



June 2021

2020 Water Shortage Contingency Plan

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Acronyms and Abbreviations

%	Percent
Act	Urban Water Management Planning Act
AF	Acre-Feet
AFY	Acre-Feet per Year
Annual Assessment	Annual Water Supply and Demand Assessment
BPP	Basin Production Percentage
CRA	Colorado River Aqueduct
CVP	Central Valley Project
CWC	California Water Code
DDW	Division of Drinking Water
Delta	Sacramento-San Joaquin River Delta
DRA	Drought Risk Assessment
DVL	Diamond Valley Lake
DWR	California Department of Water Resources
EBSD	Emerald Bay Services District
EOCWD	East Orange County Water District
EOC	Emergency Operation Center
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
ETWD	El Toro Water District
FY	Fiscal Year
GPCD	Gallons per Capita per Day
GPD	Gallons per Day
GSP	Groundwater Sustainability Plan
GSWC	Golden State Water Company
HMP	Hazard Mitigation Plan
IRP	Integrated Water Resource Plan
IRWD	Irvine Ranch Water District
LBCWD	Laguna Beach County Water District
M&I	Municipal and industrial
MAF	Million Acre-Feet
MCL	Maximum Contaminant Level
Mesa Water	Mesa Water District
MET	Metropolitan Water District of Southern California
Metropolitan Act	Metropolitan Water District Act
MGD	Million Gallons per Day
MNWD	Moulton Niguel Water District
MWDOC	Municipal Water District of Orange County
OC	Orange County

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OC Basin	Orange County Groundwater Basin
OC San	Orange County Sanitation District
OCWD	Orange County Water District
SCAB	South Coast Air Basin
SCWD	South Coast Water District
Serrano	Serrano Water District
SMWD	Santa Margarita Water District
SOCWA	South Orange County Water Authority
Supplier	Urban Water Supplier
SWP	State Water Project
SWRCB	California State Water Resources Control Board
TCWD	Trabuco Canyon Water District
UWMP	Urban Water Management Plan
WEROC	Water Emergency Response Organization of Orange County
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WSDM	Water Surplus and Drought Management Plan
WUE	Water Use Efficiency
YLWD	Yorba Linda Water District

1 INTRODUCTION AND WSCP OVERVIEW

The Water Shortage Contingency Plan is a strategic planning document designed to prepare for and respond to water shortages. This Water Shortage Contingency Plan (WSCP) complies with California Water Code (CWC) Section 10632, which requires that every urban water supplier (Supplier) shall prepare and adopt a WSCP as part of its Urban Water Management Plan (UWMP). This level of detailed planning and preparation is intended to help maintain reliable supplies and reduce the impacts of supply interruptions.

The WSCP is MWDOC's operating manual that is used to prevent catastrophic service disruptions through proactive, rather than reactive, management. A water shortage, when water supply available is insufficient to meet the normally expected customer water use at a given point in time, may occur due to a number of reasons, such as population and land use growth, climate change, drought, and catastrophic events. This Plan provides a structured guide for MWDOC to deal with water shortages, incorporating prescriptive information and standardized action levels, along with implementation actions in the event of a catastrophic supply interruption. This way, if and when shortage conditions arise, MWDOC's governing body, its staff, and retail agencies can easily identify and efficiently implement pre-determined steps to manage a water shortage. A well-structured WSCP allows real-time water supply availability assessment and structured steps designed to respond to actual conditions, to allow for efficient management of any shortage with predictability and accountability.

The WSCP also describes MWDOC's procedures for conducting an Annual Water Supply and Demand Assessment (Annual Assessment) that is required by CWC Section 10632.1 and is to be submitted to the California Department of Water Resources (DWR) on or before July 1 of each year, or within 14 days of receiving final allocations from the State Water Project (SWP), whichever is later. MWDOC's 2020 WSCP is included as an appendix to its 2020 UWMP which will be submitted to DWR by July 1, 2021. However, this WSCP is created separately from MWDOC's 2020 UWMP and can be amended, as needed, without amending the UWMP. Furthermore, the CWC does not prohibit a Supplier from taking actions not specified in its WSCP, if needed, without having to formally amend its UWMP or WSCP.

1.1 Water Shortage Contingency Plan Requirements and Organization

The WSCP provides the steps and water shortage response actions to be taken in times of water shortage conditions. WSCP has prescriptive elements, such as: an analysis of water supply reliability; the water shortage response actions for each of the six standard water shortage levels that correspond to water shortage percentages ranging from 10% to greater than 50%; an estimate of potential to close supply gap for each measure; protocols and procedures to communicate identified actions for any current or predicted water shortage conditions; procedures for an Annual Assessment; and reevaluation and improvement procedures for evaluating the WSCP.

This WSCP is organized into three main sections, with Section 3 aligned with the CWC Section 16032 requirements.

Section 1 Introduction and WSCP Overview gives an overview of the WSCP fundamentals.

Section 2 Background provides a background on MWDOC's water service area.

Section 3 Water Shortage Contingency Preparedness and Response

Section 3.1 Water Supply Reliability Analysis provides a summary of the water supply analysis and water reliability findings from the 2020 UWMP.

Section 3.2 Annual Water Supply and Demand Assessment Procedures provide a description of procedures to conduct and approve the Annual Assessment.

Section 3.3 Six Standard Water Shortage Stages explains the WSCP's six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, 50, and more than 50% shortages.

Section 3.4 Shortage Response Actions describes the WSCP's shortage response actions that align with the defined shortage levels.

Section 3.5 Communication Protocols addresses communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding any current or predicted shortages and any resulting shortage response actions.

Section 3.6 Compliance and Enforcement is not required by wholesale water providers.

Section 3.7 Legal Authorities is a description of the legal authorities that enable MWDOC to implement and enforce its shortage response actions.

Section 3.8 Financial Consequences of the WSCP provides a description of the financial consequences of and responses for drought conditions.

Section 3.9 Monitoring and Reporting is not required by wholesale water providers.

Section 3.10 WSCP Refinement Procedures addresses reevaluation and improvement procedures for monitoring and evaluating the functionality of the WSCP.

Section 3.11 Special Water Feature Distinction is a required definition per the CWC for retail water agencies, not applicable to MWDOC as wholesale water supplier.

Section 3.12 Plan Adoption, Submittal, and Implementation provides a record of the process MWDOC followed to adopt and implement its WSCP.

1.2 Integration with Other Planning Efforts

As a retail water supplier in Orange County, MWDOC considered other key entities in the development of this WSCP, including the Metropolitan Water District of Southern California (MET) (regional wholesaler for Southern California and the direct supplier of imported water to MWDOC), and Orange County Water District (OCWD) (Orange County Groundwater Basin manager and provider of recycled water in North Orange County). As a wholesale water provider, MWDOC also worked with its retail agencies to align WSCP strategies to ensure robust water shortage planning and response across the District. The DWR Submittal tables for MWDOC's WSCP can be found in Appendix A.

Some of the key planning and reporting documents that were used to develop this WSCP are:

- **MWDOC's 2020 UWMP** provides the basis for the projections of the imported supply availability over the next 25 years for MWDOC's service area.

- **MWDOC's Orange County Reliability Study** provides the basis for water demand projections for MWDOC's member agencies as well as Anaheim, Fullerton, and Santa Ana.
- **MET's 2020 Integrated Water Resources Plan (IRP)** is a long-term planning document to ensure water supply availability in Southern California and provides a basis for water supply reliability in Orange County.
- **MET's 2020 UWMP** was developed as a part of the 2020 IRP planning process and was used by MWDOC as another basis for the projections of supply capability of the imported water received from MET.
- **MET's 2020 WSCP** provides a water supply assessment and guide for MET's intended actions during water shortage conditions.
- **OCWD's 2021 Water Reliability Plan** provides the latest information on groundwater management and supply projection for the Orange County Groundwater Basin (OC Basin), the primary source of groundwater for a significant number of water suppliers in Orange County.
- **OCWD's 2018-19 Engineer's Report** provides information on the groundwater conditions and basin utilization of the OC Basin.
- **OCWD's 2017 Basin 8-1 Alternative Plan** is an alternative to the Groundwater Sustainability Plan (GSP) for the OC Basin and provides significant information related to sustainable management of the basin in the past and hydrogeology of the basin, including groundwater quality and basin characteristics.
- **2020 Local Hazard Mitigation Plan** provides the basis for the seismic risk analysis of the water system facilities.
- **Orange County Local Agency Formation Commission's 2020 Municipal Service Review for MWDOC Report** provides a comprehensive service review of the municipal services provided by MWDOC.
- **Water Master Plan and Sewer Master Plan** of MWDOC provide information on water infrastructure planning projects and plans to address any required water system improvements.
- **Groundwater Management Plans** provide the groundwater sustainability goals for the basins in the MWDOC's service area and the programs, actions, and strategies activities that support those goals.

2 BACKGROUND INFORMATION

MWDOC was formed by Orange County voters in 1951 under the Municipal Water District Act of 1911 to provide imported water to inland areas of Orange County. Governed by an elected seven-member Board of Directors, MWDOC is MET's third largest member agency based on assessed valuation.

MWDOC is a regional water wholesaler and resource planning agency, managing all of Orange County's imported water supply except for water imported to the cities of Anaheim, Fullerton, and Santa Ana. MWDOC is committed to ensuring water reliability for 28 water entities and retail water agencies in its 600-square-mile service area. To that end, MWDOC focuses on sound planning and appropriate investments in water supply, water use efficiency, regional delivery infrastructure, and emergency preparedness.

Lying in the South Coast Air Basin (SCAB), its climate is characterized by southern California's Mediterranean climate with mild winters, warm summers, and moderate rainfall. In terms of land use, MWDOC's service area in the North Orange County is almost built out with predominantly residential units with pockets dedicated to commercial, institutional, governmental uses and open space and parks and the existing vacant lots in South Orange County are gradually transitioning to residential and commercial mixed-use areas. The current population of 2,342,740 is projected to increase by 8% over the next 25 years.

MWDOC is governed by an elected seven-member Board of Directors, with each board member representing a specific area of the County and elected to a four-year term by voters who reside within that part of the MWDOC service area. Each director is a member of at least one of the following standing committees: Planning and Operations; Administration and Finance; and Executive.

2.1 MWDOC Service Area

MWDOC serves more than 2.34 million residents in a 600-square-mile service area (Figure 2-1). Although MWDOC does not have its own water facilities and does not have jurisdiction over local supplies, it works to ensure the delivery of reliable water supplies to the region.

MWDOC serves imported water in Orange County to 28 water agencies. These entities, comprised of cities and water districts, are referred to as MWDOC member agencies and provide water to approximately 2.34 million residents. MWDOC retail agencies include:

- City of Brea
- City of Buena Park
- City of Fountain Valley
- City of Garden Grove
- City of Huntington Beach
- City of La Habra
- City of La Palma
- East Orange County Water District (EOCWD)
- El Toro Water District (ETWD)
- Emerald Bay Services District (EBSD)
- Irvine Ranch Water District (IRWD)
- Golden State Water Company (GSWC)
- Laguna Beach County Water District (LBCWD)
- Mesa Water District (Mesa Water)

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- City of Newport Beach
- City of Orange
- City of San Clemente
- City of San Juan Capistrano
- City of Seal Beach
- City of Tustin
- City of Westminster
- Moulton Niguel Water District (MNWD)
- Orange County Water District (OCWD)
- Santa Margarita Water District (SMWD)
- Serrano Water District (Serrano)
- South Coast Water District (SCWD)
- Trabuco Canyon Water District (TCWD)
- Yorba Linda Water District (YLWD)

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Figure 2-1: MWDOC Service Area

2.2 Relationship to MET

MWDOC became a member agency of MET in 1951 to bring supplemental imported water supplies to parts of Orange County. MET is the largest water wholesaler for domestic and municipal uses in California, serving approximately 19 million customers. MET wholesales imported water supplies to 26 member cities and water districts in six southern California counties. Its service area covers the southern California coastal plain, extending approximately 200 miles along the Pacific Ocean from the City of Oxnard in the north to the international boundary with Mexico in the south. This encompasses 5,200 square miles and includes portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. The regional locations of MET's member agencies are shown in Figure 2-2. Approximately 85% of the population from the aforementioned counties reside within MET's boundaries.

MET is governed by a Board of Directors comprised of 38 appointed individuals with a minimum of one representative from each of MET's 26 member agencies. The allocation of directors and voting rights are determined by each agency's assessed valuation. Each member of the Board shall be entitled to cast one vote for each ten million dollars (\$10,000,000) of assessed valuation of property taxable for district purposes, in accordance with Section 55 of the Metropolitan Water District Act (Metropolitan Act). Directors can be appointed through the chief executive officer of the member agency or by a majority vote of the governing board of the agency. Directors are not compensated by MET for their service.

MET is responsible for importing water into the region through its operation of the Colorado River Aqueduct (CRA) and its contract with the State of California for SWP supplies. Member agencies receive water from MET through various delivery points and pay for service through a rate structure made up of volumetric rates, capacity charges and readiness to serve charges. Member agencies provide estimates of imported water demand to MET annually in April regarding the amount of water they anticipate they will need to meet their demands for the next five years.

In Orange County, MWDOC and the cities of Anaheim, Fullerton, and Santa Ana are MET member agencies that purchase imported water directly from MET. Furthermore, MWDOC purchases both treated potable and untreated water from MET to supplement its retail agencies' local supplies.

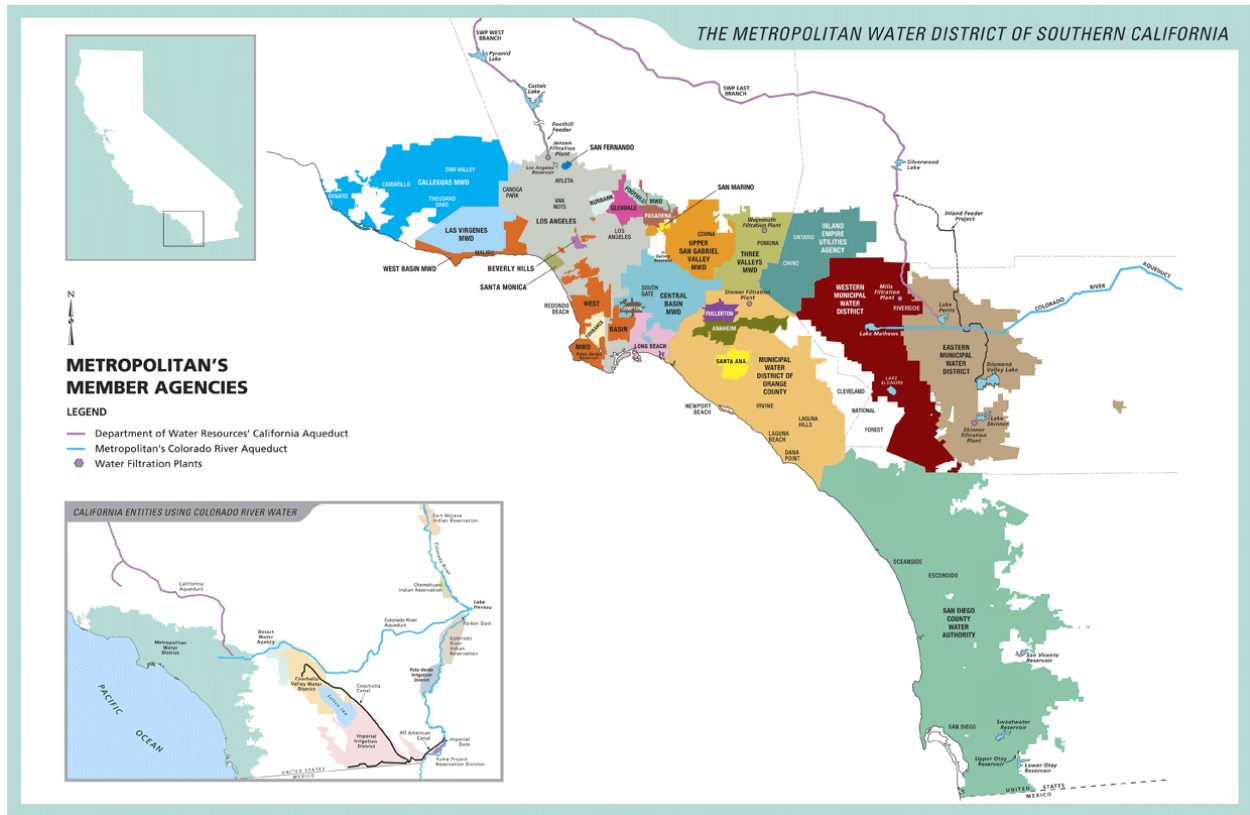


Figure 2-2: Regional Location of MET's Member Agencies

2.3 Relationship with MET Water Shortage Planning

The WSCP is designed to be consistent with MET's Water Shortage and Demand Management (WSDM) Plan, MET's Water Supply Allocation Plan (MET WSAP), MWDOC's Water Supply Allocation Plan (WSAP), and other emergency planning efforts as described below. MET and MWDOC's WSAPs are integral to the WSCP's shortage response strategy. In the event that MET determines that supply augmentation (including dedicated drought storage supply) and demand reduction measures would not be sufficient to meet projected supply needs, MET will determine shortage conditions exist and assign a water shortage level required for MWDOC's service area to meet a reduction in demands. In turn, MWDOC will need to further assess the shortage conditions within their service area to meet member agencies' demands and as required activate MWDOC's WSAP. If applicable, MWDOC will also need to need invoke water shortage level conditions appropriate to meet projected member agencies' demands as described further in Section 2.3.3 below.

2.3.1 MET Water Surplus and Drought Management Plan

MET evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage annually. Each stage is associated with specific resource management actions to avoid extreme shortages to the extent possible and minimize adverse impacts to retail

customers should an extreme shortage occur. The sequencing outlined in the WSDM Plan reflects anticipated responses towards MET's existing and expected resource mix.

Surplus stages occur when net annual deliveries can be made to water storage programs. Under the WSDM Plan, there are four surplus management stages that provides a framework for actions to take for surplus supplies. Deliveries in Diamond Valley Lake (DVL) and in SWP terminal reservoirs continue through each surplus stage provided there is available storage capacity. Withdrawals from DVL for regulatory purposes or to meet seasonal demands may occur in any stage.

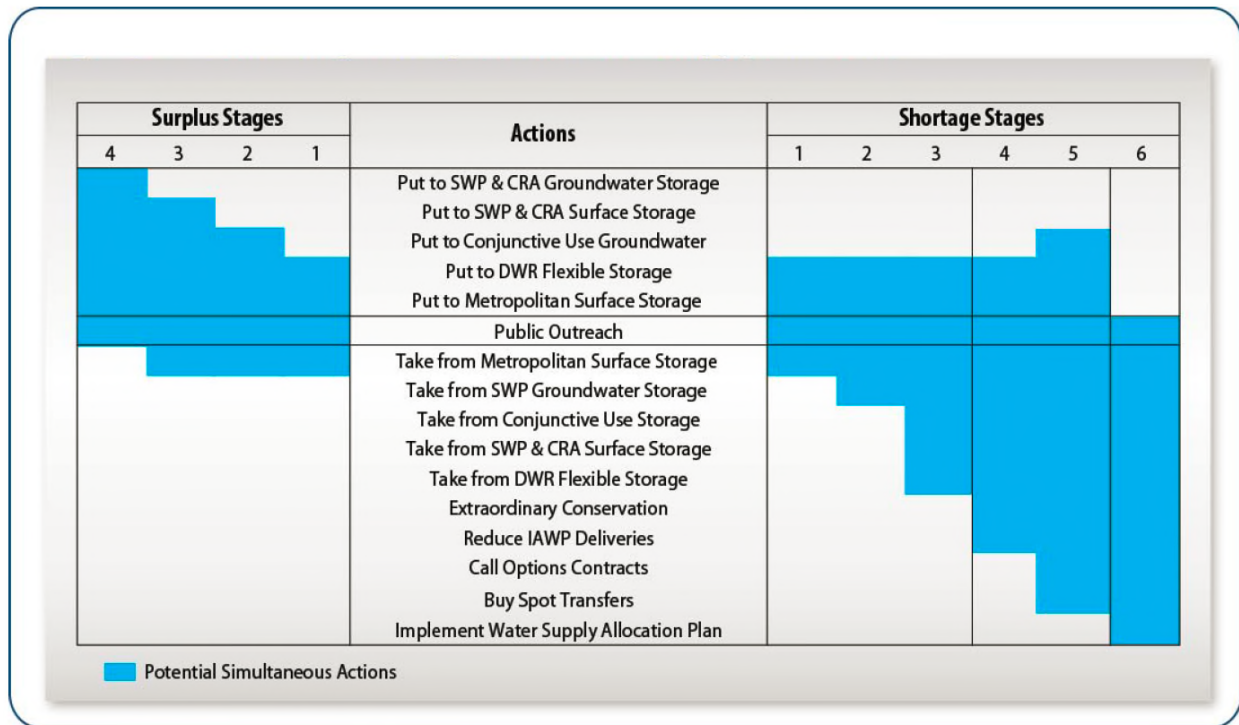
The WSDM Plan distinguishes between shortages, severe shortages, and extreme shortages. The differences between each term are listed below.

- Shortage: MET can meet full-service demands and partially meet or fully meet interruptible demands using stored water or water transfers, as necessary.
- Severe Shortage: MET can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation.
- Extreme Shortage: MET must allocate available supply to full-service customers.

There are six shortage management stages to guide resource management activities. These stages are defined by shortfalls in imported supply and water balances in MET's storage programs. When MET must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition.

Source: MET's WSDM, 1999.

Figure 2-3 gives a summary of actions under each surplus and shortage stages when an allocation plan is necessary to enforce mandatory cutbacks. The goal of the WSDM plan is to avoid Stage 6, an extreme shortage (MET, 1999).



Source: MET's WSDM, 1999.

Figure 2-3: Resource Stages, Anticipated Actions, and Supply Declarations

MET's Board of Directors adopted a Water Supply Condition Framework in June 2008 in order to communicate the urgency of the region's water supply situation and the need for further water conservation practices. The framework has four conditions, each calling increasing levels of conservation. Descriptions for each of the four conditions are listed below:

- Baseline Water Use Efficiency: Ongoing conservation, outreach, and recycling programs to achieve permanent reductions in water use and build storage reserves.
- Condition 1 Water Supply Watch: Local agency voluntary dry-year conservation measures and use of regional storage reserves.
- Condition 2 Water Supply Alert: Regional call for cities, counties, member agencies, and retail water agencies to implement extraordinary conservation through drought ordinances and other measures to mitigate use of storage reserves.
- Condition 3 Water Supply Allocation: Implement MET's WSAP.

As noted in Condition 3, should supplies become limited to the point where imported water demands cannot be met, MET will allocate water through the WSAP (MET, 2021a).

2.3.2 MET Water Supply Allocation Plan

MET's imported supplies have been impacted by a number of water supply challenges as noted earlier. In case of extreme water shortage within the MET service area is the implementation of its WSAP.

MET's Board of Directors adopted the WSAP in February 2008 to fairly distribute a limited amount of water supply and applies it through a detailed methodology to reflect a range of local conditions and needs of the region's retail water consumers (MET, 2021a).

The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. MET's WSAP is the foundation for the urban water shortage contingency analysis required under CWC Section 10632 and is part of MET's 2020 UWMP.

MET's WSAP was developed in consideration of the principles and guidelines in MET's 1999 WSDM Plan with the core objective of creating an equitable 'needs-based allocation.' The WSAP's formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of MET supplies of greater than 50%. The formula takes into account a number of factors, such as the impact on retail customers, growth in population, changes in supply conditions, investments in local resources, demand hardening aspects of water conservation savings, recycled water, extraordinary storage and transfer actions, and groundwater imported water needs.

The formula is calculated in three steps: 1) base period calculations, 2) allocation year calculations, and 3) supply allocation calculations. The first two steps involve standard computations, while the third step contains specific methodology developed for the WSAP.

Step 1: Base Period Calculations – The first step in calculating a member agency's water supply allocation is to estimate their water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of supply and demand is calculated using data from the two most recent non-shortage years.

Step 2: Allocation Year Calculations – The next step in calculating the member agency's water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population growth and changes in local supplies.

Step 3: Supply Allocation Calculations – The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2.

In order to implement the WSAP, MET's Board of Directors makes a determination on the level of the regional shortage, based on specific criteria, typically in April. The criteria used by MET includes, current levels of storage, estimated water supplies conditions, and projected imported water demands. The allocations, if deemed necessary, go into effect in July of the same year and remain in effect for a 12-month period. The schedule is made at the discretion of the Board of Directors (MET, 2021b).

As demonstrated by the findings in MET's 2020 UWMP both the Water Reliability Assessment and the Drought Risk Assessment (DRA) demonstrate that MET is able to mitigate the challenges posed by hydrologic variability, potential climate change, and regulatory risk on its imported supply sources through the significant storage capabilities it has developed over the last two decades, both dry-year and emergency storage (MET, 2021a).

Although MET's 2020 UWMP forecasts that MET will be able to meet projected imported demands throughout the projected period from 2025 to 2045, uncertainty in supply conditions can result in MET needing to implement its WSAP to preserve dry-year storage and curtail demands (MET, 2021b).

2.3.3 MWDOC Water Supply Allocation Plan

To prepare for the potential allocation of imported water supplies from MET, MWDOC worked collaboratively with its 28 retail agencies to develop its own WSAP that was adopted in January 2009 and amended in 2020. The MWDOC WSAP outlines how MWDOC will determine and implement each of its retail agencies' allocation during a time of shortage.

The MWDOC WSAP uses a similar method and approach, when reasonable, as that of the MET's WSAP. However, MWDOC's plan remains flexible to use an alternative approach when MET's method produces a significant unintended result for the member agencies. The MWDOC WSAP model follows five basic steps to determine a retail agency's imported supply allocation.

Step 1: Determine Baseline Information – The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the last two non-shortage years.

Step 2: Establish Allocation Year Information – In this step, the model adjusts for each retail agency's water need in the allocation year. This is done by adjusting the base period estimates for increased retail water demand based on population growth and changes in local supplies.

Step 3: Calculate Initial Minimum Allocation Based on MET's Declared Shortage Level – This step sets the initial water supply allocation for each retail agency. After a regional shortage level is established, MWDOC will calculate the initial allocation as a percentage of adjusted Base Period Imported water needs within the model for each retail agency.

Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts and Conservation– In this step, the model assigns additional water to address disparate impacts at the retail level caused by an across-the-board cut of imported supplies. It also applies a conservation credit given to those agencies that have achieved additional water savings at the retail level as a result of successful implementation of water conservation devices, programs and rate structures.

Step 5: Sum Total Allocations and Determine Retail Reliability – This is the final step in calculating a retail agency's total allocation for imported supplies. The model sums an agency's total imported allocation with all of the adjustments and credits and then calculates each agency's retail reliability compared to its Allocation Year Retail Demand.

The MWDOC WSAP includes additional measures for plan implementation, including the following (MWDOC, 2016):

- **Appeal Process** –An appeals process to provide retail agencies the opportunity to request a change to their allocation based on new or corrected information. MWDOC anticipates that under most circumstances, a retail agency's appeal will be the basis for an appeal to MET by MWDOC.
- **Melded Allocation Surcharge Structure** –At the end of the allocation year, MWDOC would only charge an allocation surcharge to each retail agency that exceeded their allocation if MWDOC exceeds its total allocation and is required to pay a surcharge to MET. MET enforces allocations to retail agencies through an allocation surcharge to a retail agency that exceeds its total annual allocation at the end of the 12-month allocation period. MWDOC's surcharge would

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be assessed according to the retail agency's prorated share (AF over usage) of MWDOC amount with MET. Surcharge funds collected by MET will be invested in its Water Management Fund, which is used in part to fund expenditures in dry-year conservation and local resource development.

- **Tracking and Reporting Water Usage** -MWDOC will provide each retail agency with water use monthly reports that will compare each retail agency's current cumulative retail usage to their allocation baseline. MWDOC will also provide quarterly reports on its cumulative retail usage versus its allocation baseline.
- **Timeline and Option to Revisit the Plan** -The allocation period will cover 12 consecutive months and the Regional Shortage Level will be set for the entire allocation period. MWDOC only anticipates calling for allocation when MET declares a shortage; and no later than 30 days from MET's declaration will MWDOC announce allocation to its retail agencies.

3 WATER SHORTAGE CONTINGENCY PREPAREDNESS AND RESPONSE PLANNING

MWDOC's WSCP is a detailed guide of how MWDOC intends to act in the case of an actual water shortage condition. The WSCP anticipates a water supply shortage and provides pre-planned guidance for managing and mitigating a shortage. Regardless of the reason for the shortage, the WSCP is based on adequate details of demand reduction and supply augmentation measures that are structured to match varying degrees of shortage will ensure the relevant stakeholders understand what to expect during a water shortage situation.

3.1 Water Supply Reliability Analysis

Per CWC Section 10632 (a)(1), the WSCP shall provide an analysis of water supply reliability conducted pursuant to CWC Section 10635, and the key issues that may create a shortage condition when looking at MWDOC's water asset portfolio.

Understanding water supply reliability, factors that could contribute to water supply constraints, availability of alternative supplies, and what effect these have on meeting customer demands provides MWDOC with a solid basis on which to develop appropriate and feasible response actions in the event of a water shortage. In the 2020 UWMP, MWDOC conducted a Water Reliability Assessment to compare the total water supply sources available to the water supplier with long-term projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years (MWDOC, 2021).

MWDOC also conducted a DRA to evaluate a drought period that lasts five consecutive water years starting from the year following when the assessment is conducted. An analysis of both assessments determined that MWDOC is capable of meeting all of its member agencies' demands from 2021 through 2045 for a normal year, a single dry year, and a drought lasting five consecutive dry years with significant supplemental dedicated drought supplies from MET and ongoing conservation program efforts from its member agencies. MET's projections take into account the imported demands from Orange County and as so, MET's water reliability assessments determine that demands within MWDOC can be met, and the development of numerous local sources further augments the reliability of the imported water system. As a result, there is no projected shortage condition due to drought that will trigger agency demand reductions until MET notifies MWDOC of its implementation of its WSAP. More information is available in MWDOC's 2020 UWMP Section 6 and 7 (MWDOC, 2021).

3.2 Annual Water Supply and Demand Assessment Procedures

Per CWC Section 10632.1, MWDOC will conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and by July 1st of each year, beginning in 2022, submit an annual water shortage assessment with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan.

MWDOC must include in its WSCP the procedures used for conducting an Annual Assessment. The Annual Assessment is a determination of the near-term outlook for supplies and demands and how a perceived shortage may relate to WSCP shortage stage response actions in the current calendar year. This determination is based

on information available to MWDOC at the time of the analysis. Starting in 2022, the Annual Assessment will be due by July 1 of every year.

This section documents the decision-making process required for formal approval of MWDOC's Annual Assessment determination of water supply reliability each year and the key data inputs and the methodologies used to evaluate the water system reliability for the coming year, while considering that the year to follow would be considered dry.

3.2.1 Decision-Making Process

The following decision-making process describes the functional steps that MWDOC will take to formally approve the Annual Assessment determination of water supply reliability each year.

3.2.1.1 MWDOC Steps to Approve the Annual Assessment Determination

The MWDOC Annual Assessment will be predicated on MET's WSDM supply demand tracking, which is reported monthly to their Board of Directors. MET WSDM planning involves the examination of developing demand and supply conditions for the calendar year, as well as considerations of potential actions consistent with the WSDM Plan. Additionally, MWDOC staff simultaneously provides water supplies and demand reports to its Board of Directors to inform them of emerging demand and supply conditions. These monthly analyses provide key information for MWDOC and MET to manage resources to meet a range of estimated demands and adjust to changing conditions throughout the year.

For many of MWDOC's member agencies, their primary source of water is produced locally from groundwater basins, recycle water projects, surface reservoirs, and groundwater recovery projects. Their remaining source to meet retail demands comes from the purchase of imported water from MWDOC. However, some member agencies, particularly in South Orange County, rely heavily on imported water due to limited local supplies. As described below, MWDOC surveys each member agency to project near term and long-term consumptive and replenishment imported water demands.

Annually, MWDOC surveys its member agencies for anticipated water demands and supplies for the upcoming year. MWDOC utilizes this information to plan for the anticipated imported water supplies for the MWDOC service area. This information is then shared and coordinated with MET and is incorporated into their analysis of their service areas' annual imported water needs. Based on the year's supply conditions and WSDM actions, MET will present a completed Annual Assessment for its member agencies' review from which they will then seek Board approval in April of each year.

Additionally, MET expects that any triggers or specific shortage response actions that result from the Annual Assessment would be approved by their Board at that time. Based upon MET's Assessment and taking into consideration information provided to MWDOC through the annual survey, MWDOC will provide each member agency an anticipated estimate of imported supplies by member agency to be incorporated into each agency's annual supply and demand assessment. MWDOC will then adopt its completed Annual Assessment prior to the July 1 deadline, so MWDOC's member agencies will be able to submit their annual assessment by the July 1 DWR deadline. Figure 3-1 provides a breakdown of the decision-making process.

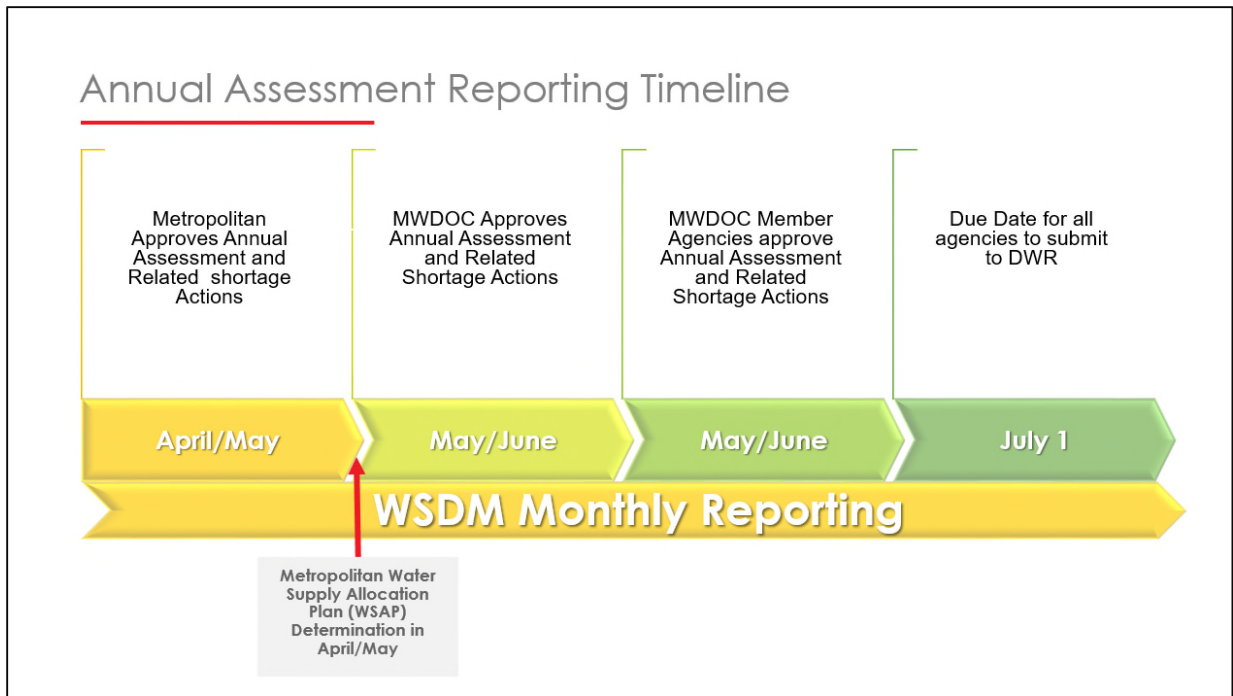


Figure 3-1: Sample Annual Assessment Reporting Timeline

3.2.2 Data and Methodologies

The following paragraphs document the key data inputs and methodologies that are used to evaluate MWDOC's water system reliability for the coming year, while considering that the year to follow would be considered dry.

3.2.2.1 Assessment Methodology

MWDOC will evaluate water supply reliability for the current year and one dry year for the purpose of the Annual Assessment. The Annual Assessment determination will be based on considerations of unconstrained water demand, local water supplies, MET imported water supplies, planned water use, and infrastructure considerations. The balance between projected in-service area supplies, coupled with MET imported supplies, and anticipated unconstrained demand will be used to determine what, if any, shortage stage is expected under the WSCP framework as presented in Figure 3-2. The WSCP's standard shortage stages are defined in terms of shortage percentages. Shortage percentages will be calculated by dividing the difference between water supplies and unconstrained demand by total unconstrained demand. This calculation will be performed separately for anticipated current year conditions and for assumed dry year conditions. More information on the basis of this calculation is available in MWDOC's 2020 UWMP Section 6 and 7.

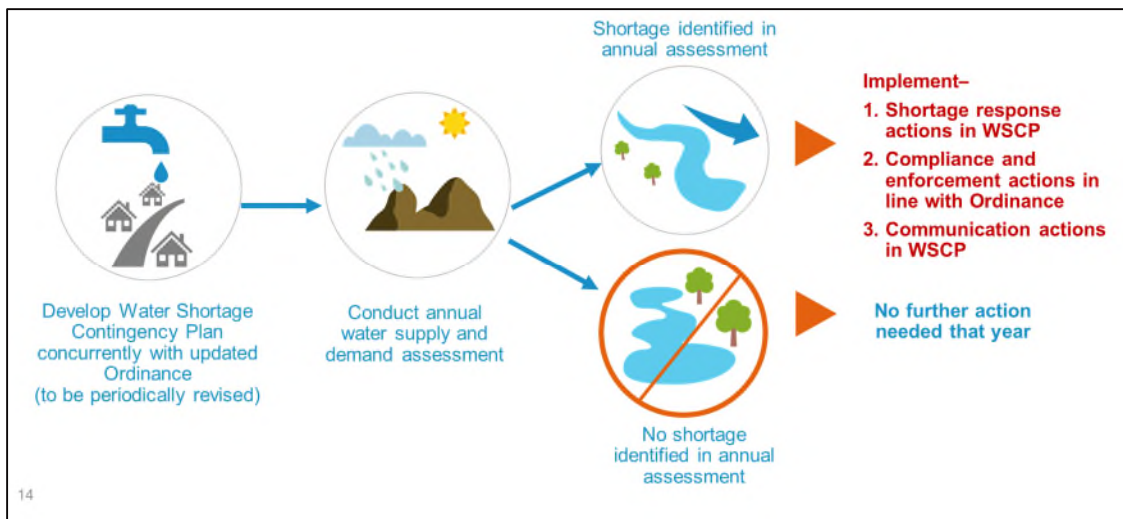


Figure 3-2: Water Shortage Contingency Annual Assessment Framework

3.2.2.2 Locally Applicable Evaluation Criteria

The information and analyses that comprise the Annual Assessment are based on ongoing planning processes that include the monthly WSDM supply-demand reporting. The Annual Assessment represents a mid-year evaluation at a given point in time; even after formal approval and submittal of the Annual Assessment determination by July 1, MWDOC will continue to monitor emerging supply and demand conditions and take appropriate actions consistent with the flexibility and adaptiveness inherent to the WSCP. Some conditions that affect MWDOC’s wholesale supply and demand, such as groundwater replenishment, surface water and local supply production, can differ significantly from earlier projections throughout the year.

Within Orange County, there are no significant local applicable criteria that directly affect reliability. Through the years, the water agencies in Orange County have made tremendous efforts to integrate their systems to provide flexibility to interchange with different sources of supplies. There are emergency agreements in place to ensure all parts of the County have an adequate supply of water. In the northern part of the County, agencies have the ability to meet a majority of their demands through groundwater with very little limitation, except for the OCWD Basin Production Percentage (BPP) as provided to each agency. For the agencies in southern Orange County, most of their demands are met with imported water where their limitation is based on the capacity of their system, which is considered sufficient to meet anticipated demands.

However, if a major earthquake on the San Andreas Fault occurs, it has the potential to damage all three key regional water aqueducts and disrupt imported supplies for up to six months. The region would likely impose a water use reduction ranging from 10-25% until the system is repaired. However, MET has taken proactive steps to handle such disruption, such as constructing DVL, which mitigates potential impacts. DVL, along with other local reservoirs, can store a six to twelve-month supply of emergency water (MET, 2021b).

3.2.2.3 Water Supply

MWDOC is the regional wholesaler of imported water that provides treated and untreated water purchased from MET for Municipal and Industrial (M&I) (direct) and non-M&I (indirect) uses within its service area. Imported water represents 35% of total water supply in MWDOC’s service area. As detailed in MWDOC’s 2020 UWMP, water

supplies within MWDOC's service area are from local and imported sources. Local supplies developed by other entities and retail agencies include groundwater, recycled water, and surface water, accounting for 65% of the service area's water supplies. In North Orange County, imported water from MWDOC is supplemental, as agencies can pump a significant amount of their water demand from the OC Basin as set by the BPP; however, member agencies in South Orange County rely more heavily on imported water due to limited local resources.

3.2.2.4 Unconstrained Customer Demand

The WSCP and Annual Assessment define unconstrained demand as expected water use prior to any projected shortage response actions that may be taken under the WSCP. Unconstrained demand is distinguished from observed demand, which may be constrained by preceding, ongoing, or future actions, such as emergency supply allocations during a multi-year drought. WSCP shortage response actions to constrain demand are inherently extraordinary; routine activities such as ongoing conservation programs and regular operational adjustments are not considered as constraints on demands.

MWDOC's DRA reveals that its supply capabilities are expected to balance anticipated total water use and supply, assuming a five-year consecutive drought from 2021 through 2045. Water demands in a five-year consecutive drought are calculated as a six percent increase in potable water demand above a normal year for each year of the drought. MWDOC purchases a fixed amount of untreated imported water from MET for use in groundwater recharge for the OC Basin and surface storage in Irvine Lake, which accounts for its non-potable demand that does not experience a six percent increase in demand, as these volumes are not affected by changes in hydrological conditions. MWDOC purchases a fixed amount of untreated imported water from MET for use in groundwater recharge for the OC Basin and surface storage in Irvine Lake, which accounts for its non-potable demand that does not experience a six percent increase in demand, as these volumes are not directly affected by changes in hydrological conditions.

3.2.2.5 Planned Water Use for Current Year Considering Dry Subsequent Year

CWC Section 10632(a)(2)(B)(ii) requires the Annual Assessment to determine "current year available supply, considering hydrological and regulatory conditions in the current year and one dry year."

The Annual Assessment will include two separate estimates of MWDOC's annual water supply and unconstrained demand using: 1) current year conditions, and 2) assumed dry year conditions. Accordingly, the Annual Assessment's shortage analysis will present separate sets of findings for the current year and dry year scenarios. The CWC does not specify the characteristics of a dry year, allowing discretion to the Supplier. MWDOC will use its discretion to refine and update its assumptions for a dry year scenario in each Annual Assessment as information becomes available and in accordance with best management practices.

In MWDOC's 2020 UWMP, the "single dry year" is characterized to resemble conditions as a year in which conditions reflect the lowest water supply available to the Supplier. Supply and demand analyses for the single-dry year case was based on conditions affecting the SWP as this supply availability fluctuates the most among METs, and therefore MWDOC's, sources of supply. Fiscal Year 2013-14 is considered the single driest year for SWP supplies with an allocation of 5% to M&I uses. Unique to this year, the 5% SWP allocation was later reduced to 0%, before ending up at its final allocation of 5%, highlight the stressed water supplies for the year. Furthermore, on January 17, 2014 Governor Brown declared the drought State of Emergency, citing 2014 as the driest year in California history. Additionally, within MWDOC's service area, precipitation for FY 2013-14 was the second lowest on record, with 4.37 inches of rain, significantly impacting water demands (MWDOC, 2021).

3.2.2.6 Infrastructure Considerations

With the sale of the Allen-McColloch Pipeline to MET in 1995, MWDOC no longer owns or operates a distribution system. However, as the regional wholesale agency, MWDOC closely coordinates with MET and its member agencies on any planned infrastructure work that may impact water supply availability. The Annual Assessment will include consideration of any infrastructure issues that may pertain to near-term water supply reliability, including repairs, construction, and environmental mitigation measures that may temporarily constrain capabilities, as well as any new projects that may add to system capacity. Throughout each year, MET regularly carries out preventive and corrective maintenance of its facilities within the MWDOC service area that may require shutdowns. MET plans and performs shutdowns to inspect and repair pipelines and facilities and support capital improvement projects. These shutdowns involve a high level of planning and coordination between MWDOC, MWDOC's Member Agencies, and MET. These shutdowns are scheduled to ensure that major portions of the distribution system are not out of service at the same time. Operational flexibility within MET's system and the cooperation of member agencies allow shutdowns to be successfully completed while continuing to meet all system demands.

3.3 Six Standard Water Shortage Levels

Per CWC Section 10632 (a)(3)(A), MWDOC must include the six standard water shortage levels that represent shortages from the normal reliability as determined in the Annual Assessment. The shortage levels have been standardized to provide a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions. This is an outgrowth of the severe statewide drought of 2012-2016, and the widely recognized public communication and state policy uncertainty associated with the many different local definitions of water shortage Levels.

The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10%, 20%, 30%, 40%, 50%, and greater than 50% shortage compared to the normal reliability condition) and align with the response actions MWDOC would implement to meet the severity of the impending shortages (Table 3-1).

Table 3-1: Water Shortage Contingency Plan Levels

DWR Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	Percent Shortage Range	Shortage Response Actions
0	0% (Normal)	A Level 0 Water Supply Shortage –Condition exists when MWDOC notifies its water users that no supply reductions are anticipated in this year. MWDOC proceeds with planned water efficiency best practices to support consumer demand reduction in line with state mandated requirements and local MWDOC goals for water supply reliability.

DWR Submittal Table 8-1 Water Shortage Contingency Plan Levels		
1	Up to 10%	A Level 1 Water Supply Shortage – Condition exists when no supply reductions are anticipated, a consumer imported demand reduction of up to 10% is recommended to make more efficient use of water and respond to existing water conditions. Upon the declaration of a Water Aware condition, MWDOC shall implement the mandatory Level 1 conservation measures identified in this WSCP. The type of event that may prompt MWDOC to declare a Level 1 Water Supply Shortage may include, among other factors, a finding that its wholesale water provider (MET) calls for extraordinary water conservation efforts.
2	Up to 20%	A Level 2 Water Supply Shortage – Condition exists when MWDOC notifies its member agencies that due to drought or other supply reductions, a consumer imported demand reduction of up to 20% is necessary to make more efficient use of water and respond to existing water conditions. Upon declaration of a Level 2 Water Supply Shortage condition, MWDOC shall implement the mandatory Level 2 conservation measures identified in this WSCP.
3	Up to 30%	A Level 3 Water Supply Shortage – Condition exists when MWDOC declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its member agencies that up to 30% consumer imported demand reduction is required to ensure sufficient supplies for human consumption, sanitation, and fire protection. MWDOC must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350. A member agencies water supply shortage level is the governing shortage level for their respective service area.
4	Up to 40%	A Level 4 Water Supply Shortage – Condition exists when MWDOC declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its member agencies that up to 40% consumer imported demand reduction is required to ensure sufficient supplies for human consumption, sanitation, and fire protection. MWDOC must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350. A member agencies water supply shortage level is the governing shortage level for their respective service area.

DWR Submittal Table 8-1 Water Shortage Contingency Plan Levels		
5	Up to 50%	A Level 5 Water Supply Shortage – Condition exists when MWDOC declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its member agencies that up to 50% or more consumer imported demand reduction is required to ensure sufficient supplies for human consumption, sanitation, and fire protection. MWDOC must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350. A member agencies water supply shortage level is the governing shortage level for their respective service area.
6	>50%	A Level 6 Water Supply Shortage – Condition exists when MWDOC declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its member agencies that greater than 50% or more consumer imported demand reduction is required to ensure sufficient supplies for human consumption, sanitation, and fire protection. MWDOC must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350. A member agencies water supply shortage level is the governing shortage level for their respective service area.
<p>NOTES: MWDOC’s water shortage levels are aligned with MET’s (MET, 2021a).</p>		

3.4 Shortage Response Actions

CWC Section 10632 (a)(4) requires the WSCP to specify shortage response actions that align with the defined shortage levels. MWDOC has defined specific shortage response actions that align with the defined shortage levels in DWR Tables 8-2 and 8-3 (Appendix A). These shortage response actions were developed with consideration to the system infrastructure and operations changes, supply augmentation responses, customer-class or water use-specific demand reduction initiatives, and increasingly stringent water use prohibitions.

3.4.1 Demand Reduction

The demand reduction measures that would be implemented to address shortage levels are described in DWR Table 8-2 (Appendix A). This table indicates which actions align with specific defined shortage levels and estimates the extent to which that action will reduce the gap between supplies and demands. DWR Table 8-2 (Appendix A) demonstrates the chosen suite of shortage response actions anticipated to deliver the expected outcomes necessary to meet the requirements of a given shortage level (e.g., target of an additional 10% water savings). This table also identifies the enforcement action, if any, associated with each demand reduction measure.

MWDOC’s demand reduction actions correspond to shortage Levels 0 through 6, with coordination with the Water Emergency Response Organization of Orange County (WEROC) anticipated to begin at Level 4 or greater.

At Level 0, MWDOC has ongoing long-term conservation savings measures including providing rebates for landscape irrigation efficiency, plumbing fixtures and devices, and turf replacement and providing programmatic support to retail agencies to reduce system water loss. For Shortage Levels 1 through 6, MWDOC will continuously expand public awareness campaigns to encourage consumers to reduce their water usage and implement voluntary demand reduction and its WSAP to further reduce the imported water shortage gap at each level, reaching up to greater than 50% of the shortage gap at Level 6.

3.4.2 Supply Augmentation

Supply Augmentation actions represent short-term management objectives triggered by the MET's WSDM Plan and do not overlap with the long-term new water supply development or supply reliability enhancement projects. Supply Augmentation is made available to MWDOC through MET. MWDOC relies on MET's reliability portfolio of water supply programs including existing water transfers, storage, and exchange agreements to supplement gaps in the supply/demand balance. MET has developed significant storage capacity (over 5 MAF) in reservoirs and groundwater banking programs both within and outside of the Southern California region. Additionally, MET can pursue additional water transfer and exchange programs with other water agencies to help mitigate supply/demand imbalances and provide additional dry-year supply sources.

MWDOC will work in close coordination with MET on their supply augmentation projects during normal conditions and shortage Levels 1 through 6 to ensure reliability of imported water for the service area. MWDOC's supply augmentation actions are described in DWR Table 8-3 (Appendix A).

3.4.3 Operational Changes

During shortage conditions, water operations in Orange County may be affected depending on the specific condition or situation. As noted in section 3.2.2.6, MWDOC does not own any infrastructure, nor does it direct the operations of infrastructure in Orange County. MWDOC will coordinate and facilitate operational changes that may result from shortage conditions or arise from an emergency situation.

3.4.4 Additional Mandatory Restrictions

CWC Section 10632(a)(4)(D) calls for "additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions" to be included among the WSCP's shortage response actions. These prohibitions are in addition to the proposed State Board regulation in California Code of Regulations, title 23, division 3, a new chapter 3.5 on Conservation and the Prevention of Waste and Unreasonable Use; and within chapter 3.5, a new article 2 pertaining to Wasteful and Unreasonable Uses. Mandatory prohibitions include:

- Hosing off sidewalks, driveways, and other hardscapes;
- Washing automobiles with hoses not equipped with a shut-off nozzle;
- Using non-recirculated water in a fountain or other decorative water feature;
- Watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation;
- Irrigating ornamental turf on public street medians.

MWDOC currently does not have any additional restrictions above the Statewide Mandatory prohibitions. However, State law gives substantial discretion to wholesale and retail water agencies to promulgate regulations and restrictions to conserve and allocate water in the event of a water shortage.

3.4.5 Emergency Response Plan (Hazard Mitigation Plan)

A catastrophic water shortage would be addressed according to the appropriate water shortage level and response actions. It is likely that a catastrophic shortage would immediately trigger a shortage level of up to Level 6 in the impacted area, and response actions have been put in place to mitigate a catastrophic shortage. In addition, there are several Plans that address catastrophic failures and align with the WSCP, including MET's WSDM and WSAP and MWDOC's Hazard Mitigation Plan (HMP) and Emergency Operations Plan (EOP).

3.4.5.1 MET's Water Surplus and Drought Management and Water Supply Allocation Plans

MET has comprehensive plans for stages of actions it would undertake to address a catastrophic interruption in water supplies through its WSDM and WSAP. MET also developed an Emergency Storage Requirement to mitigate against potential interruption in water supplies resulting from catastrophic occurrences within the southern California region, including seismic events along the San Andreas Fault. In addition, MET is working with the state to implement a comprehensive improvement plan to address catastrophic occurrences outside of the southern California region, such as a maximum probable seismic event in the Sacramento-San Joaquin River Delta (Delta) that would cause levee failure and disruption of SWP deliveries.

3.4.5.2 Water Emergency Response Organization of Orange County Emergency Operations Plan

In 1983, the Orange County water community identified a need to develop a plan on how agencies would respond effectively to disasters impacting the regional water distribution system. The collective efforts of these agencies resulted in the formation of WEROC to coordinate emergency response on behalf of all Orange County water and wastewater agencies, develop an emergency plan to respond to disasters, and conduct disaster training exercises for the Orange County water community. WEROC was established with the creation of an indemnification agreement between its member agencies to protect each other against civil liabilities and to facilitate the exchange of resources. WEROC is unique in its ability to provide a single point of contact for representation of all water and wastewater utilities in Orange County during a disaster. This representation is to the county, state, and federal disaster coordination agencies. Within the Orange County Operational Area, WEROC is the recognized contact for emergency response for the water community, including MWDOC.

As a member of WEROC, MWDOC will follow WEROC's EOP in the event of an emergency and coordinate with WEROC to assess damage, initiate repairs, and request and coordinate mutual aid resources for MWDOC's service area.

The EOP defines the actions to be taken by WEROC Emergency Operations Center (EOC) staff to reduce the loss of water and wastewater infrastructure; to respond effectively to a disaster; and to coordinate recovery operations in the aftermath of any emergency involving extensive damage to Orange County water and wastewater utilities. The EOP includes activation notification protocol that will be used to contact partner agencies to inform them of the situation, activation status of the EOC, known damage or impacts, or resource needs. The EOP is a standalone document that is reviewed annually and approved by the Board every three years.

MWDOC is responsible for managing the response effort within the service area in the event of an emergency. In order to avoid duplicating requests and efforts, MWDOC can use the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). SEMS and

NIMS implement an organized system of information flow to ensure a timely and coordinated effort in response to any sort of disaster to meet specific emergency needs within its service area.

The WEROC EOC is responsible for assessing the overall condition and status of the Orange County regional water distribution and wastewater collection systems including MET facilities that serve Orange County. The EOC can be activated during an emergency situation that can result from both natural and man-made causes, and can be activated through automatic, manual, or standby for activation.

WEROC recognized four primary phases of emergency management, which include:

- **Preparedness:** Planning, training, and exercises that are conducted prior to an emergency to support and enhance response to an emergency or disaster.
- **Response:** Activities and programs designed to address the immediate and short-term effects of the onset of an emergency or disaster that helps to reduce effects to water infrastructure and speed recovery. This includes alert and notification, EOC activation, direction and control, and mutual aid.
- **Recovery:** This phase involved restoring systems to normal, in which short-term recovery actions are taken to assess the damage and return vital life-support systems to minimum operating standards, while long-term recovery actions have the potential to continue for many years.
- **Mitigation/Prevention:** These actions prevent the occurrence of an emergency or reduce the areas vulnerability in ways that minimize the adverse impacts of a disaster or emergency. MWDOC's HMP outlines threats and identifies mitigation projects.

The EOC Action Plans (EAP) provide frameworks for EOC staff to respond to different situations with the objectives and steps required to complete them, which will in turn serve the WEROC member agencies. In the event of an emergency which results in a catastrophic water shortage, MWDOC will declare a water shortage condition of up to Level 6 for the impacted area depending on the severity of the event, and coordination with WEROC is anticipated to begin at Level 4 or greater (WEROC, 2018).

3.4.6 Seismic Risk Assessment and Mitigation Plan

Per CWC Section 10632.5, Suppliers are required to assess seismic risk to water supplies as part of their WSCP. The plan also must include the mitigation plan for the seismic risk(s). Given the great distances that imported supplies travel to reach Orange County, the region is vulnerable to interruptions along hundreds of miles aqueducts, pipelines and other facilities associated with delivering the supplies to the region. Additionally, the infrastructure in place to deliver supplies are susceptible to damage from earthquakes and other disasters.

In lieu of conducting a seismic risk assessment specific to its 2020 UWMP, MWDOC has included the previously prepared regional HMP for the Orange County region and its member agencies, as the regional imported water wholesaler, that is required under the federal Disaster Mitigation Act of 2000 (Public Law 106-390).

MWDOC's HMP identified that the overarching goals of the HMP were the same for all of its member agencies, which include:

- Goal 1: Minimize vulnerabilities of critical infrastructure to minimize damages and loss of life and injury to human life caused by hazards.
- Goal 2: Minimize security risks to water and wastewater infrastructure.
- Goal 3: Minimize interruption to water and wastewater utilities.
- Goal 4: Improve public outreach, awareness, education, and preparedness for hazards in order to increase community resilience.

- Goal 5: Eliminate or minimize wastewater spills and overflows.
- Goal 6: Protect water quality and supply, critical aquatic resources, and habitat to ensure a safe water supply.
- Goal 7: Strengthen Emergency Response Services to ensure preparedness, response, and recovery during any major or multi-hazard event.

MWDOC's HMP evaluates hazards applicable to all jurisdictions in its entire planning area, prioritized based on probability, location, maximum probable extent, and secondary impacts. Earthquake fault rupture and seismic hazards, including ground shaking and liquefaction, are among the highest ranked hazards to the region as a whole because of its long history of earthquakes, with some resulting in considerable damage. A significant earthquake along one of the major faults could cause substantial casualties, extensive damage to infrastructure, fires, damages and outages of water and wastewater facilities, and other threats to life and property.

Nearly all of Orange County is at risk of moderate to extreme ground shaking, with liquefaction possible throughout much of Orange County, but the most extensive liquefaction zones occur in coastal areas. Based on the amount of seismic activity that occurs within the region, there is no doubt that communities within Orange County will continue to experience future earthquake events, and it is a reasonable assumption that a major event will occur within a 30-year timeframe.

MWDOC's mitigation actions identify the hazard, proposed mitigation action, location/facility, local planning mechanism, risk, cost, timeframe, possible funding sources, status, and status rationale, as applicable. It is envisioned that the mitigation actions will mostly be implemented on a jurisdiction-by-jurisdiction basis; however, MWDOC will provide facilitation to spearhead coordination of initiatives on a regional level. This includes acting as a lead on water related hazard mitigation projects that are regional in nature, such as projects that cross several jurisdictional boundaries and work planned on behalf of MET, while Orange County Sanitation District (OC San) and South Orange County Water Authority (SOCWA) will take the lead on wastewater related hazard mitigation projects that are regional and within their service areas (MWDOC, 2019). In South Orange County, MNWD works with OCWD to transfer water to the area, and MWDOC has a goal to pursue additional local projects in South Orange County.

3.4.7 Shortage Response Action Effectiveness

For each specific Shortage Response Action identified in the plan, the WSCP also estimates the extent to which that action will reduce the gap between supplies and demands identified in DWR Table 8-2 (Appendix A). To the extent feasible, MWDOC has estimated percentage savings for the chosen suite of shortage response actions, which can be anticipated to deliver the expected outcomes necessary to meet the requirements of a given shortage level.

3.5 Communication Protocols

Timely and effective communication is a critical element of the WSCP implementation. Per CWC Section 10632 (a)(5), MWDOC has established communication protocols and procedures to inform the public, stakeholders, and local, regional, and state governments regarding any current or predicted water supply shortages as determined by the annual water supply and demand assessment described pursuant to

Section 10632.1; any water shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1; and any other relevant communications.

This section includes specific communications protocols to address each water shortage level and response action that can be derived from the results of the Annual Assessment. This element would likely be triggered based upon the decision-making process in Section 3.2 and/or emergency communications protocols to address earthquakes, fires, infrastructure failures, civil unrest, and other catastrophic events.

Strategic communication is an ongoing activity where the purpose, audience, message, tools, and channels may change at any given moment. In the context of water shortage response, the purpose may be an emergency water shortage like what may result from the impacts of an earthquake or a longer-term, non-emergency shortage condition like drought. In an emergency, MWDOC will activate the communication protocol detailed in the WEROC Emergency Operations Plan. In a non-emergency water shortage situation, MWDOC will implement the procedures identified in the Strategic Communications Program and Plan.

3.5.1 WEROC Emergency Operations Plan Communication

This Plan defines the actions to be taken by WEROC EOC staff to reduce the loss of water and wastewater infrastructure; to respond effectively to a disaster; and to coordinate recovery operations in the aftermath of any emergency involving extensive damage to Orange County water and wastewater utilities. The EOC Plan includes activation notification protocol that will be used to contact partner agencies to inform them of the situation, activation status of the EOC, known damage or impacts, or resource needs. The EOC Plan is a standalone document that is reviewed annually and approved by the Board every three years.

The WEROC EOC is responsible for assessing the overall condition and status of the Orange County regional water distribution and wastewater collection systems including MET facilities that serve Orange County. The EOC can be activated during an emergency situation that can result from both natural and human-made causes, and can be activated through automatic, manual, or standby for activation. The WEROC EOC activation decision steps include the following (WEROC, 2018):

- **Categorize incident:** Using information gathered from one or more sources, the WEROC primary contact will categorize the incident as a natural disaster, human-made disaster, terrorist threat, or terrorist physical attack.
- **Initial determination of situation:** WEROC and MWDOC management will make an initial determination of the situation based on scope and severity of the incident, damage to affected agencies, and potential impacts.
- **WEROC activation level:** WEROC and MWDOC management will determine the appropriate level of WEROC activation.
- **Groups that will be notified:** When the EOC is activated, at a minimum, WEROC EOC staff, affected water utilities, MET's EOC at Eagle Rock, the Operational Area EOC, the Division of Drinking Water, health care agency, and California Department of Public Health should be notified.

3.5.2 Strategic Communications Program and Plan

MWDOC presently develops, coordinates, and delivers a substantial number of programs and services to elevate stakeholders' awareness about water policy, efficient water use, and the District's role in advocating for water

reliability investments that are in the best interest of Orange County. MWDOC's award-winning Strategic Communications Program and Plan serves as a blueprint for District communications, establishing a baseline understanding for how MWDOC's programs and activities provide information to the public, various stakeholders, partners, and employees during normal and non-emergency water shortage conditions.

The MWDOC Public Affairs Department (Department) elevates public awareness, garners support, and works to establish confidence in the District's initiatives by providing transparent, accurate, and reliable information to the public, stakeholders, partners, and 28 member agencies. Serving all 3.2 million Orange County residents and businesses in some fashion, MWDOC utilizes various communications tools and channels to reach and unify a vast and diverse group of audiences.

The Department stays up-to-date on water supply conditions and shortage actions through active participation in local, regional, and statewide meetings. Additionally, the Department continuously evaluates its programs and communications tools and channels to reach the District's identified goals and objectives, actively support its member agencies, and effectively inform the Orange County community. Upon declaration of a non-emergency, water shortage condition, the Department has the appropriate tools and systems to implement the communication protocols defined in the MWDOC Strategic Communications Program and Plan.

3.5.2.1 Goals & Objectives

The MWDOC Strategic Communications Program and Plan aligns the District's identified goals and objectives with the respective audiences and outlines the appropriate communications tools and channels used to connect them. Specifically, water shortage communication will follow the protocols designed for Goal #2, Objective 2.2 as defined by the Board of Directors, executive management, and the District's Mission Statement:

- **Goal #2:** Examine, develop, and implement sound policies and programs that support Orange County water investments, and provide recognized value to the region.
- **Objective 2.2:** Be the trusted, leading voice for the region on water reliability, water policy, efficient water use, water education, and emergency preparedness and response.

3.5.2.2 Target Audiences

The MWDOC Strategic Communications Program and Plan provides a detailed framework of the District's target audience groups to provide clear and concise messaging based on the audience's needs, wants, and interests. Understanding MWDOC's identified audience groups will make it possible to logically align messaging with the appropriate communications tools and channels and reach the District's identified goals and objectives during a non-emergency water shortage.

3.5.2.3 Communications Tools and Channels

As a guiding reference, the MWDOC Strategic Communications Program and Plan defines communications tools, activities, and channels and identifies how MWDOC currently utilizes each of these resources to reach the goals and objectives of the District. During a normal and non-emergency water shortage condition, MWDOC will use these readily available communication tools and resources to successfully reach the District's target audience groups with intended messages.

3.5.2.4 Implementation, Assignments, and Schedules

A carefully developed and executed communications plan can establish trust and credibility for the public, stakeholders, partners, member agencies, and employees. A clearly outlined plan must be in place to effectively communicate water supply conditions and water shortage actions. Once described, all strategic targets should include an implementation plan which identifies tactics and logistics, and eventually, active monitoring, evaluation, and amending. This step is essential as the District's communications tools, resources, and messaging must adapt and evolve, sometimes rapidly, in the ever-changing landscape of water policy and regulation.

Assignments are essential to maintaining productivity and accountability as well as collectively accomplishing the goals of a project. The Department has developed a Programs and Responsibility flowchart which breaks down the Department's primary roles and assignments by team member (See Strategic Communications Program and Plan). Additionally, the Department has developed a series of logistical checklists to efficiently plan, implement, and control the flow of information during a water shortage. It will continue to do so as the situation evolves. Furthermore, the Department uses robust program management software tools such as Asana and CoSchedule to stay in touch with impending deadlines and to keep everything, including assignments and checklists, organized and in one place.

3.5.2.5 Monitor, Evaluate, and Amend

The effectiveness of the MWDOC Strategic Communications Program and Plan depends on a large variety of factors, including technological advancements or changes, the rise and fall of audience engagement, current news or media concentration, political changes in leadership and focus, and even the weather. The Department currently utilizes a robust set of Key Performance Indicators (KPI), metrics, and measurements to track the effectiveness of MWDOC's programs, activities, and communication efforts. Through this process, the District's programs and activities are continuously shaped and refined to remain relevant and valuable to the public, stakeholders, partners, employees, and its 28 member agencies.

3.5.2.6 Water Shortage Communication

The type and degree of communication varies with each shortage level; thus, predefined and actionable communication protocols improve MWDOC's ability to message necessary events. These communication protocols and procedures are summarized in Table 3-2.

Table 3-2: Communication Procedures

Communications Procedures Matrix				
Level 0 Permanent Water Waste Prohibitions	Level 1 Up to 10% Voluntary Conservation	Level 2 Up to 20% Mandatory Conservation	Levels 3-4 Up to 30% or 40% Mandatory Conservation	Levels 5-6 Up to 50% or >50% Mandatory Conservation
Standard outreach efforts in effect (media relations, social media, websites, etc.)	Update message platform to reflect conditions and needed actions from the public	Update campaigns and messages to generate immediate actions and behaviors by the public	Update campaigns and messages to raise awareness for more severe water-saving actions and behaviors by the public	Update campaigns and messages to reflect extreme or emergency conditions, and likely need to focus water use on health and safety needs
Promote ongoing WUE programs, tools, partnerships designed to achieve long-term water management goals	Announce status change to the public, key stakeholders, partners, and employees (News release, social media, etc.)	Announce status change to the public, key stakeholders, partners, and employees (News release, social media, etc.)	Announce status change to the public, key stakeholders, partners, and employees (News release, social media, etc.)	Announce status change to the public, key stakeholders, partners, and employees (News release, social media, etc.)
Standard coordination with member agencies	Include increased conservation messages on MWDOC.com and in standard outreach efforts; provide regular condition updates to stakeholders and the media	Supplement Level 1 activities with additional tactics (mass media ads, partnerships, events, etc.) as needed; provide regular condition updates to Stakeholders and the media	Supplement Level 2 outreach with additional tactics (supplemental ads, etc.) as needed; provide regular updates to stakeholders and the media on conditions	Supplement Level 3-4 outreach with additional tactics as needed; provide regular condition updates to stakeholders and the media on conditions
As-needed Board reports on public communication and WUE outreach activities	Enhance promotion of ongoing WUE programs and tools; deploy targeted advertising	Conduct issue briefings with elected officials, and other key civic and business leaders	Conduct specialized outreach to reduce discretionary outdoor use while minimizing landscape damage	Suspend promotion of long-term WUE programs and tools to focus on imminent needs

Communications Procedures Matrix				
	Increase coordination with member agencies	Continue promotion of ongoing WUE programs and tools	Promote available water assistance resources for vulnerable populations; specialized outreach to impacted industries	Continue enhanced coordination with member agencies as needed (daily or weekly briefings, email updates, etc.)
		Enhance coordination with member agencies as needed	Continue enhanced coordination with member agencies as needed	Analyze water use and other data to determine any appropriate supplemental actions
	Analyze water use and other data to determine any appropriate supplemental actions	Analyze water use and other data to determine any appropriate supplemental actions	Analyze water use and other data to determine any appropriate supplemental actions	

3.6 Compliance and Enforcement

Per the CWC Section 10632 (a)(6), wholesale water providers are not subject to these requirements.

3.7 Legal Authorities

As a regional wholesaler, MWDOC does not have the legal authority to implement and enforce its shortage response in its service area; however, to comply with CWC Section 10632 (a)(6), MWDOC uses pricing to discourage their member agencies from purchasing greater amounts of water during a shortage.

Per CWC Section 10632 (a)(7) (B), MWDOC shall declare a water shortage emergency condition to prevail within the area served by such wholesaler 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.

Per CWC Section 10632 (a)(7)(C), MWDOC shall coordinate with any agency or county within which it provides water supply services for the possible proclamation of a local emergency under California Government Code, California Emergency Services Act (Article 2, Section 8558). Table 3-3 identifies the contacts for all cities or counties for which the Supplier provides service in the WSCP, along with developed coordination protocols, can facilitate compliance with this section of the CWC in the event of a local emergency as defined in subpart (c) of Government Code Section 8558.

Table 3-3: Agency Contacts and Coordination Protocols

Contact	Agency	Coordination Protocols
Assistant General Manager, Water Services	Anaheim Public Utilities	Notification, Coordination, and provide supportive actions
Public Works Director	City of Brea	Notification, Coordination, and provide supportive actions
Director of Public Works/City Engineer	City of Buena Park	Notification, Coordination, and provide supportive actions
Director of Public Works/City Engineer	City of Fountain Valley	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Fullerton	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Garden Grove	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Huntington Beach	Notification, Coordination, and provide supportive actions
Director of Public Works	City of La Habra	Notification, Coordination, and provide supportive actions
Public Works & Community Services Director	City of La Palma	Notification, Coordination, and provide supportive actions
Utilities Director	City of Newport Beach	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Orange	Notification, Coordination, and provide supportive actions
Public Works Director	City of San Clemente	Notification, Coordination, and provide supportive actions
Director of Public Works	City of San Juan Capistrano	Notification, Coordination, and provide supportive actions

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Contact	Agency	Coordination Protocols
Acting Public Works Director	City of Santa Ana	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Seal Beach	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Tustin	Notification, Coordination, and provide supportive actions
Director of Public Works	City of Westminster	Notification, Coordination, and provide supportive actions
General Manager	East Orange County Water District	Notification, Coordination, and provide supportive actions
General Manager	El Toro Water District	Notification, Coordination, and provide supportive actions
General Manager	Emerald Bay Service District	Notification, Coordination, and provide supportive actions
General Manager, Orange County	Golden State Water Company	Notification, Coordination, and provide supportive actions
General Manager	Irvine Ranch Water District	Notification, Coordination, and provide supportive actions
General Manager	Laguna Beach County Water District	Notification, Coordination, and provide supportive actions
General Manager	Mesa Water	Notification, Coordination, and provide supportive actions
General Manager	Moulton Niguel Water District	Notification, Coordination, and provide supportive actions
General Manager	Orange County Water District	Notification, Coordination, and provide supportive actions

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Contact	Agency	Coordination Protocols
General Manager	Santa Margarita Water District	Notification, Coordination, and provide supportive actions
General Manager	Serrano Water District	Notification, Coordination, and provide supportive actions
General Manager	South Coast Water District	Notification, Coordination, and provide supportive actions
General Manager	Trabuco Canyon Water District	Notification, Coordination, and provide supportive actions
General Manager	Yorba Linda Water District	Notification, Coordination, and provide supportive actions
Public Works Director	Orange County	Notification
Public Works Director	City of Aliso Viejo	Notification
Director of Public Services	City of Costa Mesa	Notification
Public Works Director	City of Cypress	Notification
Public Works Director	City of Dana Point	Notification
Public Works Director	City of Irvine	Notification
Public Works Director	City of Laguna Beach	Notification
Public Works Director	City of Laguna Hills	Notification

Contact	Agency	Coordination Protocols
Public Works Director	City of Laguna Niguel	Notification
City Engineer	City of Laguna Woods	Notification
Public Works Director	City of Lake Forest	Notification
City Engineer	City of Los Alamitos	Notification
Public Works Director	City of Mission Viejo	Notification
Public Works Director	City of Placentia	Notification
Public Works Director	City of Rancho Santa Margarita	Notification
Public Works Director	City of Stanton	Notification
Public Works Director	City of Villa Park	Notification
Public Works Director	City of Yorba Linda	Notification

3.8 Financial Consequences of WSCP

Per CWC Section 10632(a)(8), Suppliers must include a description of the overall anticipated financial consequences to the Supplier of implementing the WSCP. This description must include potential reductions in revenue and increased expenses associated with implementation of the shortage response actions. This should be coupled with an identification of the anticipated mitigation actions needed to address these financial impacts.

MWDOCs rates and fees fall into three general categories: (1) the pass through of costs from MET for imported water rates and charges; (2) specific charges for MWDOC services contracted by our Member Agencies (Choice Budget); and (3) charges for MWDOC services that apply to all our member agencies (Core Budget). Below is a more detail description on each category:

1. The pass-through rates and charges from MET are billed on a monthly basis to our member agencies with the majority of the cost allocation based on their volumetric purchases. MWDOC does not collect any revenue from these charges.
2. The Choice Budget fees are primarily associated with the water education school program and the water use efficiency program, including conservation rebates. MWDOC member agencies elect to subscribe to specific programs and can opt-out of program participation. These fees are assessed to recover the entire cost of these "Choice" programs. Any additional revenue collected is either reimbursed to the participating agencies at the end of the year or credited the following year. No additional revenue is collected for MWDOC.
3. MWDOC's Core Budget includes all other programs and functions provided to our member agencies. Among them are: Water Reliability Planning, MET Activities, Government Affairs, Public Affairs, Water Use Efficiency, Emergency Response, Board Functions, Finance, Information Technology, and Administration.

MWDOC's Core Budget is funded through a fixed charge assessed on each agency's retail meter and a fixed groundwater service charge, which are both collected at the beginning of each fiscal year.

Because MWDOC's rate structure is completely fixed and does not fluctuate with volumetric sales, the implementation of the WSCP will not impact MWDOC's revenues. There may be an increase in MWDOC's expenditures as it relates to additional public and media outreach. However, as experienced in the last drought of 2014-2015, MWDOC coordinated such outreach efforts with its member agencies and most costs were shared among the participating agencies. Therefore, any additional expenditures are not anticipated to be significant and can be recovered by MWDOC reserves.

MWDOC's choice budget would also not be adversely impacted by implementation of the WSCP. Although we anticipate during a shortage there will be an increase in funding to support the implementation of member agency WSCPs, as described above, MWDOC's Choice Budget are selected by our member agencies to participate and pay their share according to the service received.

Lastly, the pass-through rates and charges from MET do not have a financial impact on MWDOC and will not be adversely impacted by the implementation of the WSCPs.

3.9 Monitoring and Reporting

Per CWC Section 10632(a)(9), water provider wholesalers are not subject to this requirement.

3.10 WSCP Refinement Procedures

Per CWC Section 10632 (a)(10), MWDOC must provide reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

MWDOC's WSCP is prepared and implemented as an adaptive management plan. In addition, if certain procedural refinements or new actions are identified by MWDOC staff, or suggested by customers or other interested parties, MWDOC will evaluate their effectiveness, incorporate them into the WSCP, and implement them quickly at the appropriate water shortage level.

It is envisioned that the WSCP will be periodically re-evaluated to ensure that its shortage risk tolerance is adequate, and the shortage response actions are effective and up to date based on lessons learned from implementing the WSCP. The WSCP will be revised and updated during the UWMP update cycle to incorporate updated and new information. For example, new supply augmentation actions will be added, and actions that are no longer applicable for reasons such as program expiration will be removed. However, if revisions to the WSCP are warranted before the UWMP is updated, the WSCP will be updated outside of the UWMP update cycle. In the course of preparing the Annual Assessment each year, MWDOC staff will routinely consider the functionality the overall WSCP and will prepare recommendations for MWDOC Board of Directors if changes are found to be needed.

3.11 Special Water Feature Distinction

As a wholesaler, CWC Section 10632 (b) is not applicable to MWDOC.

3.12 Plan Adoption, Submittal, and Availability

Per CWC Section 10632 (a)(c), MWDOC provided notice of the availability of the draft 2020 UWMP and draft 2020 WSCP and notice of the public hearing to consider adoption of the WSCP. The public review drafts of the 2020 UWMP and the 2020 WSCP were posted prominently on MWDOC's [website](#), in advance of the public hearing on May 19, 2021. Copies of the draft WSCP were also made available for public inspection at MWDOC Clerk's and Utilities Department offices and public hearing notifications were published in local newspapers. A copy of the published Notice of Public Hearing is included in Appendix D.

MWDOC held the public hearing for the draft 2020 UWMP and draft WSCP on May 19, 2021 at the Board meeting. MWDOC Board reviewed and approved the 2020 UWMP and the WSCP at its May 19, 2021 meeting. See Appendix E for the resolution approving the WSCP.

By July 1, 2021, MWDOC's adopted 2020 UWMP and WSCP was filed with DWR, California State Library, and the County of Orange. MWDOC will make the WSCP available for public review on its website no later than 30 days after filing with DWR.

Based on DWR's review of the WSCP, MWDOC will make any amendments in its adopted WSCP, as required and directed by DWR.

If MWDOC revises its WSCP after UWMP is approved by DWR, then an electronic copy of the revised WSCP will be submitted to DWR within 30 days of its adoption.

4 REFERENCES

Metropolitan Water District of Southern California (MET). (2021a, March). *Water Shortage Contingency Plan*.
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Municipal Water District of Orange County (MWDOC). (2016). *Water Supply Allocation Plan*.

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Water Emergency Response Organization of Orange County (WEROC). (2018, March). *WEROC Emergency Operations Plan (EOP)*.

APPENDICES

Appendix A. DWR Submittal Tables

**Submittal Table 8-1: Water Shortage Contingency
Plan Levels**

Submittal Table 8-2: Demand Reduction Actions

**Submittal Table 8-3: Supply Augmentation
Actions**

Appendix B. MWDOC Water Supply Allocation Plan

**Appendix C. MWDOC Strategic Communications Program and
Plan**

Appendix D. Notice of Public Hearing

Appendix E. Adopted WSCP Resolution

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