
- Define procedures to be used when supply cannot meet demand or continuing pumping will result in harm to supply source;
- Familiarize all of JBWD customers (residential, business, industrial, institutional/governmental and others) with procedures to be implemented when voluntary or mandatory water restrictions are in effect.

The District has developed a Draft Water Shortage Contingency Ordinance (included in Appendix A) that provides a framework and guides the District actions in the event of a water shortage emergency. The draft ordinance includes voluntary and mandatory stages to address a reduction in water supply, at various levels reduce demand by up to 50%. Prohibitions, penalties, and financial impacts of shortages have been developed by the District and are summarized in Section 7.

## **1.2 Reduced Water Use During Water Shortage Events**

This WSCP establishes changes that may be imposed on water users during Water Shortage Events. Such events may be a lengthy drought that has limited groundwater supplies, the sudden presence of an unforeseen toxin, which may require shutting the main groundwater pumping system, or an emergency condition brought about by an earthquake, fire, or other interruption in water delivery to the system. These actions are discussed in later sections of this WSCP.

A consideration for planning is water needed (gallons per capita per day [GPCD]) to maintain health and safety. The American Water Works Association (AWWA 2011) suggests that on the high end, water necessary for health and safety is 58 GPCD. AWWA suggests that with water savings fixtures and habit changes water needed for health and safety can be as low as 30 GPCD (AWWA 2011). These estimates are consistent with the amount of water recommended for health and safety by the US Bureau of Reclamation, which uses 50 GPCD for drought planning purposes (Reclamation 2010).

## **1.3 Plan Preparation, Adoption, Submittal and Availability**

JBWD began preparation of this Plan in 2021. The public hearing for the Water Shortage Contingency Plan was noticed in the local newspapers (The Desert Star), as prescribed in Government Code 6066, which included the time and place of the hearing (August 17, 2022 at the District's office located at 61750 Chollita Road in Joshua Tree), as well as the location where the plan was available for public inspection. Interested parties, including other local agencies, were notified of the public hearing. The 2020 UWMP was made available from the District's website for public inspection prior to the public hearing, so that comments could be received and discussed by the District's Board of Directors prior to plans adoption on August 17, 2022 at the District's office.

The final draft of the Plan was adopted by the Board of Directors (provided in Appendix D of the UWMP) and was submitted to the Department of Water Resources (DWR) within 30 days of approval. Additionally, the adopted plan will be made available per the requirements of the Water Code.

As part of the 2025 RUWMP process, the District review this WSCP and determined that its shortage levels, response actions, communication protocols, monitoring procedures, enforcement provisions, and financial response framework remain appropriate for District operations and current planning conditions. No substantive revisions have been made to the WSCP since its 2022 adoption. The District is therefore readopting this WSCP in conjunction with the adoption of the 2025 RUWMP to maintain consistency with the current regional planning cycle and to reaffirm the District's shortage response framework.

Following readoption, the District will submit the 2025 RUWMP and associated WSCP documentation to DWR through the required submittal process. The adopted WSCP will also be made available to the public, provided to applicable local agencies, and posted on the District's website in accordance with California Water Code requirements.

## **1.4 Water Shortage Contingency Plan Refinement Procedures**

JBWD will convene the following departmental staff as needed to refine the WSCP:

- Engineering Staff
- Administrative Staff
- Operational Staff

The WSCP will be updated and refined as appropriate and needed following significant changes to JBWD's supply portfolio or significant changes to the water allocation plans of its supply agencies (Mojave Water Agency [MWA]), but no less than every 5 years.

## **1.5 Relationship to the Urban Water Management Plan**

Water Code Section 10632(a) requires that every urban water supplier prepare and adopt a water shortage contingency plan as part of its urban water management plan. Although the WSCP is a stand-alone document that may be amended separately from the UWMP, it is informed by the water supply reliability analyses prepared as part of the District's UWMP planning process.

The District's 2025 RUWMP includes the water supply reliability and drought risk assessment information required by the Urban Water Management Planning Act, including evaluation of normal year, single dry year, and five consecutive dry year conditions. Those analyses are presented in the District's retail-specific chapter of the 2025 RUWMP, including Sub-Chapter 13.7 Water System Reliability and Drought Risk Assessment.

This WSCP provides the District's procedural framework for identifying, declaring, communicating, and responding to water shortage conditions. Accordingly, while the 2025 RUWMP evaluates the District's long-term and near-term water supply reliability, this WSCP describes the actions the District may implement if supply conditions, regulatory requirements, emergency conditions, or the Annual Water Supply and Demand Assessment indicate that shortage response actions are necessary.

## **Section 2: Procedures for Annual Water Supply and Demand Assessment**

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California Water Code Division 1, Section 350, states:

“The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.”

These Annual Assessment procedures described herein are one tool to be used to determine if a water shortage is to be declared.

New provisions in Water Code Section 10632.1. require that an urban water supplier such as JBWD, conduct an annual water supply and demand assessment (“Annual Assessment”), on or before July 1 of each year, to be submitted to DWR. An urban water supplier that relies on imported water from the State Water Project (SWP) or the Bureau of Reclamation shall submit its Annual Assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later. The requirement to perform the Annual Assessment begins in July 2022.

Droughts occur with unpredictable frequency, intensity, and duration. Developing and maintaining a healthy groundwater supply to serve its customers has always been an ongoing District priority, and the District wants to be prepared for drought and water shortages. The District regularly monitors its water supplies and demands and produces a Consumer Confidence Report (CCR) annually.

Water supply projections and hydrologic conditions are significant components in deciding when a drought response is needed. The amount of the water supply shortage contributes to the severity of drought declared and the necessary level of response from the District and customers.

### **2.1 Timeline for Conducting the Annual Assessment**

Table 2-1 provides targets for performing the Annual Assessment. The table outlines actions for the current year and one year of drought. By starting to plan in 2022, JBWD will get a snapshot of conditions and can start lining up the resources to mitigate supply and start outreach to customers to manage demand. Major actions are proposed in February, when an initial estimate of supply is made and compared to demand. A final annual assessment is proposed in May 2023.

**TABLE 2-1. CALENDAR FOR PERFORMING ANNUAL ASSESSMENT**

<b>Target Date</b>	<b>Action</b>
Oct-Jan	Monitor groundwater supply Monitor demand trends
Feb	Confirm anticipated weather (e.g., National Weather Service Climate Prediction Center, La Niña, US Drought Seasonal Outlook) Prepare initial assessment of supplies ( <i>Supply Table 1</i> ) Make initial assessment of unconstrained demand ( <i>Demand Tables 1, 2, 3</i> ) Make initial estimate of shortage If shortage anticipated, form Water Shortage Task Force
Mar	Prepare informational item to the Board of Directors confirming assessment of supplies and identify any additional supply mitigations
Apr	Start public outreach Identify supplier efficiency actions Complete Draft Annual Assessment and present to the Board of Directors
May	Continue public outreach Finalize Annual Water Assessment and submit to DWR If necessary, prepare notices of public hearing on water shortage
Jun-Sept	Continue public outreach If necessary, declare water shortage and implement supply mitigations and demand reduction actions Monitor customer response to water shortage messaging and other actions

## **2.2 Factors Affecting Demand and Supply**

Weather affects the District's supply in multiple ways. Due to drought conditions the area has recently received far less than the historical average of approximately five inches of annual rainfall. There is negligible infiltration of direct precipitation in areas where alluvial deposits are thick, and substantial amount of available runoff is lost to evaporation after flowing into the basin.

Even without population changes, water demand could increase. Precipitation and temperature influence water demand for outdoor landscaping and irrigated agriculture. Evaporative coolers and outdoor water use are large components of water demands in the District's service area.

### **2.2.1 Weather Outlook**

Lower spring rainfall increases the need to apply irrigation water. Further, warmer temperatures increase crop evapotranspiration, which increases water demand.

While no long-term study or correlation between weather parameters and the local groundwater supply have been performed, there are general “rules of thumb” that can be considered when looking at the groundwater supply.

- Potential for La Niña. ENSO (El Niño Southern Oscillation) is the warming and cooling of the ocean water along the Equator in the Eastern Pacific Ocean near South America. The warm phase is called El Niño and the cold phase is called La Niña. When the Eastern Pacific Ocean is 0.5 degrees Celsius above normal for 5 consecutive 3-month average periods, an El Niño is declared. When the Eastern Pacific Ocean is 0.5 degrees Celsius below normal for 5 consecutive 3-month average periods, a La Niña is declared. The El Niño and La Niña are declared as Weak, Moderate, or Strong depending on how far from normal the water temperature gets. When the temperature is above 1.5 degrees Celsius, it is declared as strong. When the temperature is above 1.0 degrees Celsius, it is declared as Moderate. When the temperature is above 0.5 degrees Celsius, it is declared as Weak. The effect on the District trends to be wetter with El Niños and drier with La Niñas. The National Weather Service Climate Prediction Center provides information on potential for La Niña conditions.
- US Drought Information Seasonal Outlook. The National Weather Service Climate Prediction Center provides information geographically on drought conditions and categorizes geographies as “Drought Persists”, “Drought Remains but Improves”, “Drought Removal Likely”, and “Drought Development Likely”.

## **2.3 Current Year Unconstrained Demand**

DWR guidance for the Annual Assessment is to consider the expected water use in the upcoming year, based on recent water use, and before any projected response actions a Supplier may trigger under its WSCP.

### **2.3.1 Land Use**

In order to evaluate water demand, the District will examine current use and coordinate and with the County of San Bernardino to understand near-term projected land uses. The land use evaluation will start with the current general plan and a summary of built dwelling-units (residential) and square footage (non-residential). Using known development projects constructed since the adoption of the general plan, a summarized total of the existing land use within the District’s service area through the end of the recent calendar year will be developed.

The District will coordinate with the County to help identify pending and approved projects that are anticipated to utilize water in the in current calendar year and one future calendar year.

### **2.3.2 Current Demand**

The District will create a table that will summarize the total water consumption (potable and untreated) for each consumption category within the District’s water service area for the most recent 10-year average, by month (*Demand Table 1*). Based on anticipated weather, the District may adjust *Demand Table 1* to assume an increase in current demands. *Demand Table 1* will estimate existing demand in the current calendar year and demand in the subsequent calendar year. For the purposes of the analysis the subsequent year will be assumed to be a drought year.

### **2.3.3 Potential Demand**

JBWD will create a table showing anticipate demands from “Under Construction and Approved Projects” (*Demand Table 2*). In *Demand Table 2* anticipated water use will be forecasted by month. The calculations in Demand Table 2 will use the most recently developed demand factors inclusive of water loss and including a contingency to account for annual demand variations that are likely to occur.

### **2.3.4 Total Near-Term Demands**

Near-Term Demands (*Demand Table 3*) will be the sum of the demands reflected in *Demand Table 1* plus *Demand Table 2*.

## **2.4 Assessing Supply in Current Year and One Dry Year**

JBWD will evaluate the local water sources available including Joshua Tree Basin groundwater, Copper Mountain Basin groundwater, and SWP water. Table 2-2 summarizes the factors to be considered.

Using Table 2-2 above as a guide, JBWD will develop a summary of each water source available in the upcoming year assuming the subsequent year will be a dry year. JBWD will develop *Supply Table 1*, in which a quantified summary of each anticipated supply source is provided for the upcoming year assuming the subsequent year is a dry year. Anticipated water supply will be forecasted by month using past supply patterns.

**TABLE 2-2 ANNUAL ASSESSMENT OF SUPPLY**

<b>Source</b>	<b>Factors to be Evaluated in Current Year</b>	<b>Establishing Supply in Assumed Subsequent Dry Year</b>
SWP Water/Mojave Water Agency (MWA)	<p>What is anticipated SWP Allocation for upcoming 12 months</p> <p>Any constraints on supply due to infrastructure or water quality</p> <p>Any constraints on wheeling water to Mojave Water Agency (MWA)/JBWD system</p>	<p>What is anticipated SWP dry year allocation</p> <p>Any constraints on supply due to infrastructure or water quality</p> <p>Any constraints on wheeling water to MWA/JBWD system</p>
Joshua Tree Groundwater Basin	<p>Regulatory limitations</p> <p>Annual extractions past 10-years</p> <p>Any constraints on supply due to infrastructure or water quality</p> <p>Consider if supply would be managed differently if it is known subsequent year will be dry year</p>	<p>Regulatory limitations</p> <p>Annual extractions past 10-years</p> <p>Any constraints on supply due to infrastructure or water quality</p>
Copper Mountain Groundwater Basin	<p>Regulatory limitations</p> <p>Annual extractions past 10-years</p> <p>Any constraints on supply due to infrastructure or water quality</p> <p>Consider if supply would be managed differently if it is known subsequent year will be dry year</p>	<p>Regulatory limitations</p> <p>Annual extractions past 10-years</p> <p>Any constraints on supply due to infrastructure or water quality</p>

## **2.5 Assessing Water Supply Reliability**

JBWD will compare *Supply Table 1* and *Demand Table 3* and determine if a supply shortage is anticipated, the level of shortage, and prepare if necessary to implement its WSCP.

## **2.6 Coordination with Cities and Counties**

Should a water shortage be declared, JBWD, will coordinate with any District or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code, and also to ensure that City/County facilities are being operated in a water efficient manner. Coordination will also include other agencies within the District’s service area such as schools, parks, and others.

## Section 3: Six Standard Water Shortage Levels

### 3.1 Stages of Action to Respond to Water Shortages

As required by California Water Code Section 10632(a)(3)(A), this WSCP is framed around six standard water shortage stages, which correspond to progressive ranges of percent supply reductions from zero to more than fifty percent. Table 3-1 presents a description of the six water supply shortage stages, defined as stages I to VI.

Each stage may be triggered by a declaration from federal or state authorities, or JBWD to address events that result in a water shortage. The stages and applicable triggers are summarized in Table 3-2.

**Table 3-1. Rationing and Reduction Goals (DWR Table 8-1)**

Deficiency or State Mandated Reduction	Stage	Demand Reduction Goal	Type of Program	Water Shortage Condition
1-10%	1	10% reduction	Voluntary	Minor Shortage
11-20%	2	20% reduction	Mandatory	Moderate Shortage
21-30%	3	30% reduction	Mandatory	Severe Shortage
31-40%	4	40% reduction	Mandatory	Critical Shortage
41-50%	5	50% reduction	Mandatory	Emergency Shortage
>50%	6	>50% reduction	Mandatory	Catastrophic Failure

**TABLE 3-2 STAGES OF JBWD WATER SHORTAGE CONTINGENCY PLAN**

Stage	Percent Supply Reduction	Triggers
I	Up to 10%	<ul style="list-style-type: none"> <li>Results of the Annual Assessment</li> <li>Federal, state, or local disaster declaration that may impact water supplies</li> <li>State declaration due to drought or system maintenance</li> <li>Unplanned JBWD water system maintenance</li> </ul>
II	Up to 20%	<ul style="list-style-type: none"> <li>Results of the Annual Assessment</li> <li>Federal, state, or local disaster declaration that may impact water supplies</li> <li>State declaration due to drought or system maintenance</li> <li>Unplanned JBWD water system maintenance requiring more time to repair</li> </ul>

Stage	Percent Supply Reduction	Triggers
III	Up to 30%	<ul style="list-style-type: none"> <li>• Results of the Annual Assessment</li> <li>• Federal, state, or local disaster declaration that may impact water supplies</li> <li>• State determination due to drought or significant system failure</li> <li>• State outdoor irrigation restriction; and/or</li> <li>• Unplanned JBWD water system failure or emergency</li> </ul>
IV	Up to 40%	<ul style="list-style-type: none"> <li>• Federal, state, or local disaster declaration that may impact water supplies</li> <li>• State determination due to drought or significant system failure</li> <li>• State outdoor irrigation restriction; and/or</li> <li>• Unplanned JBWD water system failure or emergency</li> </ul>
V	Up to 50%	<ul style="list-style-type: none"> <li>• Results of the Annual Assessment</li> <li>• Federal, state, or local disaster declaration that may impact water supplies</li> <li>• State determination due to drought or significant system failure</li> <li>• State outdoor irrigation restriction; and/or</li> <li>• Advanced JBWD water system failure or emergency</li> </ul>
Stage VI	50% or higher	<ul style="list-style-type: none"> <li>• Results of the Annual Assessment</li> <li>• Federal, state, or local disaster declaration that may impact water supplies</li> <li>• MWA failure to supply SWP for groundwater recharge</li> <li>• State determination due to drought or significant system failure</li> <li>• Natural or human-caused catastrophe disrupting delivery of water to, or within the service area</li> <li>• Severe JBWD water system failure</li> </ul>

### 3.1.1 Procedures for Water Shortage Level Determination

The results of the Annual Assessment will be used to determine the water shortage level. In case of emergencies, a special meeting may be called by a majority of the Board on less than twenty-four-hour notice and without an agenda to deal with the disruption of service. If an emergency arises which would ordinarily be brought to the attention of the Board, but insufficient time exists, the General Manager has administrative authority to take action as deemed appropriate and reasonable.

### 3.2 Water Shortage Response Actions

Once a shortage stage is declared, JBWD may implement shortage response actions required by the customer and through operational changes, as listed in Section 3.5. These actions will be supported by communication protocols (discussed in Section 4), enforcement actions (discussed in Section 3.8.2) and monitoring and reporting efforts (discussed in Section 5) activities appropriate at each shortage stage level.

**TABLE 3-3 CUSTOMER AND JBWD WATER SHORTAGE ACTIONS**

Stage	District Actions	Customer Actions
Stage I	<ul style="list-style-type: none"> <li>• Initiate public information campaign</li> <li>• Increase awareness of conservation measures</li> <li>• Commence enforcement of conservation measures</li> <li>• Promote methods to reduce water use</li> <li>• Conduct focused outreach to large water users</li> <li>• Publish Water Shortage Contingency Plan stages and actions per stage</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary water conservation</li> <li>• Adhere to conservation measures</li> <li>• Consider conversion to more efficient irrigation methods</li> </ul>
Stage II	<ul style="list-style-type: none"> <li>• Expand public information campaign</li> <li>• Step up enforcement of conservation measures</li> <li>• Continue previous actions</li> </ul>	<ul style="list-style-type: none"> <li>• Comply with mandatory conservation regulations</li> <li>• Continue previous actions</li> </ul>
Stage III	<ul style="list-style-type: none"> <li>• Continue previous actions</li> <li>• Intensify public information campaign</li> <li>• Expand enforcement of conservation measures</li> <li>• Provide incentives to single metered multi-family units to install individual meters or sub-meters</li> <li>• Send direct notices to all customers</li> <li>• Provide regular media, District Board, and County briefings</li> <li>• Activate emergency connections with mutual aid agencies</li> <li>• Suspend issuance of potable construction meters.</li> <li>• Evaluate size of monetary fines for water waste</li> </ul>	<ul style="list-style-type: none"> <li>• Continue previous actions</li> <li>• Limit washing of sidewalks, driveways, walkways, parking lots, or any other hard-surfaced area by hose or flooding unless otherwise necessary</li> <li>• Comply with prohibited outdoor irrigation of ornamental landscape or turf with potable water through an irrigation system between 9:00 am and 6:00 pm and limit system use to two days a week</li> </ul>
Stage IV	<ul style="list-style-type: none"> <li>• Continue previous actions</li> </ul>	<ul style="list-style-type: none"> <li>• Continue previous actions</li> <li>• Obligation to fix leaks, breaks, or malfunctions within 48 hours</li> </ul>
Stage V	<ul style="list-style-type: none"> <li>• Continue previous actions</li> <li>• Compel mandatory water consumption goals and allocations for all customers and users</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibit all outdoor irrigation with potable water</li> <li>• Continue previous actions</li> </ul>
Stage VI	<ul style="list-style-type: none"> <li>• Continue previous actions</li> <li>• Implement crisis communication plan</li> <li>• Activate Emergency Operations Center</li> <li>• Coordinate actions with regulatory agencies</li> <li>• Coordinate actions with public safety agencies to address enforcement and fire protection issues</li> <li>• Recall all temporary meters and activate water fill stations</li> <li>• Suspend issuance of new development approvals and new water connections other than those required to be processed by state law</li> </ul>	<ul style="list-style-type: none"> <li>• Continue previous actions</li> <li>• Terminate outdoor water use for irrigation, pools, and fountains</li> <li>• Water may only be used outdoors for public health and safety purposes</li> <li>• Be on alert for Boil Water Orders if they become necessary</li> </ul>

### 3.3 Supply Augmentation

Any water shortage event should trigger a review of potential sources for supplemental water supply. The groundwater basins in the District’s area are the limiting factor in groundwater production but are expected to continue to produce reliable supplies even in a catastrophe. Water stored in the District’s distribution system storage tanks are monitored and managed to not allow the reservoir volumes to drop to very low levels. Standard practice is to maintain, at a minimum, the required emergency and fire flow within all tanks at all times. In an emergency, these stored water volumes are available for distribution or truck delivery, as necessary.

Potential sources for supplemental water include pumping additional groundwater or imported water supply from MWA. Any supplemental water supply project or improvements to existing facilities to allow for entitled flows should be a priority for consideration in immediate capital projects if shortage (e.g., demands exceeding supplies) greater than ten percent is anticipated or when a Stage 3 Water Shortage Event continues for more than 18 months. Supply augmentation in near term is presented in Table 3-4 below.

**TABLE 3-4 SUPPLY AUGMENTATION ACTIONS**

<b>Shortage Level</b>	<b>Supply Augmentation Methods and Other Actions by Water Supplier (based on DWR’s WUE database categories)</b>	<b>How much is this going to reduce the shortage gap?</b>	<b>Additional Explanation or Reference</b>
3	Groundwater	158 AF	Pump Additional Groundwater
3	State Water Project	Will vary	Amounts would vary depending on if SWP is available and the amount
4	Groundwater	215 AF	Pump Additional Groundwater
4	State Water Project	Will vary	Amounts would vary depending on if SWP is available and the amount
5	Groundwater	473 AF	Pump Additional Groundwater
5	State Water Project	Will vary	Amounts would vary depending on if SWP is available and the amount
6	Groundwater	631 AF	Pump Additional Groundwater
6	State Water Project	Will vary	Amounts would vary depending on if SWP is available and the amount

### 3.4 Demand Reduction Actions

Currently, JBWD implements water conservation measures and irrigation practices aimed at increasing everyday water use efficiency. Those measures, plus those to be enacted in the various stages, are presented in Table 3-5.

**TABLE 3-5 PROHIBITIONS DURING DIFFERENT SHORTAGE STAGES**

Stage	Prohibition/Requirement
In Effect at All Times	<p>Water waste is prohibited at all times. Water waste includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Application of potable water to driveways and sidewalks is prohibited.</li> <li>• Use of hose that dispenses potable water to wash a motor vehicle is prohibited, except where the hose is fitted with a shut-off nozzle or device</li> <li>• Water leaks shall be repaired in a timely manner and sprinklers shall be adjusted to eliminate over-spray.</li> <li>• Hosing of hardscape surfaces, except where health and safety needs dictate, is prohibited.</li> </ul>
	<p>Other</p> <ul style="list-style-type: none"> <li>• Water for construction purposes, including but not limited to de-brushing of vacant land, compaction of fills and pads, trench backfill, and other construction uses shall be in an efficient manner.</li> <li>• All new construction, including residential, commercial, and industrial, shall be equipped with low flow toilets and fixtures.</li> </ul>
Stage I	<ul style="list-style-type: none"> <li>• No watering of outdoor landscapes within 48 hours of measurable rainfall.</li> <li>• Car washing and outside cleaning activities prohibited except when performed with buckets and automatic hose shutoff devices.</li> <li>• The serving of drinking water other than upon request in eating or drinking establishments is prohibited.</li> <li>• Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom.</li> </ul>
Stage II	<ul style="list-style-type: none"> <li>• All restrictions/prohibitions/initiatives from Stage I are in effect</li> <li>• Landscape watering between the hours of 1000 and 1800 hours is prohibited</li> <li>• Outdoor watering is limited to 3 days per week.</li> <li>• Irrigation with potable water outside of newly constructed homes and buildings not delivered by drip or micro spray is prohibited.</li> </ul>
Stage III	<ul style="list-style-type: none"> <li>• All restrictions/prohibitions/initiatives from Stage I and Stage II are in effect and are mandatory.</li> <li>• Irrigation with potable water of ornamental turf on public street medians is prohibited.</li> <li>• Outdoor watering is limited to 2 days per week.</li> <li>• Potable water cannot be used to maintain fountains, reflection</li> </ul>

Stage	Prohibition/Requirement
	ponds and decorative water bodies for aesthetic or scenic purposes, except where necessary to support aquatic life.
Stage IV	<ul style="list-style-type: none"> <li>• All restrictions/prohibitions/initiatives from Stage I, Stage II, and Stage III are in effect and are mandatory.</li> <li>• Outdoor watering is limited to 1 day per week.</li> <li>• Filling of new swimming pools, spas, hot tubs, or the draining and refilling of existing pools, etc. is prohibited. Topping off is allowed to the extent that the designated water allocation is not exceeded.</li> <li>• Meters will only be installed for new accounts where the building permit was issued prior to the declaration of the water shortage.</li> </ul>
Stage V	<ul style="list-style-type: none"> <li>• Filling of new swimming pools, spas, hot tubs, or the draining and refilling of existing pools, etc. is prohibited. Topping off is allowed to the extent that the designated water allocation is not exceeded.</li> <li>• Meters will only be installed for new accounts where the building permit was issued prior to the declaration of the water shortage</li> </ul>
Stage VI	<ul style="list-style-type: none"> <li>• All restrictions/prohibitions/initiatives from previous Shortage Stages are in effect and are mandatory.</li> <li>• No meters will be installed for new accounts.</li> <li>• Outdoor irrigation is prohibited, with the exception of drip or hand watering to preserve established trees.</li> </ul>

As described in the table above, prohibitions and restrictions on water features that are artificially supplied with water, such as ornamental lakes, ponds and decorative fountains are treated differently from swimming pools and spas, as defined in Section 115921 of the California Health and Safety Code.

### 3.4.1 Shortage Stage Allocation

Besides prohibitions, when shortage is greater than 30%, the District may implement allocation limits for each customer class. At the direction of the General Manager each customer will be classified and assigned a monthly allotment according to the methods described in the Draft Water Shortage Contingency Ordinance. Customers will be notified of their classification and allotment by mail before the date when allocation goes into effect. In a disaster, prior notice of allotment may not be possible. In such cases, notice may be provided by other means, such as telephone, radio, television, or newspaper. Customers may appeal the classification on the basis of use or the allotment on the basis of incorrect calculation. The appeals process is set forth in the Draft Water Shortage Contingency Ordinance and described in Section 6.

Specific water allotments for Shortage Stages 4 through 6 shortages were developed using the California Water Code Stage 2, 3, and 4 health and safety allotments of 58 GPCD, or 28 hundred cubic feet (CCF) per person per year as the basis.

### **3.5 Operational Changes**

The District shall comply with the restrictions similar to those implemented for the public to the extent possible and not inconsistent with the restrictions provided for the District in this section. The District will encourage all water customers to cooperate with the water restrictions imposed by each stage.

Limit use of potable water to irrigate newly planted street, park and/or golf course trees, street medians, and general irrigation on all District properties. Non-potable water from wastewater treatment shall be used by District personnel if available for such purposes. No new plantings shall be installed by the District during Stage 3 or higher Water Shortage Events, unless necessary for erosion control. Other actions include efficient water use practices identified in Table 3-5, such as minimizing waste of water in construction, following a modified outdoor landscape watering schedule for District facilities depending on shortage stage, and fixing any identified leaks in the distribution system or other related water infrastructure components.

### **3.6 Actions to Prepare for Catastrophic Interruption**

The distribution infrastructure within groundwater basins from which the District relies are the limiting factor in groundwater production but is expected to continue to produce reliable supplies even in a catastrophe with the management action items identified herein and in the Local Hazard Mitigation Plan described below. Water stored in the District's distribution system storage tanks are monitored and managed to not allow the reservoir volumes to drop to very low levels. Standard practice is to maintain, at a minimum, the required emergency and fire flow within all tanks at all times. In an emergency, these stored water volumes are available for distribution or truck delivery as necessary. Potential supply impacts from catastrophic interruption of SWP supplies are provided for in the MWA WSCP.

### **3.7 Local Hazard Mitigation Plan**

Per the Water Code Section 10632.5, Suppliers are required to assess seismic risk to water supplies as part of their WSCP. The plan also must include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

Pursuant to Water Code, the seismic risk assessment must include a description of the vulnerability of each of its water system(s) facilities. Suppliers are encouraged to assess the vulnerability of external facilities or components that extend outside the Supplier's service distribution area (e.g., transmission pipes, delivery canals, surface water diversion pumps) since failure of them would still ultimately disrupt the Supplier's ability to serve their customers.

The Local Hazard Mitigation Plan (LHMP) for the District was developed and adopted in June 2019 to formulate mitigation measures for the future protection of JBWD's critical infrastructure and the community's safety. The LHMP was completed with the coordination and involvement of the JBWD staff and representatives from the local community. The following plans were utilized to obtain information on the hazards that face the area and the mitigation goals of the County of San Bernardino:

- Bighorn Desert View LHMP
- Twentynine Palms Water District LHMP
- San Bernardino County Hazard Mitigation Plan (HMP)
- USGS Golden Guardian Shake Out 2008
- Joshua Basin Water District's Water Master Plan
- California HMP 2013
- San Bernardino County Flood Control
- FEMA Flood Insurance Study for San Bernardino County

The goal of the LHMP is to reduce the future impacts of a hazard, including property damage, disruption to local and regional economies, and the amount of public and private funds spent for recovery. The District has identified the following hazards to be the most likely to affect District's service area:

- Earthquake: There are many faults running through the District's service area.
- Terrorist Event: A major terrorist event at the Marine Base Twentynine Palms could have a negative effect on the water supply or damage the infrastructure utilized by the District, leaving the District with no power and no water in the system due to ruptured pipelines, contamination, or other damages.
- Lightning Strikes: Lightning strikes on wells, pumps, motors, and electrical equipment are common and can happen at any location in the District Service area. The area is prone to lightning storms during monsoon season from July to September each year.
- Flash Flooding: Flash flooding is very common in the San Bernardino County deserts and happens almost yearly. These events uncovered pipelines installed within paved and unpaved roads throughout the distribution system. USGS and the County of San Bernardino do not keep records on the events of flash flooding and there are no flood control systems in the Joshua Basin.
- Climate Change/Drought: The District relies on groundwater and the impacts from climate change are long-term. Climate change could affect the groundwater extraction, increase flash flood risks, decrease groundwater recharge, and cause increased pumping costs in the water supply wells.

The District has identified hazards in the community, assessed those hazards that pose the most significant risk, and identified projects to help reduce and/or eliminate those risks. Global measures that apply across all hazards include:

- Continually improve the community's understanding of potential impacts due to hazards, and the measures needed to protect lives and critical infrastructure
- Provide public outreach to inform the public of the hazards identified to the drinking water system in emergencies, how to conserve water in the event of a disaster and how to obtain drinking water when water may not be available

- Continually provide State and Local Agencies with updated information about hazards, vulnerabilities, and mitigation measures at the District
- Review local codes and standards to verify that they protect human life and the District's facilities
- Review and verify that the District's owned and operated infrastructure meet minimum standards for safety
- Review the District's facilities and developments in high-risk areas to verify that these areas are appropriately protected from potential hazards

The information contained in the Plan is intended to guide staff and inform other emergency responding agencies and includes plans and procedures for the response team.

The LHMP is included in Appendix D.

### **3.8 Benefit of Shortage Response Actions**

As discussed above, supply actions and actions within JBWD operations will help reduce water shortage. Closing the "gap" between supplies and demands through customer actions, will include:

- Public Information
- Enforcement
- Restrictions on Non-Essential Water Uses
- Pricing

The water shortage response actions and their anticipated effect are summarized in Table 3-5.

#### **3.8.1 Public Information**

Without exception, experience has shown that a well-informed public is generally more willing to heed requests to voluntarily conserve or alter water use patterns and will be more likely to comply if mandatory water use restrictions become necessary. DWR (2008) estimates that public information campaigns have alone reduced demand in the range of 5 to 20 percent, depending on the time, money, and effort spent. Public information supports voluntary and mandatory measures by educating and convincing the public that a critical water shortage exists and provides information on how water is used and how they can help. The DWR Drought Guidebook highlights that when the public perceives the drought to be severe, they changed behaviors (such as flushing the toilet less often).

The information provided to the public should include a description of the conditions that will trigger implementation of shortage stages as well as a description of what the plan entails (restrictions, enforcement provisions, etc.). It is also advisable to provide practical "consumer" information that will help water users comply with the plan. For example, information about restrictions on lawn watering might be accompanied with information about watering practices.

Based on past experience, with minimal public outreach, a water savings of 5 percent is assumed, with extensive public outreach a water savings of 7 percent is assumed, public information combined with enforcement (Section 3.7.2) is assumed to achieve a savings of up to 22 percent.

### **3.8.2 Enforcement**

A study examining the effectiveness of drought management programs in reducing residential water-use (Virginia Polytechnic Institute 2006) showed considerable variation in the effectiveness of drought management programs and highlighted the importance of public information and enforcement. Results, shown in Table 3-6, indicate that overall reductions in residential water-use ranged from 0-7 percent for voluntary restrictions and from 0-22 percent for mandatory restrictions. The observed differences were statistically attributed to information efforts for voluntary restrictions and both information and enforcement efforts for mandatory restrictions.

**TABLE 3-6 DROUGHT PROGRAM MANAGEMENT VARIABLES EFFECT ON RESIDENTIAL WATER-USE**

<b>Classification</b>	<b>Estimated change in Water-Use</b>	<b>Statistically Different than no effect?</b>
<b>Voluntary Restrictions</b>		
Little or no information disseminated	-2%	No
Moderate level of information	-2%	No
Aggressive information dissemination	-7%	Yes
<b>Mandatory Restrictions</b>		
Low information and low enforcement	-5%	No
Moderate information and low enforcement	-6%	Yes
Aggressive information and low enforcement	-12%	Yes
Low information and moderate enforcement	-4%	No
Moderate information and enforcement	-9%	Yes
Aggressive information and moderate enforcement	-15%	Yes
Moderate information and aggressive enforcement	-20%	Yes
Aggressive information and enforcement	-22%	Yes

Source: Virginia Polytechnic Institute 2006.

The analysis highlights the key role that public outreach and information plays in the success of drought response actions. Voluntary restriction programs with little to moderate levels of information dissemination had no appreciable effect on water-use. Voluntary restriction programs with active promotional efforts, however, reduced water-use by an estimated 7 percent from what would have otherwise occurred without any restriction program. Thus, for voluntary restrictions, only the most intense programs had even a moderate level of success in reducing water-use.

Mandatory restriction programs without a significant enforcement component broadly mirrored the outcomes achieved by the voluntary programs. Programs with mandatory restrictions that invested minimal effort in information dissemination did not appreciably reduce residential water-use. Programs with no active enforcement efforts but with moderate to high levels of informational dissemination achieved 6 and 12 percent reductions in water-use, respectively. These estimated reductions are similar to those achieved by voluntary programs with aggressive informational campaigns.

The experience the City of Santa Cruz had implementing its Drought Contingency Plan and successfully reaching its reduction goals supports the importance of a strong public information program. Analysis of the implementation program identified the key ingredient to its success was "the public's understanding, awareness, and belief that the District was confronted with a true water shortage problem. Media coverage of water problems across California reinforced the

situation. Without that sense of a real and imminent problem, it's likely the level of cooperation and willingness demonstrated by the community in making changes they did might have been considerably reduced." (Santa Cruz 2010)

Delivering accurate and timely information to water users, news media and local governments with updates on conditions, restrictions, and helpful contact information is key.

With aggressive information dissemination and enforcement its assumed JBWD could achieve a 22 percent water savings.

### **3.8.3 Restrictions on Non-Essential Water Uses**

The Stages of Action focus on curtailing water waste and non-essential water use. Outdoor water use, including washing sidewalks and watering ornamental landscapes are targeted. These uses are typically considered to be discretionary or nonessential, are highly visible, and therefore relatively easy to monitor, and often are a substantial component of water demand, particularly during the summer months when drought conditions are likely most severe.

AWWA estimates that voluntary outdoor water use limits can result in a water savings of up to 10 percent and mandatory outdoor water limits can achieve up to a 56 percent reduction in outdoor water use (AWWA 2008, AWWA 2011). There have not been detailed studies on outdoor water use in the JBWD service area. However, a comparison of low water use months, when water use is assumed to be primarily indoor (January and February) with high-water use months when outdoor water use is greatest has been used to estimate the percent of outdoor water demand. Based on this comparison, it is estimated that outdoor water use may make up between 20 to 50 percent of District water use. To be conservative and so as to not overestimate the savings that could be achieved by curtailing outdoor water use, this Plan assumes outdoor water use is 30% of the JBWD demand:

- Voluntary outdoor water limits could save 10% of outdoor water use or about 35 AFY (about 3% of total water use)
- Restricting water use to twice a week could reduce outdoor water use by 33 percent or about 114 AFY (about 10% of total water use)
- Restricting water use to once a week could reduce outdoor water use by 56 percent or about 193 AFY (about 17% of total water use)
- Eliminating outdoor water use would reduce demand by approximately 30%, about 343 AFY.

#### **3.8.3.1 Additional Mandatory Restrictions**

The State, through the State Water Board, adopted drought emergency conservation regulations in July 2014. The Board expanded, updated, extended, and readopted the emergency regulations several times and in the prohibitions on wasteful water use practices were in place until November 25th, 2017.

As directed by Executive Order B-40-17, the State Water Board is conducting a rulemaking to put in place permanent prohibitions on wasteful water use practices. This rulemaking is part of the broader legislation, *Making Water Conservation a California Way of Life*.

The specific outcome of the permanent prohibitions cannot be known at this time. The emergency conservation regulations in effect through November 2017 included the following prohibitions:

- Application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;
- The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use
- The application of potable water to driveways and sidewalks
- The use of potable water in a fountain or other decorative water feature except where the water is part of a recirculating system
- The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall
- The serving of drinking water other than upon request in eating or drinking establishments
- Irrigation with potable water of ornamental turf on public street medians.

JBWD’s water use restrictions are consistent with the State’s prohibitions to prevent water waste.

**TABLE 3-7 EFFECTIVENESS DEMAND REDUCTION AND OTHER ACTIONS**

<b>Shortage Level</b>	<b>Demand Reduction Actions</b>	<b>Reduction in Shortage Gap</b>	<b>Explanation</b>	<b>Penalty, Charge, or Other Enforcement?</b>
1	Expand Public Information Campaign	7%	Based on AWWA 2008 assumes savings of 7%	No
2	Expand Public Information Campaign	22%	Based on AWWA 2008 assumes savings of 22% with enforcement	Yes
2	Implement or Modify Drought Rate Structure or Surcharge	10%	Based on AWWA 2011 assumes savings of 10%	Yes
3	Expand Public Information Campaign	22%	Based on AWWA 2008 assumes savings of 22% with enforcement	Yes

3	Implement or Modify Rate Structure	10%	Based on AWWA 2011 assumes savings of 10%	Yes
3	Landscape - Other landscape restriction or prohibition	3%	Outdoor water limited to 3 days a week. Based on AWWA 2011	Yes
4	Expand Public Information Campaign	22%	Based on AWWA 2008 assumes savings of 22% with enforcement	Yes
4	Implement or Modify Rate Structure	15%	Based on AWWA 2011 assumes savings of 15%	Yes
4	Landscape - Other landscape restriction or prohibition	10%	Outdoor water limited to 2 days a week. Based on AWWA 2011.	Yes
5	Expand Public Information Campaign	22%	Based on AWWA 2008 assumes savings of 22% with enforcement	Yes
5	Implement or Modify Rate Structure	15%	Based on AWWA 2011 assumes savings of 15%	Yes
5	Landscape - Other landscape restriction or prohibition	17%	Outdoor water limited to 1 day a week. Based on AWWA 2011.	Yes
6	Expand Public Information Campaign	22%	Based on AWWA 2008 assumes savings of 22% with enforcement	Yes
6	Implement or Modify Rate Structure	15%	Based on AWWA 2011 assumes savings of 15%	Yes
6	Landscape - Other landscape restriction or prohibition	30%	Outdoor water use prohibited	Yes

## Section 4: Communications Protocols

The District will periodically provide the public with information about the WSCP, including its implementation. Such information will include, but will not be limited to, stages of action, restrictions on water use, water-saving tips, monetary assessment, and fines for noncompliance of prohibited activities for water conservation, water use efficiency, and failure to achieve water budget reductions redefined in the WSCP.

### 4.1 Customer Outreach

Customer participation is a key element in responding to a supply shortage. While general media coverage of a drought is likely to increase awareness, JBWD should still develop and implement a specific and comprehensive outreach program. The goals of the outreach program will be to:

- Educate customers and public about state and local drought conditions
- Make water shortage stages and customer responsibilities clear
- Target specific customer groups with specialized messaging
- Provide information to customers and general public that will assist them in reducing water demand

JBWD regularly communicates with its customers and has a long history of promoting conservation. Staff continues to implement customer outreach programs. Ongoing outreach activities are summarized in Table 4-1. Conservation giveaways also provide a means for JBWD to interact with customers for water efficiency messaging.

**TABLE 4-1 JBWD OUTREACH PROGRAMS**

Action	Description	Years Implemented				
		2016	2017	2018	2019	2020
Monthly E-Newsletter	The monthly Tier Drop Newsletter provides information on capital improvement projects, conservation programs, public meetings, workshops, and special events.	X	X	X	X	X
Website	JBWD regularly updates the website with FAQs, public notices, water quality data, water conservation information, public meeting information, project updates, and more.	X	X	X	X	X
Outreach Events	15-20 public outreach events per year, consisting of job fairs, District-sponsored events, Chamber of Commerce events, with giveaways and informational handouts.	X	X	X	X	X
Social Media	JBWD maintains a presence on Facebook and, YouTube.	X	X	X	X	X

Action	Description	Years Implemented				
		2016	2017	2018	2019	2020
Public Engagement Materials	Water quality Consumer Confidence Report. Brochures “Protecting our Pipes”; “Understanding Water and Wastewater Charges”; “Customer Assistance Program”; “Water Disaster Preparedness”; and “Fats, Oils, and Grease”.	X	X	X	X	X
Targeted Outreach	Brochures, annual mailer, postcards, and door hangers.	X	X	X	X	X
Conservation Giveaways	JBWD continues to offer customers water conservation giveaways including materials such as “Doing Our Part to Save Water” yard signs, low-flow showerheads, faucet aerators, toilet leak detection kits, shower timers, dish squeegees, and more.	X	X	X	X	X

Public outreach will be enhanced during anticipated water shortages. In addition to traditional outreach (monthly e newsletter, billing statements), JBWD will consider utilizing new and innovative outreach efforts using social media. Proposed outreach should include, but not be limited to:

- Multi-media Tear Drop *Conservation Stories*, a campaign that will include testimonial water conservation case studies, experiences and lessons learned from a variety of JBWD customer types (residential, institutional, and commercial). This campaign can be published in the monthly newsletter.
- Social media sites (YouTube, Facebook) to distribute *Conservation Stories* and other messaging.
- Specific JBWD website section dedicated to the drought.
- Customized state and regional partner outreach materials and links.
- Water shortage declarations provided as inserts to monthly water bills.
- Post-cards and mailings to JBWD customers.
- Targeted outreach (contact by letters and phone calls) to large water users
- Employee outreach and education to ensure consistent organization messages concerning drought and conservation.
- Enhanced community presence of JBWD materials (handouts at schools, plumbing centers, hardware stores, farmers markets, and community events).

Proposed coordination with retail water agencies and land use agencies is summarized below:

<b>Outreach Target</b>	<b>Goals of Coordination</b>	<b>Schedule</b>
All customers of JBWD	Educate customers and public about drought conditions	Feb of first year of drought and ongoing through drought
General Public	<p>Make water shortage stages and customer responsibilities clear</p> <p>Target specific customer groups with specialized messaging</p> <p>Provide information to customers and general public that will assist them in reducing water demand</p>	

Table 4-2 provides a summary of public outreach actions and the applicable water shortage stage when this action would be employed.

**TABLE 4-1 WATER SHORTAGE PUBLIC OUTREACH PLAN**

Element	Description	Applicable Drought Stage				
		I-II	III	IV	V	VI
Quarterly Newsletter	Quarterly newspaper that discusses regular JBWD news. Will be enhanced to specifically provide information on: Water supplies/ Actions JBWD taking to improve supply					
	Water Conservation Tips					
	Actions JBWD taking to reduce JBWD's water use	◆	◆	◆	◆	◆
	News Items - <i>Conservation Stories</i>					
	Feature Stories - Any Proposed Water Shortage Declaration					
Website	Feature Stories - Any Applicable Restrictions					
	Feature Stories - Proposed and Applicable Allocations					
	"Report Water Waste" link on home page					
	Rotator Message graphic on Home Page					
	Water supplies/ Actions JBWD is taking to improve supply					
Billing Messages	Comprehensive Customer Conservation actions section					
	Actions JBWD is taking to reduce JBWD's water use	◆	◆	◆	◆	◆
	News Items - <i>Conservation Stories</i>					
	Home Page Stories - Any Proposed Water Shortage Declaration					
	Home Page Stories - Any Applicable Restrictions					
Billing Messages	Home Page Stories - Proposed and Applicable Allocations					
	Conservation messages within monthly bills					
	Any proposed Water Shortage Declaration		◆	◆	◆	◆
	Any applicable restrictions					
	Any applicable allocations					

Element	Description	Applicable Drought Stage				
		I-II	III	IV	V	VI
Talking Points	Develop talking points related to conservation and drought for:					
	Board of Directors Management Customer Service Staff	◆	◆	◆	◆	◆
Media Contact	Contact the following media with information on water supply, conservation, and drought:					
	Hi-Desert Star	◆	◆	◆	◆	◆
Enhanced Media Contact	JBWD will develop a media kit that will include:					
	Press Release on Water Shortage Declaration Frequently Asked Questions Information Sheet/Brochure Photographs Conservation Partner Links		◆	◆	◆	◆
Collateral Materials	JBWD will present Letters to the Editor from Board Members, Management, and key constituents concerning the Water Shortage Declaration.					
	Water Conservation Tip Handouts Restaurant table cards Hotel room notices	◆	◆	◆	◆	◆
Enhanced Collateral Materials	Distribution of materials at plumbing centers, hardware stores, schools, farmers markets:					
	Water conservation tips Print materials related to "Conservation Stories"		◆	◆	◆	◆

Element	Description	Applicable Drought Stage				
		I-II	III	IV	V	VI
Partner Resources	JBWD should continue to utilize partnership opportunities to share conservation messages and links that are being implemented by state and regional agencies and organizations, including:	◆	◆	◆	◆	◆
	State of California Water Conservation Programs Association of California Water Agencies Programs					
Customized Partner Materials	JBWD will work with regional and state partner organizations to utilize and customize conservation related materials specific to the Joshua Tree area, including:					
	Broadcast public service announcements					
	Print Ads		◆	◆	◆	◆
	Web banners and links					
	Posters Print materials					
Conservation Stories Outreach Campaign Materials	JBWD will produce "Conservation Stories", a public outreach campaign that will feature residents and representatives from businesses and organizations who are taking steps to conserve water in the Joshua Tree Area. Campaign shall include:					
	Informational Video					
	Podcast style audio segments					
	Broadcast public service announcements	◆	◆	◆	◆	◆
	Print advertisements					
	Web banners on JBWD website					
	Conservation postcards					
	Posters, pop-up banners and collateral materials Social media "Conservation Stories"					

Element	Description	Applicable Drought Stage				
		I-II	III	IV	V	VI
Establish and Maintain Social Media Presence	JBWD will develop and maintain social media sites including YouTube, Twitter, and Facebook to share "Conservation Stories" and images with the public. The YouTube site will be used as an operational tool for uploading videos that will then be embedded directly on the JBWD website. Social media icons that link to JBWD social media sites will be added to the JBWD website Home Page. Facebook will be used to post "Conservation Stories" briefs and images along with drought and conservation related news items, links, and graphics. Flickr will be used to upload photos to galleries related to drought and conservation efforts. The JBWD Twitter site will be linked to other JBWD social media resources to automatically provide updates when new items are posted.	◆	◆	◆	◆	◆
Targeted Outreach	JBWD will conduct focused targeted outreach to specific customer segments, including the Top 10 water users by sector. Outreach will include: Phone calls Letters Postcards Letters	◆				
Enhanced Targeted Outreach	JBWD will conduct focused targeted outreach to specific customer segments, including the Top 20 water users by sector. Outreach will include: Phone calls Letters Postcards Letters		◆			
Additional Targeted Outreach	JBWD will conduct focused targeted outreach to specific customer segments, including the Top 30-50 water users by sector. Outreach will include: Phone calls Letters Postcards			◆	◆	◆

Element	Description	Applicable Drought Stage				
		I-II	III	IV	V	VI
	Letters					
JBWD Customer Touch-Points	JBWD will utilize existing customer touch-point opportunities to share drought information with the public, including: JBWD vehicle signage Facility conservation signage and materials Door hangers and notices	◆	◆	◆	◆	◆
Enhanced JBWD Customer Touch-Points	JBWD will undertake customer outreach activities at local and regional events. JBWD will staff table/booths to provide information on: low flow shower heads low flow faucet aerators toilet leak detectors low flow garden hose nozzles drought tolerant landscape guides native seed coasters		◆	◆	◆	◆
JBWD Employee Communications	JBWD will conduct outreach to employees in order to promote consistent organizational messages concerning drought and conservation.	◆	◆	◆	◆	◆
Individualized letters to all customers	Letters communicating specific restrictions and allocations applicable to their account		◆	◆	◆	◆
Townhalls/Public Meetings	JBWD will plan and host meetings to share water shortage information with residents and provide an opportunity for residents to voice concerns.		◆	◆	◆	◆
Customer Assisted Enforcement	Maintain water-waste hotline		◆	◆	◆	◆

## **4.2 Neighboring Retail Water Agencies and Land Use Agencies**

The purpose of meeting with neighboring water agencies and land use agencies is to ensure that residents in the District are receiving consistent messages about the drought, drought severity, and are aware of the actions they can take to reduce demand. Key agencies would include the Mojave Water Agency (MWA), Bighorn-Desert View Water Agency (BDVWA), Hi-Desert Water District (HDWD), Twentynine Palms Water District (TPWD), Marine Corps Air Ground Combat Center (MCAGCC), and the County of San Bernardino.

In June 2015, JBWD joined the Emergency Response Network of the Inland Empire (ERNIE). ERNIE facilitates public agency preparedness for, response to, and recovery from local and regional disasters to ensure the delivery of critical public services through mutual aid and communications. ERNIE meets monthly and provides regular training for utilities in emergency response and long-term emergency planning. Through the ERNIE network JBWD can receive mutual aid from other local water districts. JBWD may also provide mutual aid to its sister agencies if resources are not needed within the District itself. JBWD maintains an emergency intertie with Hi-Desert Water District.

If a disaster overwhelms the local resources, JBWD will coordinate with the California Water/Wastewater Agency Response Network (CalWARN) system for statewide mutual aid. JBWD will immediately contact the State Water Resources Control Board Division of Drinking Water, San Bernardino County Fire, Operations of Emergency Services, and the California Utilities Emergency Association to coordinate mutual aid and assistance. If local resources are overwhelmed by the disaster, the County of San Bernardino Fire Operations of Emergency Services will contact the State of California Governor's Office of Emergency Services for assistance.

All the agencies listed below participate in the Alliance for Water Awareness and Conservation (AWAC), whose mission is to achieve water conservation goals within the 4,900 square mile service area of Mojave Water Agency. The members of AWAC are known to each other, and it would be relatively simple to add a special drought subcommittee to this group. The intent of these meetings will be to develop a common message to the community about the drought and to find opportunities to share costs (e.g., share costs of radio announcements and newspaper advertisements). As the drought progresses, the meetings will serve to refine the drought messaging to address any common misconceptions or common customer questions. Monthly meetings are proposed, starting in February, ongoing through the drought.

Should a water shortage be declared, JBWD will coordinate with any District or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

Proposed coordination with retail water agencies and land use agencies is summarized below:

<b>Participants</b>	<b>Goals of Coordination</b>	<b>Schedule</b>
Apple Valley Heights County Water District	Identify opportunities to share public outreach costs	Feb to Aug
Bighorn-Desert View Water Agency		
City of Adelanto	Develop common brochures	
Golden State Water Company - Apple Valley	Develop common website messages	
Golden State Water Company - Barstow		
Helendale Community Services District	Refine drought messaging based on customer response	
Hesperia Water District		
Hi-Desert Water District	Determine need for proclamation of local emergency	
Indian Wells Valley Water District		
Juniper Riviera Water District		
Liberty Utilities		
Mariana Ranchos Water District		
Phelan Pinon Hills Community Services District		
San Bernardino County Special Districts Water and Sanitation		
Twentynine Palms Water District		
Thunderbird County Water District		
Victorville Water District		

## **Section 5: Monitoring and Reporting**

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Certain aspects of water conservation can be readily monitored and evaluated, such as metered water use and production quantities. Other aspects such as public education are more difficult to measure in terms of effectiveness. Additionally, weather patterns make it more difficult to compare one year's water demand and conservation results with another year's usage.

When severe shortages occur and some degree of mandatory reduction is required, a program's effectiveness can be judged directly by water billings. In these cases, targeted results must be met, and even reluctant customers will, on the whole, meet the goals. Specific methods to evaluate effectiveness of water conservation programs to be employed by the District are:

1. Monitoring of Metered Water Usage – This will determine how much has been used. Compiling statistics to track usage of customer groups to determine trends is currently being done through the water billing computer system. Meter readings/billings can be compared and analyzed to determine the effectiveness of conservation for all customer classes.
2. Monitoring Production Quantities – In normal water supply conditions, production figures are recorded daily by the District's automated system. The Water Production Supervisor and the Production Lead monitor the accuracy of the monthly production totals. The totals are incorporated into the monthly water supply report to the State by the Water Treatment Supervisor.

To verify that conservation reduction goals are being met, production and metered usage reports will be provided to the JBWD General Manager and Water Utility Manager during each stage of the conservation period. Water production figures will be compared to previous year production figures for the same time period to ascertain if conservation goals are being reached. Results will be posted on the JBWD website.

Additional actions available to JBWD include:

1. Transition current customer water meters to "smart meters" to allow timely monitoring by customer of water use patterns..
2. Provide incentives to property owners to install individual meters or sub-meters in multi-family structures for resident/property owners to track water usage.
3. The District shall develop means to distribute reclaimed water to interested users for landscape irrigation and other non-potable uses.

## **Section 6: Enforcement**

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Enforcement of restrictions shall be in accordance with California Water Code Section 375, water waste prohibited. The provisions of the section apply to all persons using District water, both in and outside the District, and within the District water service areas.

### **6.1 Enforcement of the Water Waste Prohibition**

Prohibited actions and penalties for violating the Water Waste Ordinance are specified in the Municipal Code. JBWD's ordinance on water use efficiency is included in Appendix A.

#### **6.1.1 Civil Penalties**

For the first violation of any of the provisions of the code, a written notice is to be given.

For the second violation of any of the provisions of the code, a non-compliance charge is imposed in an amount of \$50, payable as part of the water bill, by the customer at the premises at which the violation occurred.

For the third violation of any of the provisions of the code a non-compliance charge is imposed in an amount equal to \$100. This penalty is payable as part of the water bill, by the customer at the premises at which the violation occurred.

#### **6.1.2 Notices**

The District will give notice of each violation to the customer at the premises at which the violation occurred, as follows:

- For a first, second or third violation, the District may give written notice of the fact of such violation to the customer personally or by regular mail.
- If the penalty assessed is, or includes the installation of a flow restrictor or the discontinuance of water service to the customer for any period of time whatever, notice of the violation will be given in the following manner:
  - By giving written notice thereof to the customer personally; or
  - If the customer is absent from or unavailable at either the customer's place of residence or place of business, by leaving a copy with an adult at either place, and sending a copy through the United States mail addressed to the customer at either the customer's place of business or residence; or
  - If such place of residence and business cannot be ascertained, or an adult cannot be found on the premises, then by affixing a copy in a conspicuous place on the property where the failure to comply has occurred and also by delivering a copy to a person residing at the premises, if such person can be found, and also by sending a copy through the United States mail addressed to the customer at the customer's billing address and to the place where the property is situated;

- All notices will contain, in addition to the facts of the violation, a statement of the possible penalties for each violation, a statement informing the customer of the customer's right to a hearing on the violation, a brief summary of the appeal process specified herein, and the date and time termination will occur.

### **6.1.3 Appeals**

Any customer against whom a penalty is to be levied shall have a right to an appeal, in the first instance by the District General Manager, with the right of appeal to the District Board of Directors, on the merits of the alleged violation, upon the written request of that customer to the District clerk within 15 days of the date of notification of the violation. Penalties, including termination of water service, will be stayed until a decision is reached and a written decision is made by the District General Manager or their designee.

A request for an appeal must be in writing and filed with the District secretary. The filing by a customer of a request for an appeal for any form of relief must be made within 15 days of the decision of the water superintendent. Filing of such a request will automatically stay the implementation of the proposed course of action, pending the decision of the District's General Manager. No other or further stay will be granted. The appeal hearing will be scheduled to occur within a reasonable, prompt period of time following the written notice of appeal. The water user may present any evidence which would tend to show that the alleged wasteful water use has not occurred. Formal rules of evidence will not apply, and all relevant evidence customarily relied upon by reasonable persons in the conduct of serious business affairs will be admissible, unless a sound objection warrants its exclusion by the District public works director. The decision of the District public works director shall be final.

Where water service is disconnected, it will be reconnected upon correction of the condition or activity and the payment of the estimated reconnection charge.

## **6.2 Enforcement of Water Reductions**

The JBWD Board of Directors may choose to take actions through ordinance and resolution that establish mandatory water regulations that may include enforcement actions such as those previously implemented which includes:

A customer who does not meet the mandatory reduction above the health and safety baseline (6 CCF bimonthly use) shall pay a surcharge.

The JBWD General Manager may prescribe rules and regulations for the implementation of ordinance provisions.

## Section 7: Financial Consequences of Actions During Shortages

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Consumption reduction will impact revenues by decreasing the amount of water sold to customers. Water shortages may also impact construction activities. A reduction in construction activities will reduce water service connection fees collected by the District.

As consumption decreases, some expenditures are expected to increase. Staff costs for community education, enforcement of ordinances, monitoring and evaluation of water use, drought planning, and dealing with customer questions and complaints are expected to rise. Operations and maintenance costs may also increase because of the need to identify and quickly repair all water losses. A shift to alternative sources would change pumping, purchase, and treatment costs as different water supplies incur different purchase, treatment, and distribution costs.

JBWD has structured its rates into two main components: a fixed service charge and a commodity rate. The fixed service charge has been set with the intent of covering the water utility's fixed costs (meter infrastructure, billing, administration). The fixed service charge is meant to provide a fixed amount of income to JBWD independent of water consumption. Currently about 25 percent of JBWD's revenue comes from the fixed service charge. The commodity rate is a cost per unit consumed by the customer and is meant to recover the District's variable costs for providing water service. The commodity charge also sends the customer a price signal and rewards customers who conserve water. A decrease in consumption would impact revenue from the commodity charges as estimated in Table 7-1 below:

**TABLE 7-1 REVENUE IMPACTS OF REDUCED WATER DEMAND**

<b>Demand Reduction</b>	<b>Annual Revenue Reduction (\$ million)</b>	<b>% of ~\$24M Water Base Revenue</b>
10%	-\$1.73 M	- 7%
20%	-\$3.45 M	- 14%
30%	-\$5.18 M	- 22%
40%	-\$6.90 M	- 29%
50%	- \$8.63 M	- 36%

A reduction in water revenue could be mitigated substantially through deferral or avoidance of capital fund expenditures. This would meet short-term cash flow needs, although it should only be considered on a short-term basis.

The water purchases, utility costs and chemical costs are not a linear function of the water usage reduction. However, in order to provide an estimate of the cost savings, it is assumed that if there is a ten percent reduction in usage, there will also be a ten percent reduction in associated costs.

## **7.1 Revenue Impacts of Reduced Sales and Increased Costs**

Water Shortage Rates would be implemented when mandatory stages are enacted by the District Board of Directors. A rate schedule has been created for each mandatory stage of this plan. The rates would resume to normal rates once the Water Shortage Event is retracted based on triggers in this plan.

1. Goals of Water Shortage Rates:

- Meet community expectations to provide safe and reliable water supply during shortages at rates that are fair and as low as possible.
- Maintain fiscal stability in the event of a sudden or long-term water shortage.
- Achieve state mandates and legal requirements.

2. Principles of the Water Shortage Rates:

- The rates will be increased for each stage of mandatory conservation to ensure full revenue loss recovery.
- Any additional expenses from the water wholesaler or regulatory agencies due to drought will be passed onto customers through a water shortage pass-through when the District's Water Enterprise is charged.

3. Codifying the Water Shortage Rates:

- Customers will be given 30 days-notice prior to the rates going in effect unless the District Board takes extraordinary action.

JBWD prepared water shortage rates as part of its 2015 Water Shortage Rates Study. JBWD implemented drought shortage rates in FY16, FY17, FY18, FY19, FY20. An update to the water shortage rates are being studied as part of JBWD's current rate study.

In the case of future water use reductions resulting from the implementation of the WSCP, JBWD would likely experience impacts to operating revenue and would draw as necessary and as possible from reserves. Depending on the level of mandatory water reductions, the District could experience a decrease in revenue between 3 to 33%, based on water use reductions of 5 to 50%, respectively. Future or continued reductions in consumption would ultimately cause a rate structure adjustment, or the District may consider implementation of a drought surcharge rate that would generate enough revenue to fund operations without drawing from reserves.

## **7.2 Mitigation Actions to Address Revenue Reductions**

A reduction in water revenue could be mitigated by use of the established reserve fund, deferral or avoidance of capital fund expenditures, use of less costly water supplies (if possible), and implementation of drought surcharge rates. This would meet short-term cash flow needs, although it should only be considered on a short-term basis.

A summary of measures to overcome revenue and expenditure impacts is provided in Table 7-1.

**TABLE 7-1 MEASURES TO OVERCOME REVENUE IMPACTS DURING SHORTAGE**

<b>Measure</b>	<b>Summary of Effects</b>
Use of Reserve Funds	Use of reserves may provide short-term rate stabilization but would require delays in capital expenditures and rebuilding of reserves after the water shortage.
Re-evaluate Capital Expenditure Plans	Delay major construction projects for facilities as well as upgrades and replacements.
Shift Water Sources to Less Costly Supplies if Possible	Reduce costs associated with purchase, treatment, and distribution of water.
Shortage Rates	Increase revenue.

It should be noted that expenditure impacts could be reduced 2-10 percent during mandatory conservation efforts less than 50 percent because of the reduction in costs associated with the treatment and deliver of potable water. Rate adjustments could also be employed either solely or in conjunction with capital expenditure reductions.

### **7.3 Financial Consequences of Limiting Excessive Water Use**

Per the California Water Code Section 365 et al., retail water suppliers are required to prohibit or discourage excessive water use. Reporting this is not a required part of the UWMP; however, Water Code Section 10632(a)(8)(C) requires the financial consequences of these actions be reported as part of the UWMP.

Water Code Section 367 states that there are three types of drought emergencies:

- Declared statewide drought emergency
- When a supplier implements its mandatory reductions per their WSCP
- A declared local drought emergency

Water Code Section 366 states that a retail water supplier must prohibit excessive use through one of two strategies:

- Rate structure, specifically, a rate structure that includes block tiers, water budgets, or rate surcharges over and above base rates for excessive water use by a residential water customer.
- An excessive water use ordinance, specifically an ordinance that includes a procedure to identify and address excessive water use by metered single-family residential customers and customers in multiunit housing complexes in which each unit is individually metered or submetered and may include a process to issue written warnings to a customer and perform a site audit of customer water usage prior to deeming the customer in violation.

## **Section 8: References**

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American Water Works Association, 2011. Drought Preparedness and Response. Manual of Water Supply Practices, M60.

American Water Works Association. 2008. Forecasting Urban Demand. Second Edition.

California Department of Water Resources (DWR). 2008. Preparing for California's Next Drought : Changes Since 1987-92.

District of Santa Cruz Water Department, Water Conservation Office, December 2010. The 2009 Water Shortage An Evaluation of Water Management Strategies, Actions, and Results.

JBWD. 2022. 2020 Urban Water Management Plan.

US Bureau of Reclamation. 2010. Central Valley Project Municipal and Industrial Water Shortage Policy Review.

Virginia Polytechnic Institute and State University Blacksburg, Virginia, 2006. The Effectiveness of Drought Management Programs in Reducing Residential Water-Use in Virginia.

<http://water.ky.gov/wa/Documents/AdditlDroughtResources/VirginiaStudyonDroughtProgramEffectiveness.pdf>

