2025 Water Shortage Contingency Plan

Public Draft

MAY 2026 | CALLEGUAS MUNICIPAL WATER DISTRICT

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Prepared by Water Systems Consulting, Inc

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Water Systems Consulting, Inc. would like to acknowledge the significant contributions of Calleguas Municipal Water District. The primary contributors are listed below.

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ACRONYMS & ABBREVIATIONS

AF	Acre-Feet
ASR	Aquifer and Storage Recovery
Calleguas	Calleguas Municipal Water District
CRA	Colorado River Aqueduct
CWC	California Water Code
DRA	Drought Risk Assessment
DWR	Department of Water Resources
ERP	Emergency Response Plan
EWSP	Emergency Water Supply Plan
FCGMA	Fox Canyon Groundwater Management Agency
IRP	Integrated Resource Plan
LADWP	Los Angeles Department of Water and Power
LBWFP	Lake Bard Water Filtration Plant
LVMWD	Las Virgenes Municipal Water District
Metropolitan	Metropolitan Water District of Southern California
Purveyors	Retail water purveyors
SWP	State Water Project
UWMP	Urban Water Management Plan
WRISt	Water Resource Implementation Strategy
WSAP	Water Supply Allocation Plan
WSAS	Water Supply Alternatives Assessment
WSCP	Water Shortage Contingency Plan
WSDM	Water Surplus and Drought Management

1.0 Introduction

This Water Shortage Contingency Plan (WSCP) is a strategic plan that the Calleguas Municipal Water District (Calleguas) uses to prepare for and respond to water shortages. A water shortage occurs when the water supply available is insufficient to meet the normally-expected customer water use at a given point in time. A shortage may occur due to several reasons, including water supply quality changes, climate change, drought, regional power outages, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands. The WSCP serves as the operating manual that Calleguas will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages.

Major elements of the WSCP include a process for an annual water supply and demand assessment and shortage response actions that align with six standard water shortage levels based on water supply conditions and shortages resulting from catastrophic supply interruptions. This level of detailed planning and preparation provides accountability and predictability to help Calleguas maintain reliable supplies and reduce the impact of any supply shortages and/or interruptions.

This WSCP was prepared in conjunction with the Calleguas 2025 Urban Water Management Plan (UWMP) and is a standalone document that can be modified as needed. Calleguas is a Member Agency of the Metropolitan Water District of Southern California (Metropolitan), who provides Calleguas with imported water supplies that Calleguas distributes on a wholesale basis to its retail water purveyors. Because Calleguas is fully dependent on Metropolitan for its main water supply, Calleguas's WSCP was developed to align with Metropolitan's WSCP. This document is compliant with the California Water Code (CWC) Section 10632 and incorporates guidance from the State of California Department of Water Resources (DWR) UWMP Guidebook.

The WSCP describes the following:

1. **Water Service Reliability Analysis:** Summarizes Calleguas's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.
2. **Annual Water Supply and Demand Assessment Procedures:** Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year. It also describes the steps to formally declare any water shortage stages and response actions.
3. **Water Shortage Stages:** Establishes water shortage stages to clearly identify and prepare for shortages.
4. **Shortage Response Actions:** Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.
5. **Communication Protocols:** Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.

6. **Legal Authority:** Lists the legal documents that grant Calleguas the authority to declare a water shortage and implement and enforce response actions.
7. **Financial Consequences of WSCP Implementation:** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.
8. **WSCP Refinement Procedures:** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.
9. **Plan Adoption, Submittal, and Availability:** Describes the process for the WSCP adoption, submittal, and availability after each revision.

2.0 Water Service Reliability Analysis

Besides the WSCP, the Urban Water Management Planning Act requires suppliers to conduct two other planning analyses to evaluate supply reliability. The first is a water service reliability assessment that compares 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. The second is a Drought Risk Assessment (DRA) that evaluates a drought period that lasts five consecutive water years starting from the year following when the assessment is conducted.

Calleguas's water service reliability assessment and DRA are included in Section 7 of the 2025 UWMP. This section briefly describes the findings from both analyses.

For the water service reliability assessment, Calleguas utilized imported water supply projections developed for their 2025 Water Resource Implementation Strategy (WRISt) project, which evaluated improved water supply resilience and reliability for the Calleguas service area. The WRISt imported water supply projections are based on projections provided by Metropolitan and developed during for their 2020 Integrated Resource Plan (IRP). The WRISt projections start with Metropolitan's 2020 IRP reduced imported supply projections to the Calleguas service area and incorporate planned Metropolitan drought action and core supply projects that were not included in the original projections. Metropolitan also prepared a single scenario projection for their 2025 UWMP but acknowledges that the 2020 IRP projections include a wider range of future scenarios. For the most conservative planning, Calleguas used the lower WRISt projections based on Metropolitan's 2020 IRP projections for the water service reliability assessment.

The water service reliability assessment projects that Calleguas will have adequate supplies to meet expected demands in a normal, single-dry, and the first four years of a five-year consecutive drought. In year five, a demand reductions of 15%, using Calleguas's WSCP actions, is anticipated.

For the DRA, Calleguas relied on projections provided by Metropolitan for the 2025 UWMP. The DRA considers the lowest supplies available during a five-year consecutive drought, projected

changes in supplies over the next five years, and current conditions. Calleguas is almost fully reliant on Metropolitan for its supply, so Calleguas mirrored the approach for the DRA with the approach taken by Metropolitan. Using Metropolitan's 2025 UWMP projections for the DRA also takes into consideration current conditions, such as Metropolitan's existing storage reserves. Metropolitan's DRA projects that it may have shortages of its core supplies in four out of five years, but can mitigate for shortages to its member agencies by taking additional water from their storage facilities (Metropolitan Water District of Southern California, 2025). Based on Metropolitan's assessment, Calleguas also does not project any shortages in the next five years in its DRA.

In addition to supplies from Metropolitan, Calleguas has significant storage capabilities within its direct control through Lake Bard and the Las Posas Aquifer and Storage Recovery (ASR) Project. The Las Posas ASR Project provides drought and imported water outage storage supplies, while Lake Bard is reserved for outage-only periods. Additionally, Calleguas has identified, implemented, and is pursuing projects to bolster supply reliability outside of reliance on Metropolitan. These include the recently completed Calleguas-Las Virgenes Interconnection and planned Calleguas-Ventura Interconnection. Additionally, Calleguas completed a Water Supply Alternatives Assessment (WSAS) in 2022 to identify top water supply alternatives to meet demand during a six-month imported water supply outage and is currently implementing a portion of the recommendations. Calleguas also completed the WRISt in 2025 that expanded on the WSAS to evaluate water supply reliability in drought and outage periods. A description of the findings from these planning documents and Calleguas's current efforts to implement the recommendations is discussed in Section 6.10 of the 2025 UWMP.

3.0 Annual Water Supply and Demand Assessment Procedures

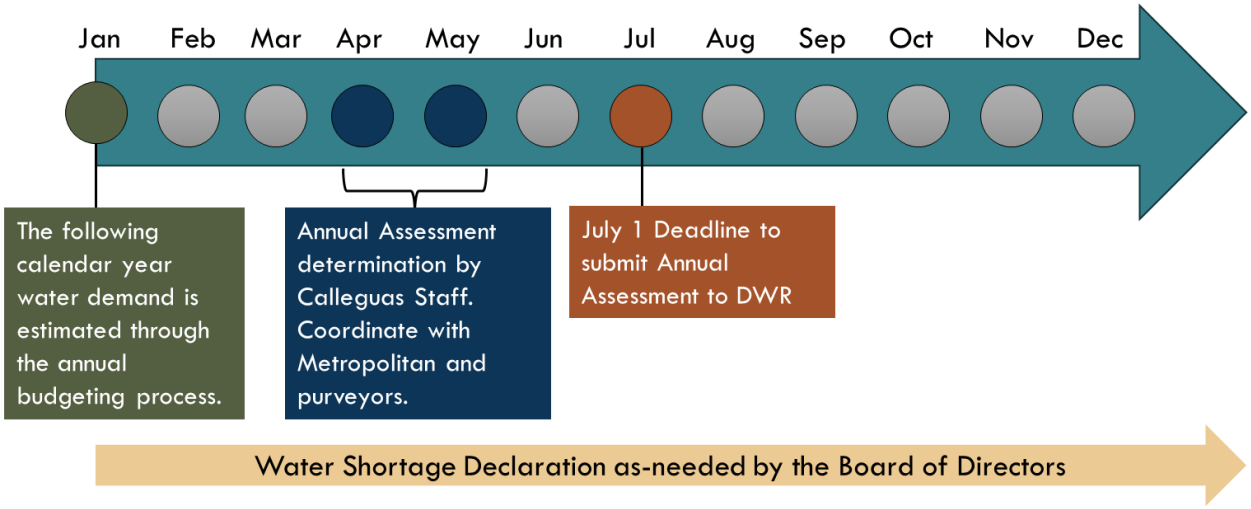
As an urban water supplier, Calleguas must prepare and submit an Annual Assessment to the DWR by July 1 each year. The Annual Assessment is a determination of the near-term outlook for supplies and demands and indicates whether a water supply shortage is projected in the next year based on known circumstances and information available at the time of analysis. The Annual Assessment can help suppliers anticipate shortages and the need to enact their WSCP shortage stage and response actions for the upcoming year.

Calleguas's Annual Assessment procedures and timeline are shown in Figure 3-1. The water demand for the following year is estimated through Calleguas's annual budgeting process by January of each year. In April and May, Calleguas staff will conduct the Annual Assessment using estimated demands developed from the budgeting process. Calleguas and Metropolitan typically coordinate in early May on the Annual Assessment; this includes a joint evaluation of whether or not projected supplies will be sufficient to meet expected demand. Calleguas will also coordinate with their purveyors to provide available supplies for their Annual Assessments.

Other factors, such as infrastructure constraints and water quality impacts, will be considered during the Annual Assessment determination.

The Calleguas Board of Directors designates the General Manager or Manager of Water Resources to approve and submit the Annual Assessment to DWR by July 1st. If the Annual Assessment indicates that a change in the current shortage level is needed, a resolution to declare that shortage stage will be brought to the Board of Directors for approval. The Board of Directors can declare a water shortage at any time if needed based on current conditions, and a shortage stage may be declared outside of the typical Annual Assessment determination timeline.

Figure 3-1. Annual Assessment Reporting Timeline



4.0 Water Shortage Stages

As required by California Water Code Section 10632(a)(3)(A), the WSCP is framed around six standard water shortage levels that correspond to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortages, shown in Table 4-1. Shortage levels also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other emergency events. The shortage levels are defined in terms of the percent shortfall of supplies against demands.

Table 4-1. Six Standard Shortage Levels

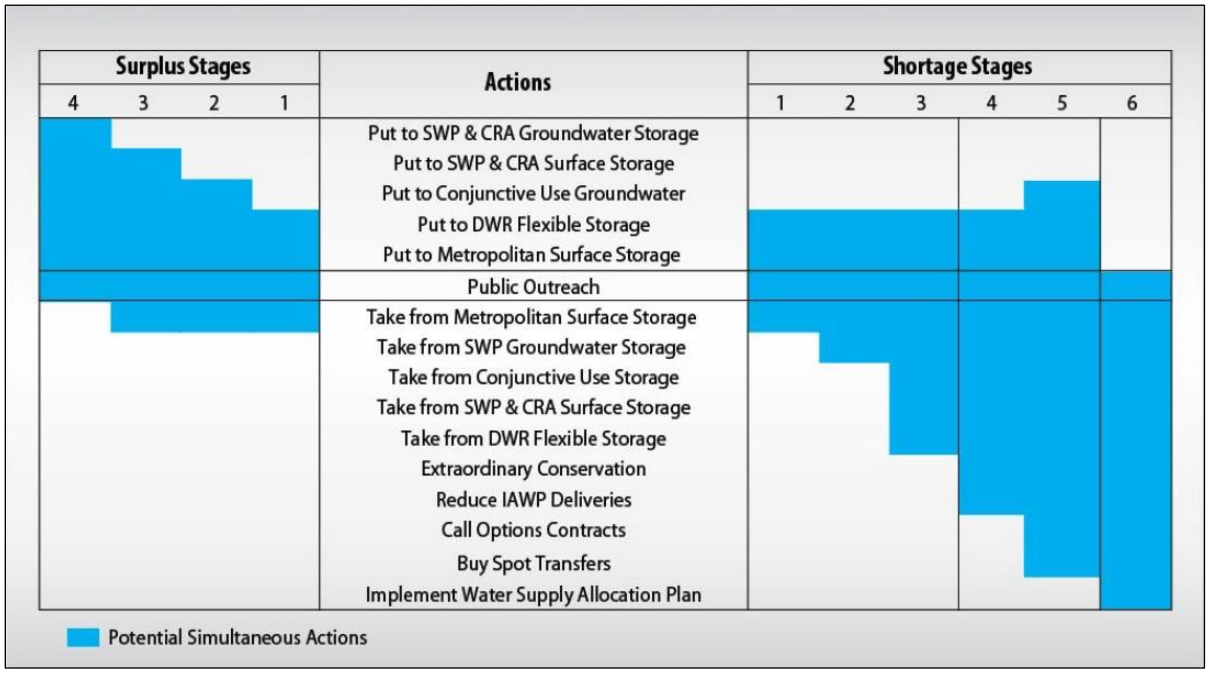
Shortage Stage	Percent Shortage Range
1	Up to 10%
2	Up to 20%
3	Up to 30%
4	Up to 40%
5	Up to 50%
6	> 50%

4.1 Determining Water Shortage Reductions

With exception of a catastrophic failure of the Santa Susana Tunnel or other critical infrastructure, Calleguas does not foresee imposing allocations except under Metropolitan's direction. Metropolitan's WSCP, provided in Attachment H.1, aligns their shortage response actions with the Water Surplus and Drought Management (WSDM) Plan and Water Supply Allocation Plan (WSAP) schedule.

As shown in Figure 4-1, the WSDM Plan defines six shortage management stages to guide resource management activities. These stages are not defined merely by shortfalls in imported water supply, but also by the water balances in Metropolitan's storage programs. Thus, a 10% shortfall in imported supplies could be a WDSM stage 1 shortage if storage levels are high. If storage levels are already depleted, the same shortfall in imported supplies could potentially be defined as a more severe shortage in the WDSM.

Figure 4-1. Metropolitan WSDM Resource Stages and Actions Matrix



Source: Metropolitan Draft 2025 UWMP, Figure 2-1 (Metropolitan Water District of Southern California, 2025)

When Metropolitan must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition under its WSDM. Under most of these WSDM stages, Metropolitan is still able to meet all end-use demands for water. For WSDM shortage stages 1 through 3, Metropolitan will meet demands by withdrawing water from storage. At WSDM shortage stages 4 and 5, Metropolitan may undertake additional shortage management steps, including issuing public calls for extraordinary conservation and exercising water transfer options (or purchasing water on the open market).

The WSAP is enacted at shortage stage 6 and provides a formula for allocating available water supplies to the member agencies in case of extreme water shortages within Metropolitan's service area. The WSAP formula seeks to balance the impacts of a shortage at the retail level for shortages of Metropolitan supplies of up to 50%.

5.0 Shortage Response Actions

CWC Section 10632(a)(4) requires the WSCP to specify shortage response actions that align with the defined shortage levels, and include, at a minimum, all of the following:

- Locally appropriate supply augmentation actions.
- Locally appropriate demand reduction actions to adequately respond to shortages.
- Locally appropriate operational changes.
- Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions (Not applicable to Calleguas).
- An estimate of the extent to which the gap between supplies and demand will be reduced by implementation of each action.

5.1 Demand Reduction Actions

Table 5-1 lists Calleguas's potential demand reduction actions for each shortage stage. The demand reduction actions will be customized to meet the circumstances for the shortage condition. As a wholesale supplier, Calleguas does not provide water to the end users but to the purveyors, of which many have their own WSCP. Many of Calleguas's Stage 1 demand reduction actions include funding to support the purveyors reducing their demand, including expansion of rebates, new conservation programs, and making funding available to support purveyors implementation of their WSCP. In 2022, during a Stage 3 shortage level, Calleguas did just that. This including providing funding for turf rebates for customers in the service area and providing funding to the purveyors to mail out postcards to their customers outlining watering restrictions during a water shortage. Later water shortage stages include additional demand reduction actions and the expansion of previous stage actions. This allows Calleguas to choose a suite of demand reduction actions needed to deliver the outcome necessary to meet the requirements of a given shortage level.

Table 5-1. Demand Reduction Actions

Shortage Stage	Demand Reduction Actions	How much is this going to reduce the shortage gap?
1	Expand public information campaign.	0 to 100% of shortage gap
1	Increase conservation budget to provide additional plumbing fixtures and devices rebates.	0 to 100% of shortage gap
1	Increase conservation budget to provide additional landscape irrigation efficiency rebates.	0 to 100% of shortage gap
1	Increase conservation budget to provide additional turf rebates.	0 to 100% of shortage gap
1	Implement new conservation and water efficiency programs.	0 to 100% of shortage gap
1	Call for voluntary retailer supply shift to non-imported potable sources.	0 to 100% of shortage gap
1	Call for voluntary retailer water use reductions.	0 to 100% of shortage gap
1	Make funding available for purveyors to implement their WSCP actions.	0 to 100% of shortage gap
2	Implement and expand one or more of the shortage response actions listed for Stage 1 to achieve demand reduction target of 20%.	0 to 100% of shortage gap
3	Implement mandatory landscape watering restrictions.	0 to 100% of shortage gap
3	Implement monthly volumetric limits for imported water supplies.	0 to 100% of shortage gap
3	Implement and expand one or more of the shortage response actions listed for Stage 1-2 to achieve demand reduction target of 30%.	0 to 100% of shortage gap
4	Implement and expand one or more of the shortage response actions listed for Stage 1-3 to achieve demand reduction target of 40%.	0 to 100% of shortage gap
5	Implement and expand one or more of the shortage response actions listed for Stage 1-4 to achieve demand reduction target of 50%.	0 to 100% of shortage gap
6	Moratorium on annexations.	0 to 100% of shortage gap
6	Implement an outage response and allocation system.	0 to 100% of shortage gap
6	Implement and expand one or more of the shortage response actions listed for Stage 1-5 to achieve demand reduction target of greater than 50%.	0 to 100% of shortage gap

5.1.1 Consumption Reduction Methods by Purveyors

Under the most severe drought conditions, under almost any catastrophe condition, and consistent with Calleguas's Ordinance No. 12 Section 6(a), Calleguas may "apportion the available water supply among Member Agencies in an equitable manner with due regard to public health and safety, and in accordance with the provisions of the Municipal Water District Act of 1911, as amended." If a mandatory reduction in water consumption is required, the following are examples of demand reduction actions that purveyors may implement to meet shortage goals:

- Restrict irrigation hours to evening and early morning hours.
- Prohibit non-essential irrigation (ex. nonfunctional turf and irrigation not required for public health, safety, or food production) and limit water use for essential irrigation.
- Restrict or disallow irrigation entirely.
- Disallow the use of water to fill ornamental lakes, ponds, pools, and fountains.
- Limit or disallow the washing of vehicles.
- Disallow the spraying of outdoor paved surfaces and using potable water for street cleaning.
- Restrict the use of water from fire hydrants for construction purposes.
- Implement a rate structure for charges and penalties for water use restriction violations.

Each purveyor would rely on its own WSCP to guide the actions it would take to meet conservation goals.

5.2 Supply Augmentation Actions

Table 5-2 lists Calleguas's supply augmentation actions. Calleguas's primary action for all shortage stages is to pump stored water from the Las Posas ASR Project to augment supplies. Other supply augmentation actions are reserved for shortage stage 6, and only during an imported water outage condition. Calleguas is also implementing other outage supply projects in the future, including an interconnection with the City of Ventura, that could be used to augment supplies during an outage once the projects are completed. See Section 6.10 of the 2025 UWMP for more information on future projects.

Table 5-2. Supply Augmentation Actions

Shortage Stage	Supply Augmentation Actions	How much is this going to reduce the shortage gap?
1-6	Pump and deliver water from Las Posas ASR Project.	Up to 5,000 acre-feet (AF) per year
6	Treat and deliver water from Lake Bard.	Up to 7,500 AF in a 6-month outage period
6	Receive water from Las Virgenes Municipal Water District through the Calleguas-Las Virgenes Interconnection.	5 to 13 cfs (Up to 1,800 to 4,700 AF in a 6-month outage period)
6	Receive water from Crestview through the Crestview Interconnection.	3 cfs (Up to 1,085 AF in a 6-month outage period)

Included in Stage 6 are shortage response actions by Calleguas relating to a catastrophic interruption of water supply. These actions correspond to Calleguas's water outage planning, which is outlined in its Water Supply Shortage Memorandum (included as Attachment H.2). The Water Supply Shortage Memorandum addresses how Calleguas might manage supplies during a water supply shortage and imported water outage, including potential allocation of supplies.

5.3 Catastrophic Supply Interruption

Although Metropolitan's and Calleguas's water delivery systems are robust, these systems are still vulnerable. A natural event, such as an earthquake, could cause the complete and sudden failure of the facilities used by Metropolitan to import water. Similarly, the facilities used to import water from Metropolitan to the Calleguas service area are susceptible to these same threats.

5.3.1 Emergency Response Plan

Calleguas maintains an Emergency Response Plan (ERP) to address the planned responses to operational emergencies, malevolent acts, and natural disasters. Calleguas's ERP was last updated in September 2025 to address current conditions and meet the meet the legal requirements of America's Water Infrastructure Act.

Calleguas's ERP address actions Calleguas will take during a catastrophic water shortage due to the interruption of, or insufficient, imported water deliveries from Metropolitan. The actions, which are also included in this WSCP, include utilizing alternative and outage supply sources. The ERP actions also call for demand reduction (Calleguas Municipal Water District, 2025).

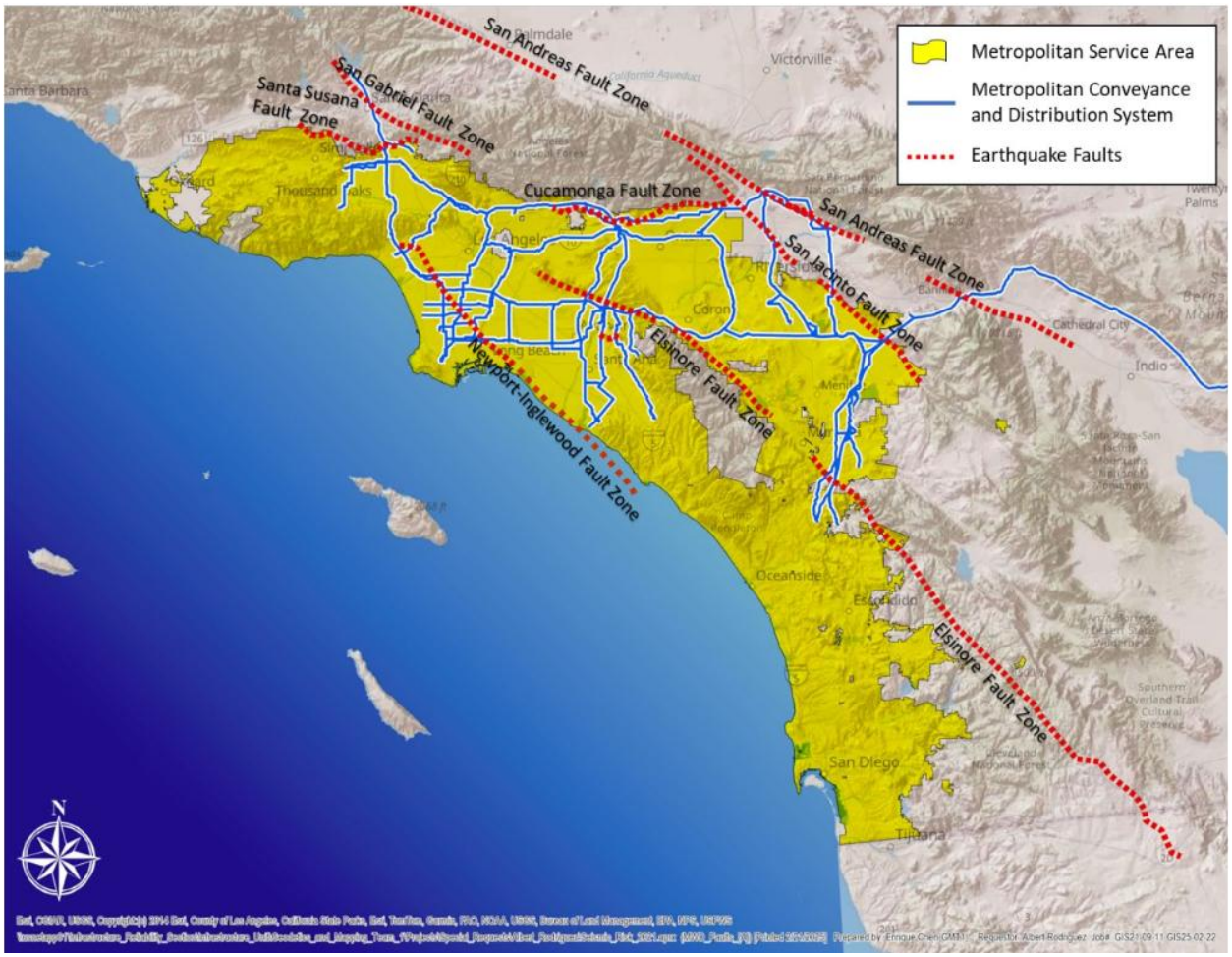
5.3.2 Metropolitan Catastrophe Strategies

The majority of Southern California's water is imported via three facilities. Those are the California Aqueduct, the Los Angeles Aqueduct, and the Colorado River Aqueduct (CRA). All three sources cross major faults (Figure 5-1). A catastrophic event that results in an unplanned interruption in supply from any of these facilities would have a significant impact on the ability to

supply water. Consequently, Metropolitan has invested heavily in emergency storage facilities located both in and out of the region.

In the event of a State Water Project (SWP) outage, any reservoir south of the outage could be used to supply water to the Calleguas service area. In 2019, Metropolitan revised its emergency storage objective up to 750,000 AF from 500,000 AF. Metropolitan's emergency storage planning criteria mandate that the region should maintain adequate surface storage reserves to serve 75% of the firm retail demands for a six-month period. Further, it stated that these surface storage reserves should reside inside of the major earthquake fault lines that cross the California Aqueduct, the CRA, and the Los Angeles Aqueduct.

Figure 5-1. Imported Water Aqueducts Crossing Major Faults



Source: Metropolitan Seismic Resilience Report 2025 Update, Figure 2-1 (Metropolitan Water District of Southern California, 2025)

5.3.3 Calleguas Catastrophe Strategies

Located at the northwestern extent of Metropolitan's service area, Calleguas has only one system connection with Metropolitan. If service from this supply is disrupted, Calleguas would

need to meet purveyor demands from water stored in Lake Bard and the Las Posas ASR Project; and Calleguas could utilize one or more interconnection. Providing Calleguas with a second water source during an outage was one of the primary reasons for development of the Las Posas ASR Project.

Existing and planned interconnections with adjacent water districts can also provide supplemental water in the event of an outage in the Calleguas system (see Sections 6.8 and 6.10 of the 2025 UWMP for more information on existing and planned interconnections). The recently completed Calleguas-Las Virgenes Interconnection could be used during an imported water outage if the supply disruption only impacts Calleguas. Las Virgenes Municipal Water District (LVMWD) also relies on Metropolitan for SWP supplies, so a SWP outage in Metropolitan's or DWR's systems would impact both Calleguas and LVMWD.

Calleguas recently completed several planning efforts to address water reliability during a catastrophic imported water outage. These include, but are not limited to, the 2022 Water WSAS, 2025 WRISt, 2025 ERP (described above in Section 5.3.1), and the Water Shortage Supply Plan Technical Memorandum.

- The WSAS is a comprehensive planning effort that evaluated over 100 projects and programs to enhance water supply reliability, with emphasis on recommended projects, to meet Calleguas's water demands during an extended outage of imported supplies. Calleguas is currently implementing some of the recommendations of the WSAS. See Section 6.10 of the 2025 UWMP for more information.
- The WRISt built upon the WSAS to reevaluate the top projects for their potential benefits under normal, dry-year water supply, and outage supply conditions. The WRISt recommends a portfolio of projects and near-term "No-Regrets" actions intended to initiate the highest-scoring supply reliability and local resilience improvements. The WRISt also provides an adaptive management framework for project implementation to consider changing conditions over time. Calleguas is currently implementing many of the no-regret actions. See Section 6.10 of the 2025 UWMP for more information.
- The Water Shortage Supply Plan Technical Memorandum describes how Calleguas would manage a water shortage, including in the event of a catastrophic interruption of imported water. The intended purpose of the Water Shortage Supply Plan Technical Memorandum is to provide an overview of response actions and demand reductions to Calleguas and the purveyors during an outage for up to six months. The Water Supply Shortage Memorandum is provided as Attachment H.2.

Calleguas has several options to receive potable water during a catastrophic imported water outage. One such option is Calleguas's Lake Bard. Lake Bard has a total storage capacity of 10,500 AF and is generally kept full so it is ready during an outage of imported supply. Currently, water from Lake Bard is supplied to the Lake Bard Water Filtration Plant (LBWFP) through gravity alone, and only 7,500 AF of water stored in Lake Bard can be moved to the WFP to be treated and delivered as potable water. The remaining 3,000 AF is available as an emergency non-potable supply. However, Calleguas is currently in design of a pump station that will allow nearly the entire volume stored in Lake Bard to be treated and delivered as potable

water. The LBWFP has a treatment capacity ranging from 30 to 100 cfs. Based on this capacity, Lake Bard would empty in 5.5 weeks at maximum LBWFP flows and four months at minimum LBWFP flows.

Calleguas currently has over 20,000 AF of groundwater stored in the Las Posas ASR Project, which could provide six months of supply at 55 cfs or just over a year of supply at 25 cfs.

Additionally, Calleguas has accumulated groundwater storage credits under programs approved by Fox Canyon Groundwater Management Agency (FCGMA) in basins within the Calleguas service area. These credits may be able to be pumped by purveyors during an extended outage of imported supplies. Utilizing a combination of Lake Bard and Calleguas stored groundwater, and by limiting water supplies for purveyors to health and safety quantities only, Calleguas can endure an extended disruption in service from Metropolitan.

Calleguas's normal imported water supply comes through Metropolitan's West Valley Feeder No. 2 pipeline. Metropolitan leases a smaller, parallel pipeline, West Valley Feeder No. 1, to the Los Angeles Department of Water and Power (LADWP). Metropolitan has an agreement for LADWP to provide Calleguas with an average of 40 cubic feet per second (cfs) of LADWP water through West Valley Feeder No.1 when water is not available through West Valley Feeder No.2.

Metropolitan also has a connection capable of receiving up to 150 cfs of untreated water from LADWP's Los Angeles Aqueduct System, which originates in the Owens Valley east of the Sierra Nevada Mountains. The connection is in Magazine Canyon, which is about half a mile north of Metropolitan's Jensen Water Treatment Plant, and the water could be treated there. There is no formal agreement with LADWP to provide water to Metropolitan through this connection, but Metropolitan staff has indicated that LADWP has been cooperative about providing water in the past. In addition, Metropolitan can wheel about 35 cfs of Colorado River water to Calleguas through LADWP's LA-17 connection in Eagle Rock, West Valley Feeder No. 1, and the CA-0l meter connection in Chatsworth. There is also no formal agreement with LADWP to provide water to Calleguas through this connection.

5.3.4 Calleguas Emergency Pipeline Repair Measures

The Calleguas distribution system has proven highly reliable for over 60 years. However, its potential vulnerability was demonstrated by the 1994 Northridge Earthquake, which resulted in numerous pipeline separations and cracked joints, and again in 1997 by an intense pressure surge that led to the rupture of a 20 linear-foot section of a 66-inch diameter pre-stressed concrete pipe in Simi Valley. Large diameter pipeline failures, if not addressed promptly and properly, can create health and safety risks for many thousands of customers. Facility failures may be caused by construction activity, earthquakes, power failures, or other conditions such as pressure surges (i.e., water hammer).

Recognizing the inherent vulnerability of water transmission systems, Calleguas has taken the following actions to establish a state of preparedness that facilitates timely emergency response and assures that repairs will be performed in the most efficient manner:

- Maintenance of an extensive inventory of pipe and fittings to repair all pipe sizes and types in its potable water system. Inventory ranges from 24 to 78 inches in diameter and is located at Calleguas's wellfield property.
- Development of comprehensive repair drawings for all pipeline types and sizes in its potable water system.
- Maintenance of an emergency contact list.
- Maintenance of contracts and insurance with contractors skilled in repair of large diameter pipelines.

5.4 Seismic Risk Assessment and Mitigation Plan

CWC Section 10632.5 mandates urban water suppliers to include in their UWMP a seismic risk assessment and mitigation plan to assess and mitigate the vulnerabilities of each of the various facilities of a water system.

Calleguas is a participant in the Ventura County Multi-Hazard Mitigation Plan 2022 update[1], which assesses the risks posed by natural and human-caused hazards and establishes mitigation strategies to reduce or avoid these risks. Earthquakes are addressed in this plan.

Calleguas also conducts its own seismic risk and resilience assessments on critical infrastructure, including imported water, the Wood Ranch Dam at Lake Bard, the Lake Bard Water Filtration Plant, pipelines, Las Posas ASR wells, turnouts, and the Santa Susana Tunnel.

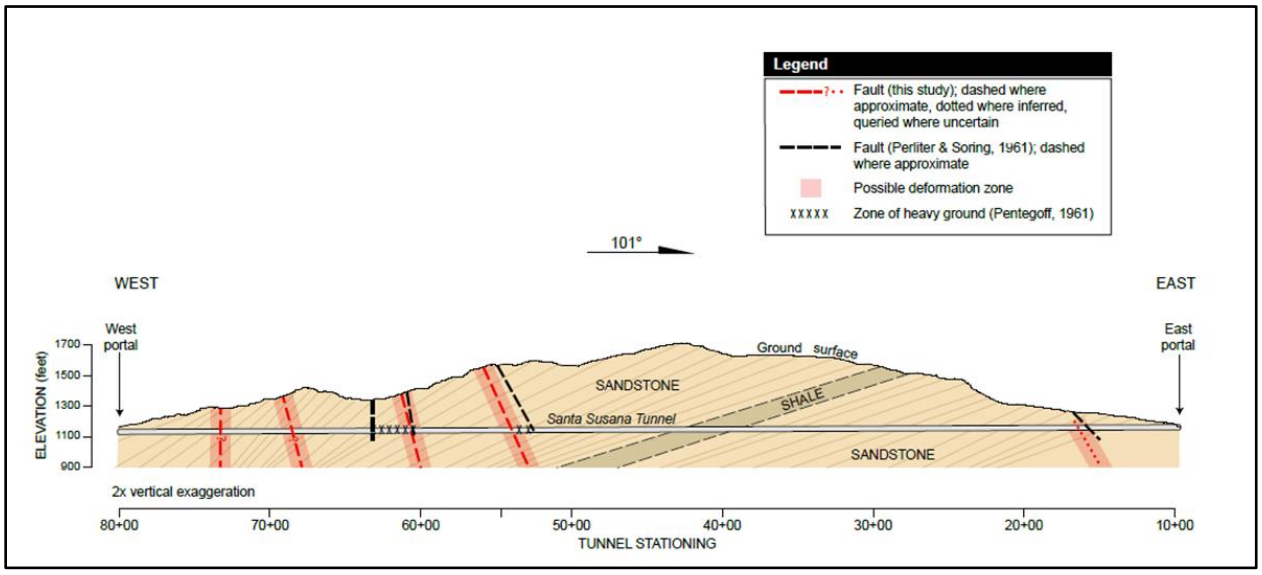
As described above, 100% of Calleguas's potable water supply most years is provided by Metropolitan at a single point – the East Portal in Chatsworth. It then passes through the Santa Susana Tunnel, a 1.3-mile long, 96-inch diameter tunnel that traverses the Santa Susana Pass and delivers water through the West Portal in Simi Valley. From there, the Calleguas system then branches and distributes water throughout the service area. The Santa Susana Tunnel was completed in 1962 and is tunneled through sandstone with thin shale interbeds. This single point of water delivery to the Calleguas system crosses several traces of a mapped fault zone (Figure 5-2) and is vulnerable to damage, or even complete collapse, in the event of a substantial earthquake.

[1]The 2022 update of the Ventura County Multi-Hazard Mitigation Plan can be found online:

Volume 1: https://s48240.pcdn.co/wp-content/uploads/2022/12/2022-06_VenturaHMP_Vol1_Final.pdf

Volume 2: https://s48240.pcdn.co/wp-content/uploads/2022/12/2022-06_VenturaHMP_Vol2_Final.Compressed.pdf

Figure 5-2. Location of Faults along the Alignment of the Santa Susana Tunnel



Calleguas has completed a study of seismic impacts and mitigation options for the Santa Susana Tunnel. The study includes a geologic and geotechnical characterization and a Seismic Hazard Assessment. The assessment identified potential risks to the tunnel in the event of an earthquake. It also analyzed potential improvements to the tunnel to reduce risk of failure, potential repair methods to address failures should they occur, and bypass options around the tunnel to facilitate shutdowns for maintenance and deliver water in the event of a tunnel failure. Most recently, Calleguas completed a physical inspection of the tunnel and performed LiDAR mapping, survey, and scanning of the tunnel to determine baseline conditions and track any future movement or changes in condition. Results from the inspection concluded that the tunnel was not at risk of failure Calleguas concluded that improvements to mitigate the risk of tunnel damage in an earthquake, such as implementing new outage supply projects and strengthening sections of the tunnel, are more cost-effective than tunnel repairs, and bypass options are cost prohibitive. The next steps are to refine tunnel improvement approaches and implement the improvements.

6.0 Communication Protocols

Calleguas works closely with Metropolitan in implementing strategies that effectively communicate vital information for each of the six standard water shortage levels. Metropolitan has a detailed communications strategy for each water shortage level, as described in its WSCP, included in Attachment H.1.

Calleguas maintains a list of Public Information Officers, Conservation Coordinators, and other purveyor staff that would be involved in disseminating information about the duration and severity of water shortage levels. Purveyors interact directly with end water users and are best equipped to implement demand management measures at the retail level.

Calleguas has a range of methods to communicate with the public and may increase its public communication and outreach magnitude and frequency as water shortage stages increase.

These communication methods are listed below:

- Social Media posts.
- Large signs at key locations.
- LED-flashing traffic signs.
- Press conferences/releases/briefings and media kits.
- An electronic newsletter to customers, stakeholders, elected officials, business, civic and community groups.
- TV and radio interviews/appearances.
- Op-ed columns.
- Presentations at local government or organization meetings, public outreach events, homeowner associations, and more.
- Targeted media placements such as ad space in major dailies and/or inserts in the local papers (example provided in Figure 6-1 and Figure 6-2).
- Online presence that includes specific information on the circumstances necessitating water demand reductions, current restrictions, fact sheet/FAQs, reporting waste violations, specific measures that can be taken to reduce water use, etc.

Figure 6-1. Landscape Is Change Bus Sign

Figure 6-2. Turf Removal Workshop Ad

7.0 Legal Authority

This section describes the legal authorities that empower Calleguas to implement and enforce its shortage response actions. Calleguas's Ordinance No. 12 gives its Board of Directors authority to take actions necessary to manage available supplies, including setting purveyor allocations and penalties for exceeding allocated deliveries. A copy of Ordinance No. 12 is included as Attachment H.3.

If necessary, Calleguas can declare a water shortage emergency in accordance with CWC Chapter 3 (commencing with Section 350) of Division 1. In addition, Calleguas will coordinate with any city or county within which it provides water supply services, including all purveyors, for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

8.0 Financial Consequences of WSCP Implementation

A water shortage may be created by a reduction in water supply, an increase in water demand, or a combination of both. Revenues vary according to local weather and the availability of water supplies. In dry years, imported demands increase, and Calleguas may receive higher-than-

anticipated revenues due to increased sales volumes. In wet years, imported demands decrease, and revenues drop due to lower sales volumes.

Calleguas maintains financial reserves that may be utilized to mitigate the impacts of water shortages. For example, during the 2012-2016 drought and 2020-2022 droughts, Calleguas utilized a portion of its reserves to increase its conservation budget for the purpose of extending a supplemental contribution to the Metropolitan Turf Replacement Rebate. Section 9 of the 2025 UWMP describes the rebates distributed throughout the Calleguas service area over the last five years. Additionally, in 2022 during a Stage 3 shortage level, Calleguas provided funding to its Retail Purveyors to help implement their WSCP shortage response actions. This included funding customer mailers for Port Hueneme Water Agency and the City of Simi Valley to communicate new water use restrictions.

8.1 Revenue and Expenditure Impacts

During periods of reduced consumption, revenue from water sales will decline while expenses remain relatively constant. A natural disaster may also entail unpredicted expenditures for repairs. Therefore, it is imperative that Calleguas have adequate reserves to cover operating and emergency repair expenses during these periods.

On April 29, 2014, Calleguas's Board adopted Resolution No. 1829, establishing a reserve policy which calls for funds to be set aside to (1) operate for six months without any revenue from water sales, (2) replenish Lake Bard and the Las Posas groundwater basin after use of those supplies during an extended supply outage, and (3) make emergency repairs to critical facilities in the event of a catastrophic event.[2] Resolution No. 1829 designates 27,500 AF as the basis for the "Emergency Water Replacement Reserve," and that same volume of supply factors into the reliability assessment for the District. These reserve funds are in place and allow for Calleguas to operate for extended periods with reduced revenue from water sales while paying for significant repairs to its system due to an unexpected event. If periods of reduced consumption are prolonged, Calleguas may be required to adjust rates to remain financially stable.

As discussed previously, Calleguas has the authority to impose penalties for exceeding allocated deliveries during declared shortage conditions. Calleguas has monitoring and control of flow at all turnouts that provides real-time flow data to both Calleguas and the purveyor receiving water from the turnout; this assists in more efficient operations during both water shortage conditions and normal operating conditions.

Calleguas Resolution No. 1829 also states that "reserve funds may be used to smooth rate increases passed on to the purveyors from Metropolitan Water District." More information on the Calleguas Reserve Policy can be found here: https://www.calleguas.com/transparency/policies-and-ordinances/.

[2] Resolution No. 1829: https://www.calleguas.com/transparency/policies-and-ordinances/

Much of the water system operating costs are fixed, while Calleguas's revenue is primarily driven by the volumetric use rate that varies year to year. Consequently, Calleguas is also considering evaluating a restructuring of their rates to further mitigate financial shortages during a water shortage stage in their next rate study. Calleguas's 2026 water rates currently include pass-through costs from Metropolitan, a fixed capacity charge of $68, and a volumetric rate of $530 per AF of water used. Calleguas's current water rates can be found here: https://www.calleguas.com/your-water/rates-charges/

9.0 WSCP Refinement Procedures

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 each UWMP update cycle to incorporate 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. While preparing the Annual Assessment each year, Calleguas will routinely consider the functionality the overall WSCP and will prepare recommendations for its Board of Directors if changes are found to be needed.

10.0 Plan Adoption, Submittal, and Availability

Calleguas adopted this WSCP with the 2025 UWMP. The 2025 UWMP and WSCP were made available for public review in May 2026, and a public hearing was held on June 3, 2026 to receive public input on the draft 2025 UWMP and the WSCP.

Calleguas provided notice of preparation of the 2025 UWMP and WSCP more than 60 days in advance of the public hearing. Calleguas also provided a notice of availability of the draft 2025 UWMP and WSCP and notice of the public hearing to consider adoption of both plans to its purveyors, Metropolitan, other key stakeholders, and the public in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066. In addition, a public notice advertising the public hearing was published in English in the Ventura County Star and local Acorn Newspapers and in Spanish in the La Vida Newspaper on multiple dates in May 2026. Appendix D of the 2025 UWMP includes the notices.

The Calleguas Board of Directors adopted the 2025 UWMP and the WSCP at a public meeting on June 3, 2026. The resolution of adoption is included as Attachment H.5.

This WSCP was submitted to DWR through the WUEData portal before the deadline of July 1, 2026. This WSCP will be available to the public on the Calleguas website (www.calleguas.com), and at the Calleguas public office during normal business hours for public review.

If Calleguas identifies the need to amend this WSCP, it will follow the same procedures for notification to cities, counties, and the public as used for the 2025 UWMP and for initial adoption of the WSCP.

References

Calleguas Municipal Water District. (2025). *Emergency Response Plan.*

Metropolitan Water District of Southern California. (2025). *Draft 2025 Urban Water Management Plan.*

Metropolitan Water District of Southern California. (2025). *Seismic Resilience Report 2025 Update.*

Tetra Tech, County of Ventura, Ventura County Sheriff. (2022). *Ventura County Multi-Jurisdictional Hazard Mitigation Plan.*

Attachment H.1– The Metropolitan Water District of Southern California WSCP

Available at: https://d1q0afiq12ywwq.cloudfront.net/media/y3rlxuts/public-review-draft-february-2026-water-shortage-contingency-plan.pdf

H.1

February 2026__

Water Shortage Contingency Plan

Public Review Draft

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Appendix 4

WATER SHORTAGE CONTINGENCY PLAN

Appendix 4
WATER SHORTAGE CONTINGENCY PLAN

This Water Shortage Contingency Plan (WSCP) complies with California Water Code (CWC) Section 10632, which requires that every urban water supplier shall prepare and adopt a WSCP as part of its urban water management plan (UWMP). Section 10632.2 provides, "An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan...or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1." Notwithstanding, the CWC does not prohibit an urban water supplier from taking actions not specified in its WSCP, if needed, without having to formally amend its UWMP or WSCP.

The WSCP is a guide for the Metropolitan Water District of Southern California's (Metropolitan's) intended actions during water shortage conditions. It is meant to improve preparedness for droughts and other impacts on water supplies by describing the process used to address varying degrees of water shortages. Certain elements of the WSCP are required by the CWC, including response actions that align with six standard water shortage levels based on water supply conditions, as well as shortages resulting from catastrophic supply interruptions. The WSCP also describes Metropolitan'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.

Metropolitan's WSCP is included as Appendix 4 to its 2025 UWMP which will be submitted to DWR by July 1, 2026. However, this WSCP is created separately from Metropolitan's 2025 UWMP and can be amended, as needed, without amending the UWMP.

Organization of this Document

The WSCP covers the required elements as set forth by CWC Section 10632. Because Metropolitan is a wholesale urban water supplier, elements that pertain only to retail water suppliers are not addressed in this WSCP.[1] The document contains eight sections. Section A.4.1 is an introduction that explains the purpose of the WSCP and provides background on Metropolitan's service area and system. Section A.4.2 is a summary of the water supply analysis and water reliability findings from the 2025 UWMP, pursuant to CWC Section 10635. Section A.4.3 is a description of procedures

[1] WSCP elements that apply specifically to retailer water suppliers are: (1) a description of customer compliance, enforcement, appeal, and exemption procedures for triggered response actions (CWC Section 10632(a)(6)); (2) a description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1 (CWC Section 10632(a)(8)(c)); and (3) monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements (CWC Section 10632(a)(9)).

to conduct and approve the Annual Assessment. Section A.4.4 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 percent shortages and describes the WSCP's shortage response actions that align with the defined shortage levels. Section A.4.5 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 A.4.6 is a description of the legal authorities that enable Metropolitan to implement and enforce its shortage response actions. Section A.4.7 is a description of the financial consequences of and responses for drought conditions. Section A.4.8 addresses reevaluation and improvement procedures for monitoring and evaluating the functionality of the WSCP and describes the process to adopt, submit, and amend the WSCP.

A.4.1 Background Information on Metropolitan

Background

Metropolitan is a public agency organized in 1928 by a vote of the electorate of 13 Southern California cities. The agency was enabled by the adoption of the original Metropolitan Water District Act (MWD Act) by the California Legislature "for the purpose of developing, storing, and distributing water for domestic purposes." The MWD Act also allows Metropolitan to sell "surplus water not needed or required for domestic or municipal uses within the district for beneficial purposes." In 1992, the Metropolitan Board of Directors adopted the following mission statement:

> *"To provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way."*

Water used in Southern California comes from several sources. The investments that Metropolitan has made and its ongoing efforts in many different areas coalesce toward its goal of long-term regional water supply reliability. The first function of Metropolitan was building the Colorado River Aqueduct (CRA) to convey water from the Colorado River. Deliveries through the CRA to member agencies began in 1941 and supplemented the local water supplies of the Southern California member cities. In 1960, to meet growing water demands in its service area, Metropolitan contracted with DWR for participation in the SWP, which delivers water to Metropolitan's service area via the California Aqueduct. SWP deliveries began in 1972. Metropolitan currently receives imported water from both of these sources: (1) Colorado River via the CRA, and (2) the SWP via the California Aqueduct. Beyond its core imported supplies from the Colorado River and SWP, Metropolitan actively supports efforts to develop storage and groundwater management programs and to increase conservation, water recycling, groundwater recovery, and seawater desalination projects.

Service Area

Metropolitan's service area covers the Southern California coastal plain. It extends about 200 miles along the Pacific Ocean from the city of Oxnard to the north to the international boundary with Mexico to the south, and it reaches as far as 70 miles inland from the coast. The total area served is approximately 5,200 square miles, and it includes portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and

Ventura counties. Table A.4-1 shows that although only 14 percent of the land area of the six Southern California counties is within Metropolitan's service area, approximately 86 percent of the population of those counties resides within Metropolitan's boundaries.

Table A.4-1
January 1, 2025 Area and Population in the Six Counties of Metropolitan's Service Area

County	Total County	In Metropolitan Service Area	Percent in Metropolitan
Land Area (Square Miles)			
Los Angeles County	4,085	1,399	34%
Orange County	796	698	88%
Riverside County	7,303	1,077	15%
San Bernardino County	20,105	239	1%
San Diego County	4,236	1,436	34%
Ventura County	1,855	371	20%
Metropolitan's Service Area	**38,380**	**5,221**	**14%**
Population (Persons)			
Los Angeles County	9,877,000	8,988,000	91%
Orange County	3,175,000	3,175,000	100%
Riverside County	2,496,000	1,949,000	78%
San Bernardino County	2,207,000	876,000	40%
San Diego County	3,330,000	3,186,000	96%
Ventura County	829,000	620,000	75%
Metropolitan's Service Area	**21,914,000**	**18,794,000**	**86%**

Source: State of California, Department of Finance, E-5 County/State Population and Housing Estimates- May 2025 release.

Metropolitan is currently composed of 26 member agencies, including 14 cities, 11 municipal water districts, and one county water authority. Metropolitan is a water wholesaler with no retail customers. It provides treated and untreated water to its member agencies.

Metropolitan's 26 member agencies deliver to their customers a combination of local groundwater, local surface water, recycled water, desalinated seawater, and imported water received from Metropolitan. For some member agencies, Metropolitan supplies all the water used within that agency's service area, while others obtain varying amounts of water from Metropolitan to supplement local supplies. Between 2015 and 2024, Metropolitan has provided between 39 and 53 percent of the municipal, industrial, and agricultural water used in its service area. The remaining water supply comes from local wells, local surface water, recycling, and the city of Los Angeles' aqueducts from the Owens Valley/Mono Basin east of the Sierra Nevada. Member agencies also implement conservation programs that can be considered part of their supplies.

Some member agencies provide retail water service, while others provide water to their local area as wholesalers. Table A.4-2 shows Metropolitan's member agencies and the type of service that they provide. As shown in the table, 15 member agencies provide

retail service to customers, nine provide only wholesale service, and two provide a combination of both. Throughout Metropolitan's service area, approximately 250 retail water suppliers directly serve the population.

Table A.4-2
Metropolitan's Member Agencies and Type of Water Service Provided

Member Agency	Retail or Wholesale
Los Angeles County	
Beverly Hills, City of	Retail
Burbank, City of	Retail
Central Basin Municipal Water District	Wholesale
Compton, City of	Retail
Foothill Municipal Water District	Wholesale
Glendale, City of	Retail
Las Virgenes Municipal Water District	Retail
Long Beach, City of	Retail
Los Angeles, City of	Retail
Pasadena, City of	Retail
San Fernando, City of	Retail
San Marino, City of	Retail
Santa Monica, City of	Retail
Three Valleys Municipal Water District	Wholesale
Torrance, City of	Retail
Upper San Gabriel Valley Municipal Water District	Wholesale
West Basin Municipal Water District	Wholesale
Orange County	
Anaheim, City of	Retail
Fullerton, City of	Retail
Municipal Water District of Orange County	Wholesale
Santa Ana, City of	Retail
Riverside County	
Eastern Municipal Water District	Retail & Wholesale
Western Municipal Water District	Retail & Wholesale
San Bernardino County	
Inland Empire Utilities Agency	Wholesale
San Diego County	
Eastern Municipal Water District	Wholesale
San Diego County Water Authority	Wholesale
Ventura County	
Calleguas Municipal Water District	Wholesale

Reliability Planning

Metropolitan continuously engages in planning for various aspects of its water management, including operations, long-term reliability, and emergency response. These planning efforts include the 1996 Integrated Water Resources Plan (IRP) and its three updates in 2004, 2010, and 2015; the 2020 IRP Regional Needs Assessment; the WSCP; the Water Surplus and Drought Management (WSDM) Plan; the Water Supply Allocation Plan (WSAP); Metropolitan's Emergency Storage Objective; Seismic Risk Assessment and Mitigation Plan; and most recently the Climate Adaptation Master Plan for Water (CAMP4W). Collectively, they provide a policy framework, operating guidelines, and resource targets for Metropolitan to ensure regional water supply reliability.

The IRP is Metropolitan's evolving long-term plan to assure adequate water supplies for Southern California. The first IRP was adopted in 1996 to address the complexity of developing, maintaining and delivering water to meet changing demands in the face of growing challenges. The IRP has been updated several times. In 2021, Metropolitan's IRP Regional Needs Assessment incorporated planning for multiple future scenarios to address an extended range of uncertainty. While Metropolitan coordinates regional supply planning through its inclusive IRP process, Metropolitan's member agencies also conduct their own planning analyses, including their own urban water management plans, and may develop projects independently of Metropolitan.

The WSCP is designed to be consistent with the WSDM Plan and the WSAP described below. Throughout the year, Metropolitan evaluates member agency demands, available water supplies, and existing water storage levels on a monthly basis to determine the appropriate actions identified in the WSDM Plan.

The 1999 WSDM Plan provides policy guidance for managing regional water supplies during surplus and shortage conditions. Similar in concept to the WSCP, the WSDM Plan provides an overall vision for operational supply management and characterizes a flexible sequence of actions to minimize the probability of severe shortages and reduce the likelihood of extreme shortages. WSDM Plan principles guide the specific actions to be taken under WSCP shortage stages (see section A.4.4). Data collection, continual analysis, and monthly reporting processes of WSDM Plan implementation is the basis for Metropolitan's Annual Water Supply Demand Assessment has been provided annually to the state since July 2022. The WSDM Plan is included as Attachment A to this WSCP.

The WSAP is Metropolitan's policy and formula for equitably allocating available water supplies to the member agencies during extreme water shortages when Metropolitan determines it is unable to meet all of its demands. The WSAP is included as Attachment B to this WSCP.

Metropolitan's Emergency Storage Objective is the regional planning estimate for emergency storage, which represents the amount of water that Metropolitan would hold in storage for the region in preparation for a catastrophic earthquake that would damage the aqueducts that transport imported water supplies to Southern California: the CRA, both the East and West branches of the California Aqueduct, and the Los Angeles Aqueduct. In 2019, Metropolitan and its member agencies completed a process to

update the planning estimate of Metropolitan's Emergency Storage Objective. The emergency storage allows Metropolitan to deliver reserve supplies to the member agencies to supplement local production. This helps avoid severe water shortages during periods when the imported water aqueducts may be out of service.

Beginning January 2020, CWC Section 10632.5 mandates urban water suppliers to include in their UWMP a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities. For Metropolitan, this requirement was addressed as part of developing its resilience strategy and is presented in detail in Metropolitan's seismic resiliency reports in Appendix 9 to the 2025 UWMP, which are incorporated herein by reference.

A.4.2. Analysis of Water Supply Reliability

Besides the WSCP, the Urban Water Management Planning Act requires suppliers to conduct two other planning analyses to evaluate supply reliability. The first is a Water Reliability Assessment that compares 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. The second is a Drought Risk Assessment that evaluates a drought period that lasts five consecutive water years starting from the year following when the assessment is conducted.

Metropolitan completed its Water Reliability Assessment and Drought Risk Assessment as part of the 2025 UWMP. Through the Water Reliability Assessment, Metropolitan determined that, under the conditions required by the Urban Water Management Planning Act, it has supply capabilities sufficient to meet expected demands from 2030 through 2050 under a single dry-year condition and a period of drought lasting five consecutive water years, as well as in a normal water year hydrologic condition. Metropolitan's near-term Drought Risk Assessment revealed that its supply capabilities are expected to exceed its projected water use for the year 2027. However, estimates of projected water supply and use reveal that there could be a possible shortfall of core supplies in 2026, 2028, 2029, and 2030. This shortfall is largely triggered by the assumed low supply conditions from the SWP under a repeat of the historical condition of 1988 to 1992, which is modeled at 36 percent for 2026, 32 percent for 2028, 23 percent for 2029, and 18 percent for 2030. Actual supply conditions for the next five years may prove different from historic supply conditions. The WSCP shows Metropolitan's potential shortage response actions if such shortfalls were to happen. The Drought Risk Assessment projected supplies and demands for the years 2026 through 2030 using the driest five-year sequence.

Metropolitan's principal sources of water supplies are the SWP and the Colorado River. Metropolitan receives water delivered from the SWP under State Water Contract provisions, including contracted supplies, use of carryover storage in San Luis Reservoir, and surplus supplies. Metropolitan holds rights to Colorado River water for CRA diversion at Lake Havasu. Water management programs supplement these Colorado River supplies. To secure additional supplies, Metropolitan has groundwater banking partnerships and water transfer and storage arrangements within and outside its service area.

Hydrologic conditions and environmental regulations can have a significant impact on Metropolitan's imported water supply sources. For Metropolitan's SWP supplies, precipitation in California's northern Sierra Nevada during the fall and winter helps replenish storage levels in Lake Oroville, a key SWP facility. The source of Metropolitan's Colorado River supplies is primarily the watersheds of the Upper Colorado River Basin in the states of Colorado, Utah, and Wyoming. Although precipitation is primarily observed in the winter and spring, summer storms are common and can affect water supply conditions. Hydrologic variability, potential climate change, and regulatory risk are embedded in Metropolitan's modeling efforts. Metropolitan's

modeling utilizes historical hydrologic conditions from 1992 to 2021 to simulate expected demands on Metropolitan supplies, as well as capacities and constraints of its storage facilities and supply programs. While potential impacts from climate change remain subject to study and debate, climate change is among the uncertainties that Metropolitan seeks to address through its various planning processes. Metropolitan's 2020 IRP Regional Needs Assessment and Climate Adaptation Master Plan for Water (CAMP4W) further addresses ways to account for and mitigate these uncertainties.

As demonstrated by the findings of both the Water Reliability Assessment and the Drought Risk Assessment, Metropolitan 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.

A.4.3. Annual Water Supply and Demand Assessment Procedures

As an urban water supplier, Metropolitan is required under CWC Section 10632(a)(2) to prepare and submit an "annual water supply and demand assessment" (Annual Assessment). The Annual Assessment is a determination of Metropolitan's 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 will be based on known circumstances and information available to Metropolitan at the time of analysis. Beginning in 2022, the Annual Assessment has been required to be submitted by July 1 each year, as mandated by CWC Section 10632.1. CWC Section 10632.1 also states that *"[a]n urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later*." The Annual Assessment and related reporting are to be conducted based on the procedures described in this WSCP. This section describes Metropolitan's procedures for conducting the Annual Assessment, which include: (1) the written decision-making process to determine water supply reliability; and (2) the key data inputs and assessment methodology to evaluate water supply reliability for the current year and one dry year.

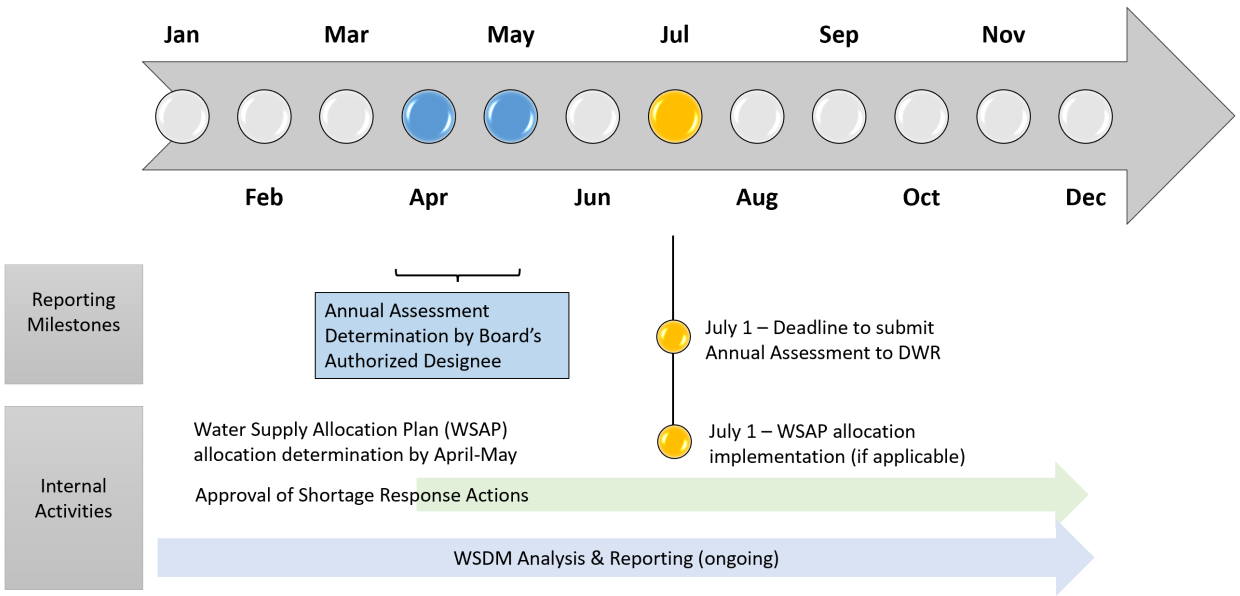
Steps to Approve the Annual Assessment Determination

The Annual Assessment will be primarily based on Metropolitan's ongoing WSDM supply-demand tracking process which is exhibited in reporting to the Board of Directors throughout the year. WSDM planning activities involve examination of developing demand and supply conditions for the calendar year, as well as considerations of potential actions consistent with the WSDM Plan. These analyses provide key information for Metropolitan to manage resources to meet a range of estimated demands and adjust to changing conditions throughout the year.

As a water supply wholesaler, Metropolitan's water demands are a function of retail-level demands and local water production. Water from Metropolitan serves as a supplemental source of supply for its 26 member agencies. For many member agencies, their primary source of water is produced locally from groundwater basins, surface reservoirs, recycled water projects, groundwater recovery projects, and seawater desalination. When local supplies are not enough to meet retail demands, member agencies purchase supplemental water from Metropolitan. Some member agencies rely heavily on Metropolitan due to limited local supplies. As described below, Metropolitan collects estimates of projected consumptive and replenishment water demands from its member agencies. This information is adjusted to determine unconstrained demands for the purpose of the Annual Assessment shortage percentage evaluation.

By June, Metropolitan staff provides a completed Annual Assessment for approval by the Board's authorized designee with expressly delegated authority for approval of Annual Assessment determinations. Upon approval, Metropolitan staff submits the Annual Assessment to DWR by July 1. Figure A.4-1 provides a graphic representation of the decision-making process.

Figure A.4-1
Sample Annual Assessment Decision-Making Timeline



Data Inputs and Assessment Methodology

This section describes how Metropolitan 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 available core water supplies, unconstrained water demand, and infrastructure considerations. The difference between core water supplies and unconstrained demand will be used to determine what, if any, shortage stage is expected under the WSCP framework. The standard shortage stage percentage will be calculated by dividing the difference between core supplies and unconstrained demand by unconstrained demand. This calculation will be performed separately for anticipated current-year conditions and for an assumed dry-year condition.

Locally Applicable Evaluation Criteria

Because shortages are based on the difference between expected core supplies and unconstrained demand under current year and dry year conditions, the locally-applicable evaluation criteria to be used in the Annual Assessment for determining a shortage include the following:

- Characterization of current year and dry year scenarios based on best-available data, including anticipated hydrologic conditions for Metropolitan's supply source watersheds in the Colorado River basin and Northern California, as well as for local conditions in Metropolitan's service area in Southern California.

- Estimation of available core supplies (see below) for current year and dry year scenarios
- Estimation of unconstrained demands (see below) for current year and dry year scenarios

Together, these three criteria provide the necessary information to calculate shortage percentages by dividing the difference between core supplies and unconstrained demand by unconstrained demand, under current year and dry year scenarios. These criteria findings will also be given additional context and influenced by infrastructure considerations discussed below which will differ from year to year.

The information and analyses that comprise the Annual Assessment will be based on ongoing planning processes that include 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, Metropolitan will continue to monitor emerging supply and demand conditions and take appropriate actions consistent with the flexibility and adaptiveness inherent to this WSCP. Some locally-applicable conditions that affect Metropolitan's wholesale supply and demand, such as the Higher Priority Water Use Adjustment for Colorado River use (see below), local supply production, annual SWP allocations, the status of Metropolitan storage accounts, the status of the local groundwater basins, changed water use practices, and local economic activity entail a high degree of uncertainty and can differ significantly from earlier projections throughout the year.

Description and Quantification of Each Source of Water Supply (Core Supplies)

Metropolitan's core water supplies are counted as the supply component of the Annual Assessment. Core supplies include estimated water supplies from the Colorado River and the SWP for the current year. Imported core supplies vary from year to year and are influenced by annual weather and hydrology, as well as demand by other higher priority users and operational and regulatory factors.

Because core supplies are used every year when available, they are differentiated from the WSCP's shortage response actions for supply augmentation; supply augmentation actions are comprised of Metropolitan's portfolio of water storage reserves and flexible supply sources that are available on an as-needed basis.

Metropolitan's core supplies come from several programs, which are shown in Table A.4-3 and described below.

Table A.4-3
Core Water Supplies

Source	Core Supply
Colorado River	Colorado River Basic Apportionment Higher Priority Water Use Adjustment to Colorado River Basic Apportionment IID/MWD Conservation Program PVID Fallowing Program Bard Water District Seasonal Fallowing Program Quechan Seasonal Fallowing Program Quechan Diversion Forbearance Program Lower Colorado Water Supply Project Exchange with SDCWA Exchange with the United States
State Water Project	MWD SWP Table A SWP Article 21 Interruptible Supplies SWP Port Hueneme Lease of Ventura Table A Desert Water Agency/Coachella Valley Water District/Metropolitan Water Exchange and Advance Delivery Programs

Colorado River

Colorado River Basic Apportionment

Metropolitan built, owns, and operates the 242-mile CRA. The CRA originates at Lake Havasu on the Colorado River and winds through a series of pump stations and reservoirs through the California desert to its terminal reservoir at Lake Mathews in Riverside County. The CRA has a full delivery capacity of 1.25 MAF.

The state of California holds a 4.4 MAF per year normal apportionment to Colorado River water. Metropolitan has the Fourth Priority right to 550,000 AF per year of the State's normal apportionment. Metropolitan also holds the Fifth Priority right to an additional 662,000 AF per year which is utilized during surplus conditions or when supplies from other Colorado River users are available.

Higher Priority Water Use Adjustment to Metropolitan's Colorado River Basic Apportionment

Entitlements to use Colorado River water in California under priorities 1, 2, and 3 are limited to 3.85 MAF per year. Priority 3(a) is held by the Imperial Irrigation District and the Coachella Valley Water District (CVWD), totaling 3.43 MAF. After accounting for contractual conservation and transfers, any unused volume available to Priority 3(a) becomes available for use by Metropolitan. Of the 3.85 MAF, the remaining 420,000 AF

is available for use under priorities 1, 2, and 3(b) held by the Palo Verde Irrigation District and the Yuma Project lands within California. Any unused amount from this volume is available for use by Metropolitan. However, Metropolitan must forego its otherwise available Colorado River supplies to meet priority 1, 2, and 3(b) use that exceeds 420,000 AF. Lastly, there are additional high-priority "present perfected rights" within California not incorporated into the other priorities, for the sake of which Metropolitan must forego its otherwise available Colorado River supplies if those present perfected uses exceed 14,500 AF. The net sum of these volumes constitutes a "higher priority water use adjustment" to Metropolitan's base supply.

Imperial Irrigation District-Metropolitan Conservation Program

Since 1988, Metropolitan has funded water conservation programs within Imperial Irrigation District's (IID) service area. The amount of water conserved by these programs is then transferred to Metropolitan. Conservation approaches range from distribution system improvements (such as canal lining, spill capture and the installation of non-leak irrigation gates) to efficient on-farm water management practices (such as delivering water to farmers on a 12-hour rather than a 24-hour basis). Through this program, a total of 105,000 AF per year is conserved and made available to Metropolitan.

Palo Verde Irrigation District Land Management, Crop Rotation, and Water Supply Program

In 2005, Metropolitan entered a 35-year program with the Palo Verde Irrigation District (PVID). Under the program, participating farmers in PVID are paid to reduce their water use by leaving acreage unirrigated. A base amount of 25 percent of the program acreage must be fallowed every year. Metropolitan may elect to call for additional acreage to be fallowed up to 100 percent. Fallowing calls must be made at least one year in advance by July 31 of each year and take effect on August 1 of the following year. The reduced consumptive use due to fallowed lands reduces uses under priorities 1, 2, and 3(b), thereby increasing the Colorado River water supply available to Metropolitan. The fallowing program saves a minimum of 33,000 AF per year and up to 133,000 AF in certain years.

Metropolitan/Bard Seasonal Fallowing Program

In December 2019, Metropolitan's Board authorized a seven-year seasonal fallowing program with the Bard Water District (Bard). Under the program, Metropolitan pays participating farmers in Bard to reduce their water use by not irrigating their land from April through July. A maximum of 3,000 acres can be fallowed in any given year. Under the terms of the Quantification Settlement Agreement (QSA), water savings within the Bard service area are made available to Metropolitan. Bard Unit, as part of the Yuma Project, has a second-priority right to Colorado River water under the California priority system. Implementation of the program began in March 2020.

In September 2024, Metropolitan entered into the System Conservation Implementation Agreement (SCIA) with the U.S. Bureau of Reclamation (Reclamation). Reclamation would fund the Bard Program through 2026 to produce system water to be stored in Lake Mead.

In February 2025, Metropolitan and Reclamation amended the SCIA to include an additional 3,000 acres in the Bard Program for fallowing in years 2025 and 2026. The current Bard program has a maximum of 6,000 acres that are eligible to be fallowed. It is estimated that the Seasonal Fallowing Program provides up to 12,000 AF per year of Colorado River water to Metropolitan. This water is available in any year as needed and in accordance with the provisions described in the agreements with Bard Unit farmers and Bard.

Metropolitan/Quechan Seasonal Fallowing Program

In November 2021, Metropolitan's Board authorized a two-year pilot seasonal fallowing program with the Quechan Tribe (Tribe) of the Fort Yuma Indian Reservation. In November 2023, Metropolitan's Board authorized extending the program to the end of 2026. Under the program, participating farmers on land they lease from the Tribe are paid to reduce their water use by not irrigating a portion of this land. A maximum of 1,600 acres can be fallowed in any given year. It is estimated that the program provides up to 3,500 AF per year of Colorado River water. This water is available in any year as needed and in accordance with the provisions described in the agreements with farmers and the Tribe.

Quechan Diversion Forbearance Program

The Quechan Tribe (Tribe) on the Fort Yuma Indian Reservation (part of the Yuma Project) holds a higher priority water right than Metropolitan. In 2005, Metropolitan entered into a settlement agreement with the Tribe, under which it is entitled to divert 20,000 AF per year or the amount necessary to supply irrigation and related uses on 2,998.5 acres (whichever is less), in addition to the water the Tribe is entitled to under the 1964 Arizona v. California decree. Of this additional entitlement, 13,000 AF or the amount necessary for irrigation and related uses on 1,949.03 acres became available to the Tribe in 2006 (the remainder will become available in 2035). Metropolitan and the Tribe agreed that if it chooses to limit proposed development and forbear the diversion of any of the additional water, then Metropolitan will provide an incentive payment to the Tribe on the condition that such water is received by Metropolitan. The water supply benefit to Metropolitan is less than the cited 13,000 AF and 7,000 AF volumes since the amounts are diversions and not consumptive use. (A significant portion of the Tribe's additional diversions would pass to Metropolitan as agricultural return flows, even without the agreement.)

Lower Colorado Water Supply Project

Up to 10,000 AF of groundwater is pumped by the Lower Colorado Water Supply Project near the All-American Canal and is discharged to the Canal. IID reduces its net diversions of Colorado River water by an amount equal to the amount of Project water discharged into the Canal, permitting entities along the Colorado River that do not have rights or have insufficient rights to divert Colorado River water to obtain a supply of water. In 2007, Metropolitan entered into a contract with the USBR and the City of Needles to utilize the unused Project capacity.

Exchange with the San Diego County Water Authority (SDCWA)

Through a transfer agreement with IID and by funding the lining of the All-American and Coachella Canals, SDCWA acquired conserved Colorado River water totaling 277,700 AF per year. SDCWA makes this water available at Lake Havasu for Metropolitan to divert. Metropolitan takes possession of the water and provides a matching volume from Metropolitan's blended supplies to SDCWA by exchange.

Under the transfer agreement with IID, the stabilized annual transfer volume of 200 TAF is generated from conservation of water through on-farm efficiency conservation arrangements made by IID with its customers and other system efficiency measures.

The Coachella Canal Lining Project consists of a 35-mile concrete-lined canal, including siphons, which replaced an earthen canal. The project was completed in December 2006 and conserves 30,850 AF annually. The All-American Canal Lining Project consists of a concrete-lined canal constructed parallel to 23 miles of earthen canal and was completed in 2009, conserving 67,700 AF annually.

Pursuant to the QSA and related agreements, the 98,550 AF of water resulting from these projects annually is allocated as follows: 16,000 AF to the San Luis Rey Settlement Parties in San Diego County, 77,700 AF to SDCWA, and 4,850 AF for the Coachella Canal Lining Project mitigation.

In 2025, following many years of litigation between the parties, SDCWA and Metropolitan entered into a settlement agreement that amended the exchange agreement. Under the terms of the 2025 exchange agreement, SDCWA pays a minimum amount for exchange of 227,000 AF of water from Metropolitan each year at an agreed-upon exchange price, whether or not SDCWA makes that amount available to Metropolitan for exchange. SDCWA may still exchange up to 277,700 AF with Metropolitan. Monthly deliveries may be variable to meet SDCWA's variable demands. SDCWA may also offer to sell exchange water deliveries to Metropolitan member agencies as a right of first refusal, and Metropolitan has a right of second refusal to buy SDCWA's Colorado River water at Lake Havasu if no member agency purchases exchange deliveries from SDCWA. Any sales of exchange water deliveries by SDCWA to a member agency change only the location of the deliveries, but keep the water within Metropolitan's service area. Additional operational and other conditions apply to the rights of refusal under the 2025 exchange agreement.

Exchange with the United States

The United States furnishes the 16,000 AF allocated to the San Luis Rey Settlement Parties from the All-American and Coachella canal lining projects at Metropolitan's Colorado River Intake on Lake Havasu. Metropolitan takes possession of the water and by exchange delivers an equal volume of Metropolitan's blended supplies to SDCWA. By separate agreement, SDCWA conveys the water to the San Luis Rey Settlement Parties. So long as water conserved by the All-American Canal and Coachella Canal Lining Projects is allocated to, and available for use by, the San Luis Rey Settlement Parties, the United States will make 16,000 AF available for diversion by Metropolitan in perpetuity.

State Water Project

Table A Contract Amount

In accordance with its participation contract with DWR, Metropolitan's maximum contractual amount listed on Table A of the SWP contract is for 1,911,500 AF per year. The amount of supply available on an annual basis is allocated as a percentual of the Table A contractual amount.

DWR estimates the amount of supplies that are available each year based on hydrological conditions, operational and environmental constraints, as well as other obligations. Annual SWP allocations have ranged from 5 percent to 100 percent of the Table A amounts.

Article 21 Interruptible Supplies

Metropolitan has a contract to water supplies that are made available on an intermittent basis. Storm flows can occasionally make water supplies available that are in excess of the Table A allocation. SWP contractors can take delivery of these supplies, with their rights being based on their proportional Table A contract amounts. Historically, Article 21 interruptible supplies have ranged from 0 to 240,000 AF annually.

SWP Port Hueneme Lease of Ventura Table A

Metropolitan has a right to delivery of up to 1,850 AF of Table A supply from the Ventura County Watershed Protection District (Ventura), one of 29 SWP contractors, via a sublease agreement with the Port Hueneme Water Agency (Port Hueneme). United Water Conservation District, one of three agencies holding a contract right to Ventura Table A supply, leases this portion of their total 5,000 AF of Table A supply to Port Hueneme, which in turn subleases the Table A supply to Metropolitan. The long-term lease is a condition of the 1996 annexation of the Port Hueneme service area to Calleguas Municipal Water District and Metropolitan. This water supply is in addition to Metropolitan's Table A, and the amount available each year is determined by the SWP allocation, with 1,850 AF available at a 100 percent Table A allocation.

Desert Water Agency/Coachella Valley Water District/Metropolitan Water Exchange and Advance Delivery Programs

The Desert Water Agency (DWA) and CVWD, both in Riverside County, have rights to SWP deliveries, but do not have any physical connections to the SWP facilities. Both agencies are adjacent to the CRA. For DWA and CVWD to obtain water equal to their SWP allocations, Metropolitan has agreed to exchange an equal quantity of its Colorado River water for DWA and CVWD's SWP water. DWA has a SWP Table A contract right of 55,750 AF per year, and CVWD has a SWP Table A contract right of 138,350 AF per year, for a total of 194,100 AF per year. Additionally, CVWD has a long-term water supply agreement for 9,500 to 16,500 AF annually from the Rosedale Rio-Bravo Water Storage District.

Under the existing agreements, Metropolitan provides water from its CRA to DWA and CVWD in exchange for SWP deliveries. Metropolitan can deliver additional water to its DWA/CVWD service connections, permitting these agencies to store water. When supplies are needed, Metropolitan can then receive its full Colorado River supply, as

well as the SWP allocation from the two agencies, while the two agencies can rely on the stored water to meet their water supply needs. The amount of DWA and CVWD SWP Table A water available to Metropolitan depends on the annual SWP allocation.

Unconstrained Demands

For the purpose of the Annual Assessment and WSCP, CWC Section 10632(a)(2)(B)(i) directs Metropolitan to use current year "unconstrained demand" when assessing water supply reliability. The WSCP and Annual Assessment define unconstrained demand as expected water use in the current assessment year, based on recent water use, and before 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, if any are in place, that result in extraordinary demand reductions in the current year to constrain demand are inherently extraordinary; routine activities such as ongoing conservation programs and regular operational adjustments are not considered as constraints on demands.

To forecast near-term demands, Metropolitan begins by gathering data from its member agencies. Each July, member agencies submit their five-year demand forecasts to Metropolitan, which serve as the foundation for demand forecasting. Metropolitan then builds upon these projections to develop its own near-term forecast for its internal planning and monthly WSDM supply-demand reporting. This forecast incorporates additional factors, such as historical demand trends, changes in local supply production, weather patterns, water-use efficiency implementation, retail demand estimates, and the latest updates from member agencies.

Because these forecasted demands would be "constrained" observed demands rather than unconstrained demands, Metropolitan will adjust its near-term demand forecast for the Annual Assessment to account for extraordinary demand management measures that Metropolitan may intend or have already put into effect for the current year. Extraordinary demand management measures may include intensified communication and public outreach, and shortage allocations to its member agency customers through implementation of Metropolitan's WSAP. Non-extraordinary water savings from regular conservation and community outreach activities are considered part of Metropolitan's baseline demands and are not counted again for assessments of unconstrained demand.

Water Conditions for Current Year Available Supply Considering Current Year Conditions and One Dry 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 Metropolitan'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. Metropolitan will use this discretion to refine and update its

assumptions for a dry year scenario in each Annual Assessment as information becomes available.

In the 2025 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. Metropolitan developed estimates of future demands and supplies from local sources and from Metropolitan sources based on 100 years (1922-2021) of historic hydrologic conditions. Supply and demand analyses for the single-dry year case were based on conditions affecting the SWP as this supply availability fluctuates the most among Metropolitan's sources of supply. Based on the 100-year period, 1977 was the single driest year for SWP supplies to Metropolitan. In addition, staff analysis of the 8-river index indicated that 1977 was the single driest year from 1922 through 2021. The 8-river index is used by DWR and other water agencies as an estimate of the unimpaired runoff (or natural water production) of the Sacramento and San Joaquin River basins, which are sources of water for the SWP.

Infrastructure Considerations

The Annual Assessment will consider 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.

Metropolitan has five regional water treatment plants, with capacities presented in Table A.4-4. Portions of Metropolitan's service area may receive water treated by one or a combination of several of these water treatment plants. Over the last 40 years, Metropolitan effectively delivered to its member agencies water supplies to meet demands ranging from 1.2 MAF per year to over 2.5 MAF per year.

Table A.4-4
Metropolitan's Water Treatment Plants

Water Treatment Plant	Capacity (in MGD)
Jensen	750
Weymouth	520
Diemer	520
Mills	220
Skinner	350

Note: Rated capacity. Effluent capacities may be less to account for backwash.

In addition to the treatment plants, Metropolitan operates a conveyance and distribution system that is flexible and adaptable allowing delivery of supplies from a combination of SWP, Colorado River, and regional storage sources to meet demands throughout its service area, as shown in Figure A.4-2. However, system distribution capabilities and limitations can add complexity to near-term reliability. For example, a portion of Metropolitan's service area is highly dependent on SWP supplies and can only be

delivered limited amounts of Colorado River supplies due to hydraulic constraints in the system.

Extreme drought between 2020 and 2022 resulted in the lowest cumulative three-year total water supply allocation from the SWP. The low allocations required Metropolitan and member agencies to adjust operations and implement measures developed during the previous drought on the SWP, to preserve water for areas in the system that were solely dependent on SWP supplies. Despite the efforts to conserve SWP supplies, in April 2022, Metropolitan's Board approved a resolution declaring a water shortage emergency within the SWP-dependent areas and mandated an emergency water conservation program within those areas. The disparity of impacts from the drought was exacerbated by limitations in the system that restrict the movement of Colorado River water and stored SWP supplies within Diamond Valley Lake and other storage facilities from reaching the SWP-dependent areas.

In August 2022, the Board adopted a resolution affirming Metropolitan's commitment to regional reliability to ensure all member agencies receive equivalent water supply reliability through an interconnected and robust system of supplies, storage, and programs. In response, Metropolitan and its member agencies conducted the SWP Dependent Area Drought Mitigation Workshops to identify drought solutions to prevent a recurrence of the disproportionate effects of the low SWP allocations. The workshops resulted in a proposed Drought Mitigation Action Portfolio.

The Drought Mitigation Action Portfolio recommends projects for implementation to provide timely relief to the SWP-dependent areas in the near term that do not require significant modifications of the existing infrastructure and identifies potential mid-term projects that can be implemented after the removal of system constraints through projects currently in development. The portfolio also provides alternative pathways to achieve long-term equitable supply reliability for the region through a balanced approach of infrastructure improvements, new storage and supply programs, and local supply development and demand management as directed by the Board.

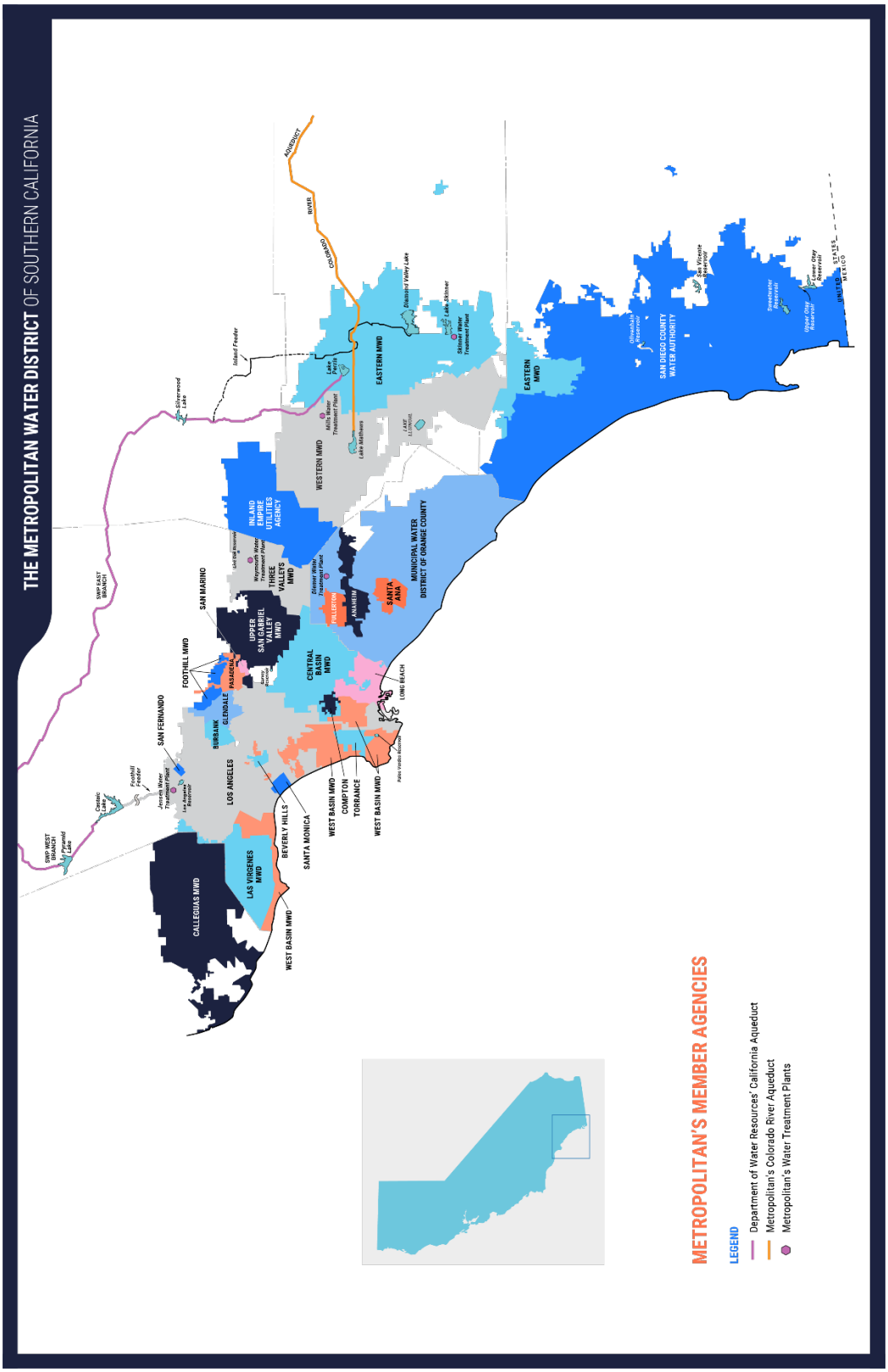
The recommended drought portfolio is divided into two categories: Category 1 – Cost-Effective Projects for Timely Relief and Category 2 – Projects for Further Consideration. Category 1 projects provide a baseline of improved reliability for the SWP-dependent areas via improved access to existing storage and Colorado River supplies. Category 2 projects have the potential to provide broader drought relief and greater region-wide benefits but would require larger investments, longer implementation periods, and higher implementation risk.

Two of the Category 1 projects are currently being implemented – (1) the DVL to Rialto Project, which will enable delivery of up to 120 cfs of stored SWP supplies in DVL or Colorado River water to Metropolitan's eastern SWP-dependent area serviced by the Rialto Pipeline, and (2) the Sepulveda Feeder Pump Stations Project Stage 1, which will construct two pump stations on the Sepulveda Feeder to deliver up to 30 cfs of treated Colorado River or DVL supplies from Metropolitan's Common Pool area to the western SWP-dependent area. Three other identified Category 1 projects remain in development. These are listed below.

- **Burbank Water and Power Service Connection B-5 to B-5A Shift** – This project would construct a pump station at the Valley Blending Facility to enable Burbank to blend water from the supply side of the Greg Avenue Pump Station called the B-5A Service Connection. The shift from the Service Connection B-5 to B-5A would enable Metropolitan to deliver additional water from the Colorado River that is treated at the Weymouth Plant and pumped by the Greg Ave Pump Station to the western SWP-dependent area.
- **Three Valleys Municipal Water District Miramar Pumpback System Upgrade** – Three Valleys Municipal Water District's Miramar system normally takes water from the Rialto Pipeline and treats it at its Miramar Water Treatment Plant before delivery into its distribution system. The Miramar Pumpback System can take treated water from the F.E. Weymouth Water Treatment Plant (Weymouth Plant) and deliver those supplies to the Miramar system through a series of pumps, offsetting the need for SWP deliveries from the Rialto Pipeline. The Miramar Pumpback System Upgrade project would increase the capacity of the existing system from 15 cfs to 30 cfs.
- **Sepulveda Feeder Pump Stations Project, Stage 2** – This project would expand the Sepulveda Feeder pumping operation to an ultimate capacity of 160 cfs. Stage 1 of the project is being designed to accommodate a future expansion under Stage 2.

The Category 2 projects require greater time for development and larger investment for implementation and are in the planning stage to ensure a thorough and collaborative assessment of their effectiveness, benefits, and risks. Implementation of different Category 2 projects will depend on the outcome of the CAMP4W evaluation, which assesses the effectiveness of different projects in mitigating the long-term supply and demand gaps and providing climate adaptation benefits. This process will allow for a thorough evaluation considering both the risks and rewards of future investments and apply the adaptive management framework to adjust the implementation plan of drought mitigation actions based on changing conditions.

Figure A.4-2
Metropolitan's Service Area



Throughout each year, Metropolitan regularly carries out preventive and corrective maintenance of its facilities. Metropolitan 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 within Metropolitan, as well as with member agencies, other affected organizations, contractors, and the community. 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 Metropolitan's system and the cooperation of member agencies allow shutdowns to be successfully completed while continuing to meet all system demands.

Metropolitan's Infrastructure Reliability Strategy helps to ensure long-term reliable performance of the system in an efficient and cost-effective manner. Infrastructure reliability is addressed through three programs: the Maintenance Management Program, the Infrastructure Protection Plan, and the Dam Safety Program. The activities performed under these programs allow Metropolitan to extend the life span of its facilities and equipment and improve the overall reliability of the entire conveyance, treatment, and distribution system. In addition, seismic resiliency issues are addressed in the Seismic Risk Assessment and Mitigation Plan, which is included in Appendix 8 to the 2025 UWMP and incorporated herein by reference.

In the event that Metropolitan anticipates that an infrastructure issue is likely to impede or expand Metropolitan's capability to convey, treat, or distribute water during the current year, then the issue would be documented, and the determination of water reliability in the Annual Assessment would be adjusted accordingly.

Other Factors

Water quality is of paramount importance to water supply reliability. Metropolitan owns and operates five water treatment plants. Metropolitan is a national leader in providing safe drinking water that meets increasingly stringent standards, testing for over 400 constituents and performing nearly 250,000 water quality tests annually on samples gathered throughout its distribution system. Metropolitan's Water Quality Laboratory analyzes these samples to ensure that Metropolitan's delivered water meets or surpasses all state and federal drinking water standards. Because treatment to remove specific contaminants can be more costly than measures to protect water at the source, Metropolitan also actively supports improved watershed protection programs for its source waters in the Colorado River and SWP. For the Annual Assessment, any known issues related to water quality will be considered for their potential effects on water supply reliability.

A.4.4. Shortage Levels and Shortage Response Actions

Six Standard Water Shortage Levels

As required by California Water Code Section 10632(a)(3)(A), the WSCP is framed around six standard water shortage levels that correspond to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortages. As shown in Table A.4-5, each of the six shortage levels represents an increasing gap between Metropolitan's estimated core supplies and unconstrained demand as determined in the Annual Assessment. As explained above, shortage percentages will be calculated by dividing the difference between core supplies and unconstrained demand by unconstrained demand. This calculation will be performed separately for anticipated current-year conditions and for assumed dry-year conditions. Shortage levels also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other emergency events. The shortage levels are defined in terms of the percent shortfall of supplies against demands.

Shortage Response Actions

California Water Code Section 10632(a)(4) requires the WSCP to specify shortage response actions that align with the defined shortage levels, and include, at a minimum, all of the following:

- Locally appropriate supply augmentation actions
- Locally appropriate demand reduction actions to adequately respond to shortages
- Locally appropriate operational changes
- Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions (Not applicable to Metropolitan)
- An estimate of the extent to which the gap between supplies and demand will be reduced by implementation of each action.

As indicated in Table A.4-5, shortage responses will be customized to meet the circumstances for the particular shortage. Because circumstances can change at any time, Metropolitan's shortage response actions will be adjusted accordingly throughout the year. To determine specific actions that would be taken at each standard shortage level, Metropolitan will evaluate conditions specific to cost, timing, distribution needs and capabilities, and other variables that include SWP allocation, Colorado River conditions, demand reduction measures, supply program take capacities, and storage balances.

Shortages are characterized not merely by shortfalls in annual core water supplies, but also by the water balances in Metropolitan's storage programs. Thus, a 10 percent shortfall in core supplies could be met entirely with stored water if storage levels are sufficient. If storage levels are already depleted, the same shortfall in core supplies could potentially require a more complex mix of supply augmentation and demand reduction actions. In the most severe situations, shortage allocations to member

agencies through measures such as the WSAP would address any remaining shortages not already mitigated by supply augmentation and lesser demand reduction actions.

Metropolitan has invested extensively in a diverse portfolio of supply sources and system resiliency to prepare for a wide range of possible challenging conditions. Metropolitan follows the principles of its WSDM Plan, which was adopted in 1999 and provides policy guidance for managing regional water supplies to achieve reliability. It identifies a broad sequence of actions during surpluses and shortages to minimize the probability of severe shortages, based on detailed modeling of Metropolitan's existing and expected resource mix. The WSDM Plan recognizes the link between surplus and shortages and integrates planned operational actions with respect to both conditions. The WSDM Plan is included as Attachment A to this document.

Table A.4-5
Shortage Stages and Response Actions

Shortage Stage	Shortage Percentage	Shortage Response	
1	Up to 10%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Supply Allocations	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by supply allocation
2	10% to 20%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Supply Allocations	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by supply allocation
3	20% to 30%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Supply Allocations	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by supply allocation
4	30% to 40%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Supply Allocations	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by supply allocation
5	40% to 50%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Supply Allocations	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by supply allocation
6	More than 50%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Supply Allocations Take from Emergency Storage, if needed	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by supply allocation • Take from emergency storage during a catastrophic event

Supply Augmentation Actions

Generally, Metropolitan's first response to any gap between core supplies and demand is to make optimal use of its supply augmentation options consisting of draws from flexible supply programs and storage reserves listed in Table A.4-6. To supplement its core water supplies from the SWP and Colorado River, Metropolitan has developed and actively manages a portfolio of water supply programs, including water transfer, storage and exchange agreements, the supplies created by which are conveyed through available CRA capacity or the California Aqueduct. Metropolitan pursues voluntary water transfer and exchange programs with other entities to help mitigate supply/demand imbalances and provide additional dry-year supply sources. Metropolitan has also developed significant storage capacity in reservoirs and groundwater banking programs both within and outside of the Southern California region. Actual take capabilities would depend on various factors including water balances, location, and operational constraints.

Flexible Supplies

Metropolitan can augment its core Colorado River supplies through agreements with other agencies that have rights to use such water. Metropolitan determines the delivery schedule of these supplies throughout the year based on changes in the availability of SWP and to a smaller extent the higher priority water use adjustment for Colorado River water.

In addition to the basic SWP contract provisions, Metropolitan has other contract rights that facilitate augmentation of its SWP supply. Each SWP contractor has the right to use the facilities to move water supplies associated with agreements, water transfers, and water exchanges at the incremental cost. Metropolitan utilizes this ability in conveying water obtained through a number of agreements and exchanges with agencies in California's Central Valley, north of the Bay-Delta, and southward to Southern California.

Storage

A key component of Metropolitan's water supply capability is the amount of water in Metropolitan's storage facilities and programs in which surplus amounts of water in normal and wet years are captured until needed to augment core supplies. Metropolitan has developed an extensive storage portfolio made up of units within and outside Metropolitan's service area that includes both dry-year and emergency storage capacity. Such units, totaling approximately 6 MAF, include reservoirs and groundwater storage programs within the service area, and groundwater and surface storage accounts outside the service area delivered through the CRA or SWP. Consistent with the Emergency Storage Objective that was revised in 2019, approximately 750,000 AF of total stored water is emergency storage reserved for use in the event of supply interruptions from earthquakes or similar emergencies.

Table A.4-6
Supply Augmentation Actions: Flexible Supplies and Storage

Source	Flexible Supplies	Storage
Colorado River		Lake Mead Intentionally Created Surplus (ICS) Storage Program Southern Nevada Water Agency Storage and Interstate Release Agreement Desert Water Agency/Coachella Valley Water District Advanced Delivery Account Imperial Irrigation District Storage
State Water Project	SWP Transfers San Bernardino Valley Municipal Water District Program	SWP Carryover DWR Flexible Storage (Castaic Lake and Lake Perris) SWP Banking Programs
In-Region		Diamond Valley Lake Lake Mathews Lake Skinner Conjunctive Use Programs (CUP)

Demand Reduction Actions

Demand reduction actions are extraordinary measures taken to temporarily constrain water demand during a shortage. For the purpose of the WSCP and the Annual Assessment, it is important to separate temporary reductions in demand from baseline conservation as they relate to constrained and unconstrained demands. WSCP demand reduction actions result in constrained demands. Water savings from WSCP demand reduction actions must be factored into estimates of unconstrained demands for Annual Assessment shortage determinations. Intensity of demand reduction measures will vary by the severity of shortage and availability of other cost-effective supply augmentation measures. Early demand reduction actions tend to be voluntary measures that are comprised of outreach and education actions from Metropolitan's WSCP Communication Plan (see following section A.4.5). More severe conditions may necessitate supply allocations to wholesale customers through measures such as the WSAP. Table A.4-7 shows the demand reduction measures available to Metropolitan.

Table A.4-7
Demand Reduction Actions

	Demand Reduction Actions
Voluntary Measures	Implement Communication Plan (May apply to Shortage Levels 1-6, Crisis) • Public information campaigns • Community outreach and media relations • Public opinion research • Interagency and intergovernmental coordination
Mandatory Measures	Implement supply allocation (May apply to Shortage Levels 1-6, Crisis)

Benefits of public information campaigns include rapid implementation and raising public awareness of the severity of the water shortage. For this reason, public information campaigns are included as a Demand Reduction Action in the WSCP. According to the American Water Works Association, water savings from this measure alone range from 5 to 20 percent, depending on the time, money, and effort spent.[2] If public outreach targets between 5 and 10 percent of the population, then demand would be assumed to be reduced by 5 to 20 percent of the 5 to 10 percent. The size of the media campaign is correlated with the number of people being reached.

Implement Communications Plan

Metropolitan's WSCP Communication Plan details Metropolitan's action-oriented strategy for education, outreach, and coordination during each WSCP standard shortage stage and in response to a catastrophic loss of supply. See the following section A.4.5 for the WSCP Communications Plan.

Enhanced Conservation Program

Although not considered as a WSCP demand reduction action because of their limited effect in the immediate term, Metropolitan administers regional conservation programs and co-funds member agency conservation programs designed to achieve greater water use efficiency in residential, commercial, industrial, institutional, and landscape uses. Metropolitan may implement extraordinary measures to temporarily enhance conservation during a shortage which include, but are not limited to, increasing rebates, reducing program eligibility requirements, working with rebate vendors to create in-store marketing and direct outreach to businesses, increasing direct install efforts with member agencies and partners, and working with water retailers and retail customers to develop on-site leak prevention programs. While the savings from conservation programs may not be realized quickly enough to mitigate the need for other shortage response actions, water-efficient device retrofit rebates, landscape conversions, and leak prevention all contribute to ongoing structural water savings. Conservation device

[2] American Water Works Association. 2019. Manual of Water Supply Practices – M60, Second Edition: Drought Preparedness and Response. p. 35

retrofits help to recover storage in future years by lowering demands in all years, not only shortage years.

Water Supply Allocation Plan

Under most conditions, Metropolitan can meet all of its service area's wholesale water needs. However, during severe water shortage situations when public information campaigns and enhanced conservation programs are insufficient to generate the needed demand reduction, Metropolitan may find it necessary to temporarily limit and allocate supplies to its member agencies. Metropolitan's WSAP allocates Metropolitan's water supplies among its member agencies, based on the principles contained in the WSDM Plan, to mitigate drawdowns from water storage reserves. The WSAP was originally approved by Metropolitan's Board in February 2008 and has been implemented three times since its adoption, most recently in April 2015. The WSAP provides a formula for equitable distribution of limited water supplies. If needed, a WSAP action is typically considered for Board approval in the month of April, with implementation beginning in the following July. This allows Metropolitan's member agencies time to prepare and to adjust their estimates for Metropolitan's current year supply for their own WSCP Annual Assessments.

The WSAP allocation is a costly shortage response action that places acute burdens upon member agencies and the public. Other shortage response actions are generally preferred to the extent practicable. Metropolitan's overall strategy considers WSAP allocations to be a fallback option to address any remaining shortages when supply augmentation actions and other demand management measures are insufficient to meet demand reduction objectives. For reference, the WSAP is included as Attachment B to this document.

Emergency Water Conservation Program

In April 2022, Metropolitan's Board declared a Water Shortage Emergency Condition for Metropolitan's SWP-dependent area and adopted a framework for a new program called the Emergency Water Conservation Program (EWCP). The EWCP preserved supplies by reducing non-essential uses of water delivered to the SWP-dependent area. Six member agencies were affected by the EWCP in 2022, serving approximately six million people. The EWCP began implementation on June 1, 2022, and was authorized through June 30, 2023. The EWCP allowed two paths for compliance involving either enforced restrictions on outdoor watering or adherence to the volumetric limits subject to monetary penalties per acre-feet for using SWP water over the limits. The first compliance path required member agencies to restrict outdoor irrigation to one day per week beginning June 1, 2022. The second path gave member agencies discretion to comply with monthly volumetric limits directly and to tailor their water management responses appropriately to their local circumstances. Due to improved water supply conditions in 2023, the EWCP was rescinded in March 2023.

Operational Changes

During shortage conditions, operations may be affected by supply augmentation or demand reduction responses. For example, Metropolitan may temporarily alter maintenance cycles, defer planned system outages, and adjust the flow and routing of

water through its system to more effectively distribute available supply across the service area, including areas that are currently only able to be served by SWP water supplies.

Because of the extensive and complex nature of Metropolitan's conveyance and distribution system and the varying levels of local supplies available among each of the member agencies, any supply-related shortage response actions triggered under the WSCP would be carefully chosen to optimally match available resources with specific localized demands by the member agencies.

Metropolitan's diversified portfolio of water supplies presents operational opportunities and challenges during droughts. Because water resources available to the Metropolitan service area come from three geographically distinct regions – Northern California, the Colorado River, and local resources – a relatively dry year affecting one of these three regions can be offset by relatively abundant supplies from the other two regions. For example, a year of ample precipitation within Metropolitan's service area tends to depress demand and enhances local water resources, further reducing demands on imported supplies. A wet year in the Sacramento-San Joaquin watersheds increases the SWP allocation, facilitating reduced diversions from the Colorado River in favor of storing supplies in Lake Mead or in the Desert Water Agency/Coachella Valley Water District Advanced Delivery Account. Conversely, a shortfall on the SWP may require system operational modifications to maximize Colorado River diversions and the delivery of Colorado River supplies to areas normally served with SWP supplies.

Additional Mandatory Prohibitions (not applicable)

California Water Code 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. However, this item is not applicable to Metropolitan. As a regional wholesaler, Metropolitan does not dictate or control the end uses of water by retail consumers.

Shortage Response Action Effectiveness

As shown in Table A.4-5, WSCP shortage response actions will be implemented to reflect the overall conditions facing Metropolitan and the resources available in that given year. Supply augmentation actions consisting of stored water and as-needed flexible supplies are expected to address between 0 to 100 percent of anticipated shortages for any shortage stage, depending on availability of those supplies; in lesser WSCP shortage stages, it is likely that shortages can be completely addressed through supply augmentation.

Efficacy of demand reduction efforts is difficult to estimate or predict, but water savings are a function of the extent to which public information campaigns reach water users and the degree of consumer response to those messages. Given the estimate of between 5 to 20 percent effectiveness described above, in concept, up to 20 percent of retail demands could be reduced if a successful media campaign reached and influenced the entire service area population. Consistent with the WSCP Communications Plan in the following section A.4.5, anticipated shortages will involve

an appropriately-sized outreach campaign to address the targeted demand reduction, which depends on the combined effectiveness of other shortage response actions.

As shown in Table A.4-8 below, the WSAP is designed to reduce wholesale demands by up to approximately 50 percent of the WSAP's calculated base demand. The WSAP contains 10 levels of allocation, and each level is approximated to generate an additional 5 percent reduction from base demands. Table A.4-8 gives examples of estimated savings by each WSAP level using a hypothetical base demand of 1.8 MAF. Actual reductions and base demands are based on a formula that includes various factors such as actual local supply production, population growth, and conservation. The WSAP is expected to address the shortage not met by other shortage response actions. In rare cases where system supplies are unable to meet location-specific demands, such as in 2022-2023, when there was insufficient SWP system water to meet SWP-dependent demands, a region-wide allocation through the WSAP may not be appropriate. In such cases, Metropolitan may consider other measures, such as the EWCP, to address the specific problem.

Table A.4-8
Water Supply Allocation Plan Levels

WSAP Level	Approximate Percent Reduction	Example Base Demand	Estimated Demand Reduction
1	5%	1.8 MAF	90,000 AF
2	10%		180,000 AF
3	15%		270,000 AF
4	20%		360,000 AF
5	25%		450,000 AF
6	30%		540,000 AF
7	35%		630,000 AF
8	40%		720,000 AF
9	45%		810,000 AF
10	50%		900,000 AF

Catastrophic Interruption of Water Supplies

Metropolitan's Emergency Storage Objective is a planning estimate that represents the amount of water that Metropolitan would hold in storage for the region in preparation for a catastrophic earthquake that would damage the aqueducts that transport imported water supplies to Southern California, including: the Colorado River Aqueduct, both the East and West branches of the California Aqueduct, and the Los Angeles Aqueduct. Emergency storage allows Metropolitan to deliver reserve supplies to the member agencies to supplement local production. This helps avoid severe water shortages during periods when the imported water aqueducts may be out of service.

The Emergency Storage Objective considers a six- and twelve-month outage period for the imported supply aqueducts incorporating latest seismic information and operational

flexibility of Metropolitan's system, a retail water demand cutback ranging from 25 to 35 percent considering the level of conservation that the region achieved during the recent drought, and an aggregated loss of 10 to 20 percent of local supplies accounting for factors that could affect local production during emergency conditions.

In 2019, Metropolitan and its member agencies completed a process to update the Emergency Storage Objective, which was set at 750,000 AF. This level of storage would prevent severe water shortages to the region given new information on expected recovery durations. The emergency storage volume represents a planning estimate for how much water Metropolitan would store for the region in preparation for a catastrophic earthquake or other disaster. It is not intended to set a basis or a policy for allocating or apportioning storage for any individual member agency.

As an additional tool, in July 2019, the Board adopted amendments to Metropolitan's Administrative Code enabling deliveries of member agency water supplies in Metropolitan's system in an emergency. These deliveries are intended to provide Metropolitan's member agencies the ability to deliver member agency water through Metropolitan's system under specific emergency conditions. Emergency deliveries can only be made if Metropolitan is unable to make deliveries to a member agency due to physical damage to Metropolitan's system resulting from a natural disaster or other emergency, and there are no alternate means for Metropolitan or the member agency to provide service to an area without the use of a portion of Metropolitan's system.

Metropolitan's strategy for catastrophic water shortage conditions is further discussed in Appendix 8 to the 2025 UWMP and incorporated herein by reference.

Emergency Freshwater Pathway (Sacramento-San Joaquin Delta)

DWR has estimated that in the event of a major earthquake in or near the Delta, water supplies could be interrupted for up to three years, posing a significant and unacceptable risk to the California business economy. A post-event strategy would provide the necessary water supply protections to avert this catastrophe. Such a plan has been coordinated through DWR, the Army Corps of Engineers, USBR, California Office of Emergency Services, Metropolitan, and the State Water Contractors. Additional information on the creation of an emergency freshwater pathway and other actions in the Delta is included in Section 2.5 of the 2025 UWMP and incorporated herein by reference.

Emergency Response Plans

Metropolitan maintains an Emergency Response Plan (ERP) that meets the requirements of the American Water Infrastructure Act of 2018. This plan was certified with the Environment Protection Agency (EPA) in 2019, and is set to be certified again in September 2025. The ERP is updated periodically and provides guidance on how Metropolitan activates and operates its Emergency Operations Center (EOC), Incident Command Posts (ICPS) and Duty Officer program. Metropolitan's EOC follows the Standardized Emergency Management System (SEMS) model, and the ICPs use the Incident Command System (ICS) to manage local incident responses. The plan utilizes a multi-hazard approach and provides a strategy for various types of incidents. The plan

also includes coordination with outside jurisdictions such as other utilities, cities, counties, state and federal governments.

Seismic Risk Assessment and Mitigation Plan

CWC Section 10632.5 mandates UWMPs to include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities. For Metropolitan, the required assessment and plan are accomplished as part of developing its resilience strategy and are presented in detail in its seismic resiliency reports. This section provides a summary of the various components of Metropolitan's resilience strategy. These components are described in detail in Metropolitan's Seismic Resilience Report First Biennial Report (February 2018) and subsequent updates in 2020 and 2025.

Over its nearly 100-year history, Metropolitan has been proactive in mitigating seismic risks posed to its expansive infrastructure, as well as improving its ability to maintain (or quickly restore) water deliveries following a major earthquake. This ability to mitigate seismic risks and maintain (or quickly restore) water deliveries following a seismic event is referred to as "seismic resilience." Metropolitan's holistic strategy for seismic resilience follows a "defense in depth" multi-layered approach for managing risk. Metropolitan's Seismic Resilience Strategy has three primary objectives:

1. Provide a diversified water supply portfolio, system flexibility, and emergency storage
2. Prevent damage to water delivery infrastructure in probable seismic events and limit damage in extreme events
3. Minimize water delivery interruptions through a dedicated emergency response and recovery organization

Metropolitan's Seismic Resilience Strategy is implemented through four components that encompass the various internal functions that promote Metropolitan's seismic resilience objectives. These components are supplemented by Metropolitan's commitment to inter-agency coordination when preparing and responding to a seismic event and other emergencies.

A.4.5. WSCP Communications Plan

Introduction

From 2020 to 2025, extreme swings in hydrologic conditions were driven by a rapidly changing climate and increasingly unpredictable weather patterns. Metropolitan concentrated on building its conservation and outreach program to emphasize sustained efficiency while celebrating the remarkable water-saving achievements accomplished throughout the region. Messaging has encouraged sustainable, long-term behavioral changes, particularly with regard to outdoor water use. These efforts have helped solidify a conservation ethic across Southern California, supporting a $1.7 billion investment in conservation, recycling and groundwater recovery since 1990. When combined with additional investments in storage, local supply development, and system flexibility, the region is well positioned to withstand future droughts. Still, in response to the challenges of climate change and other adverse supply conditions, increased water efficiency remains a critical strategy. As those extreme conditions become more

prevalent, effective communication strategies and a common understanding of necessary actions between water agencies, the public, elected officials, and other key stakeholders become even more important. These relationships and communication tools must be well established to be successful. To that end, water providers should aim to communicate to customers in the following areas:

1. Actions water providers are taking to plan for and respond to emergency situations – including drought, infrastructure failures, earthquakes, wildfires, and other natural or manmade disasters.
2. Ongoing investments to maintain and upgrade critical infrastructure – to increase resilience, reliability and flexibility.
3. Status of regional water supply conditions and triggers for WSCP shortage response actions – so customers understand the "why" between critical conservation actions.
4. Where customers can go for updates and reliable information during a water emergency – including websites, social media, hotlines and community alert systems.

Several factors influence the strategies needed to effectively communicate with the diverse communities and needs of Metropolitan's 5,200 square-mile service area, particularly when there is an urgent need for conservation. As a wholesaler serving 26 member agencies and a region that is home to nearly 19 million people, there is no single communication message or strategy that will effectively reach Metropolitan's diverse audiences. Furthermore, state and local water regulations during periods of drought or supply shortages can result in a broad range of water-saving requirements and goals across the region. Qualitative research from previous droughts has provided valuable insight on attitudes and behaviors toward water conservation, including drought fatigue, water quality concerns, increasing water rates and equity issues. These factors, though inherently complex, are conducive to collaboration that elevates the importance of drought resiliency. This section of the WSCP describes the basic communications strategies needed to help Metropolitan effectively communicate vital information for each of the six standard water shortage levels that represent changes from normal reliability. The six standard water shortage levels depicted in this communications plan correspond to:

- Progressively increasing estimated shortage conditions: up to 10, 20, 30, 40, 50, and greater than 50 percent shortage compared to the normal reliability conditions.

Collaboration

Collaboration with its member agencies is central to Metropolitan's outreach plans during drought, water shortages or other demand management periods. Developing and delivering a concise regional message in multiple languages is made possible through consistent coordination with member agencies and their constituents. Metropolitan's External Affairs group regularly engages and interacts with member agency staff in several capacities, including but not limited to the following groups:

- Member agency managers
- Legislative and government affairs representatives
- Water use efficiency/conservation coordinators
- Public information officers
- Education coordinators

In addition to member agency coordination, Metropolitan interacts with agencies and organizations outside of the region, including:

- Department of Water Resources
- State Water Resources Control Board
- Association of California Water Agencies
- California Municipal Utilities Association
- Colorado River Water Users Association
- California Water Efficiency Partnership
- Alliance for Water Efficiency
- Law enforcement and public safety agencies
- Other state and federal agencies

As seen in past droughts, the methods of communication within these groups and the frequency of meetings fluctuate based on the changing needs of our member agencies and their key audiences. Water shortage conditions are ever-evolving—remaining flexible yet focused not only reduces the risk of discordance, but it also ensures key audiences throughout Southern California receive timely, valuable and cohesive information.

As mentioned, Metropolitan's WSCP includes six levels of potential shortage. The water-saving actions associated with each level of shortage will vary greatly. This section provides an overview of messaging strategies that would be enacted at each level, leading to more focused crisis communication strategies. This plan is adaptable and should be tailored for the needs of each situation. Metropolitan management and/or Board of Directors could also call for specific messaging strategies that address unique shortage scenarios.

Key Audiences

Communicating to stakeholders is essential during normal supply periods and becomes increasingly important during water shortages. Below is a list of key audiences:

- Metropolitan Board
- Metropolitan employees
- Member agencies and their customers
- General public

- State, federal, and local elected officials and their district office staff
- Homeowners and renters
- Multi-family property owners/managers/landlords
- Business associations/chambers of commerce
- Commercial-industrial property owners/managers
- Landscape contractors/suppliers
- Restaurant/hotel industries
- School districts/educators/students
- Building and construction trade associations
- Community/civic leaders
- Land-use agencies
- Environmental groups
- Community-based and non-profit organizations
- Non-English-speaking populations
- Disadvantaged/under-invested communities

Communicating to these audiences requires varying levels of involvement depending on the status of supply conditions. Feedback, research, and leveraging existing relationships are central to an effective communications plan; therefore, Metropolitan's External Affairs and Water Resource Management staff will continue to coordinate closely with member agencies, stakeholders, and governing agencies on an ongoing basis to ensure appropriate messaging is culturally competent and provided in multiple languages to reflect the region's demographics.

Goals and Objectives

Metropolitan's communications goals are rooted in the following guiding principles:

- Motivate key audiences to:
    - Increase conservation
    - Follow voluntary or mandatory water use guidelines
    - Participate in water-saving incentive programs
    - Encourage family, friends, neighbors, and colleagues to do all the above
- Raise awareness about:
    - Water shortage and/or drought conditions
    - Water sources, supplies and reserves
    - Local, regional and state regulations

- Educate key audiences on:
    - Water supply reliability
    - Water infrastructure and delivery
    - Water quality
- Prepare the region for:
    - Varying water supply conditions
    - Escalating supply shortage levels

Standard Communication

Conservation as a way of life remains central to messaging during normal supply conditions. Regional rebate programs, indoor and outdoor water use efficiency, investments to maintain infrastructure, emergency preparedness, local supply programs, water quality, and regional supply reliability are among some of the themes that make up a normal supply period's communications mix to encourage ongoing conservation actions. Below are Metropolitan's communications tools:

- Media relations (news releases and advisories, interviews, op-eds)
- Social media (Twitter, Instagram, Facebook, YouTube, LinkedIn)
- Websites and Blogs
    - mwdh2o.com
    - bewaterwise.com
    - socalwatersmart.com
- Digital, print and other paid media marketing
- Search engine optimization
- E-newsletters
- Community events
- Education outreach
- Business outreach

Level 1 Communications – up to 10 percent Shortage

This section addresses the communications strategies Metropolitan uses during periods of 10 percent water shortage conditions. In addition to Metropolitan's ongoing communications efforts, a 10 percent shortage would require the following elements:

- Media relations and communications
    - Maintain media relations activities with enhanced communication about the specific need to conserve; provide media with regional water supply conditions and Metropolitan's shortage response action updates:

        - Press releases, advisories, op-eds, and direct outreach to media to drive earned media opportunities
        - Ethnic media outreach in multiple languages.
        - Produce and distribute fact-based informational materials such as fact sheets, podcasts, and B-roll video.
- Social media
    - Emphasize ways to conserve immediately (shorter showers, less watering, links to tools on bewaterwise.com, etc.), as well as continued promotion of conservation as a way of life initiatives such as regional water use efficiency incentives and other rebate programs, including Metropolitan's Turf Replacement Program:
        - Paid social media boosting to target the District's service area
    - Encourage member agency co-branding and messaging continuity:
        - Share social media creative with the Public Information Officer Working Group and conservation coordinators
- Web
    - Establish a SharePoint site for member agencies and the public to download all water supply and conservation materials
    - Update all Metropolitan websites with pertinent conservation and water supply information
    - Provide links to local watering restrictions and conservation efforts
- Member agency coordination
    - Enhance collaboration and communication with member agencies to streamline messaging
    - Involve member agencies in the development of a communications plan
    - Provide regular campaign updates to member agency managers, staff and board members
    - Provide member agencies with campaign outreach materials (newsletter articles, creative design, bill inserts, etc.) for customization and distribution
- Community outreach
    - Make water supply conditions and conservation messaging a key component of all regular community outreach
    - Conduct additional, specialized outreach to inform non-profit organizations and civic/community leaders about water supply conditions and conservation efforts
        - Community events/webinars
        - Non-profit organization e-newsletters

- Education outreach
    - Update curriculum to reflect the enhanced need to conserve and make water supply conditions and conservation messaging a key component
    - Communicate to K-12 school districts and colleges/universities about the need for increased conservation
    - Provide regional water and environmental education programs with materials addressing the need for increased conservation
- Legislative and government affairs
    - Promote understanding with local, state and other elected officials in the region about the need to conserve
    - Encourage officials to promote these efforts to constituents

In addition:

- Regularly communicate with the Metropolitan board and employees so they are aware of how Metropolitan is responding and what they can do to support messaging efforts.
- Work with member agencies to target key industries or groups to raise awareness about water-use efficiency programs and regional water supply conditions
    - Restaurants
    - Hotels/motels
    - Public agencies
- Research and public opinion

Conduct research to gain insights on public opinion, attitudes and beliefs toward conservation and water shortage levels

- Message testing with key audiences

Level 2 Communications – up to 20 percent Shortage

In a more severe supply shortage or demand management period, Metropolitan will continue actions outlined in Level 1 communications strategies, and add the following efforts, which are designed to address a 20 percent mandatory conservation under the WSCP:

- Media relations and communications
    - Paid advertising – Execute a multimedia, multilingual regional advertising campaign to reflect a more urgent message emphasizing the need for compliance with mandatory water-use restrictions. Place paid advertisements in the following platforms:
- Out of Home (billboards, bulletins, bus shelter ads)
- Radio

- Television
- Digital
- Grassroots
  - Host a press conference to discuss current water shortage conditions, shortage response actions, and outlook
  - Coordinate with other regional or state agencies for greater impact and reach
- Social media
  - Emphasize a clear and practical message conveying mandatory water-use restrictions, drought conditions and ways to save water
  - Establish more targeted and focused social media advertising strategies – targeted boosting and messaging
- Member agency coordination
  - Meet with member agencies to streamline a more urgent and serious campaign tone
  - Coordinate paid media flights with member agencies to leverage regional exposure and distribution
  - Provide multimedia and multilingual campaign materials for member agency customization
- Community outreach
  - Coordinate with community-based organizations and leaders with higher impact, reach and credibility
  - Inform, debrief and prepare community/civic leaders to become water conservation ambassadors in their respective communities
- Legislative and government affairs
    - Increase briefing activity with state and local officials on water supply conditions, shortage response actions, and water conservation advertising campaign

In addition:

- Help prepare and distribute materials about restrictions, ordinances and guidelines through stakeholder communication channels, including but not limited to:
  - Business organizations
  - Civic organizations
  - Elected officials
  - Building/plumbing/construction associations
  - Building managers

- Landscape contractors
- Increase outreach efforts to key associations and interest groups throughout the region, emphasizing immediate conservation goals

Level 3 and 4 Communications – up to 30 percent or 40 percent Shortage

In addition to Level 2 communications strategies, the following efforts will address an even more severe shortage of 30 percent-40 percent mandatory conservation under the WSCP:

- Media relations and communications
- Increase media relations activities, with an added emphasis on the severe regional water supply conditions, the shortage response actions triggered or expected to be triggered, and the mandatory need to conserve
- Host news conference in multiple languages alongside high-level public officials to highlight severity and extreme measures needed
- Continue the following with greater frequency and stronger, more critical messaging:
- Paid advertising campaign
- Press releases, advisories, op-eds, etc.
- Direct media outreach offering pre-recorded radio and TV interviews
- Ethnic media outreach in multiple languages
- Social media
    - Messaging shift to reflect severity of supply conditions and shortage response actions triggered or expected to be triggered– conservation is mandatory to maintain day-to-day activity and future supplies, quality of life now being impacted
- Web
- Make conservation messaging front and center on all websites
- Community Outreach
    - Host a community leader briefing, bringing together representatives from community-based organizations from across the region to learn about the severity of water supply conditions
- Member agency coordination
- Continue to streamline messaging about WSCP level escalation to ensure message continuity throughout the region
- Help member agencies address local and mandatory conservation needs
- Coordinate with member agencies on any updated messages and campaign activities emphasizing extreme actions that must be taken

- Legislative and government affairs
  - Outreach to legislative leadership at state and federal level to raise awareness at high levels

In addition:

- Specialized targeted outreach to:
  - Special interest groups
  - Public agencies
  - County and city departments
- Assess the goals and objectives of regional rebate programs, begin a shift toward immediate water-saving actions
- Research and public opinion
  - Conduct public opinion research studies including focus groups to determine attitudes and beliefs toward extreme conservation levels to effectively communicate severity of supply conditions and the mandatory need to conserve

Level 5-6 Communications – 50 percent Shortage or more

The severity of this level of the WSCP calls for immediate, extreme conservation measures and a focus on water use for health and safety only. As with previous levels, communications strategies at this level of the WSCP incorporate and build upon ongoing efforts.

Key Communications Strategies

- Consider establishing a Joint Information Center (JIC) to pool crisis communications among emergency responders and affected local, state and federal agencies
- Consider hosting employee town halls to provide updates on the situation
- Produce and distribute fact-based informational materials such as fact sheets, podcasts, and B-roll video
- Host a press conference to announce the severity of water shortage level and shortage response actions triggered or anticipated to be triggered, in conjunction with regional and/or state emergency response and public health authorities
- Emphasize work being done by Metropolitan and its member agencies to alleviate the impacts of such a severe shortage
- Focus on the need for residential and commercial customers across the region to do their part to get through the crisis situation
- Offer vulnerable populations increased assistance, in coordination with regional emergency response teams
- Keep the media and key stakeholders informed with frequent supply condition reports

- Shift from traditional advertising campaign efforts to emergency and crisis communication approach
- Messaging is no longer conservation-focused, begin shift to crisis response communications protocols

Crisis Communications – Catastrophic Shortage

In the event of a catastrophic shortage due to an infrastructure failure and/or natural disaster, Metropolitan will enact its crisis communications plan in accordance with local, regional, state and federal emergency response guidelines that ensure a coordinated effort and effective response. This plan utilizes the Standard Emergency Management System, the Incident Command System and the National Incident Management System.

Strategic Message Development

- In an emergency, communications messages will be created in a complex environment in which the tensions of multidirectional information flows must be balanced with the need for strategic message development

Message Dissemination

Communication efforts will center on the core identified tasks: providing information to the public and external audiences. Information dissemination tools:

- Website (mwdh2o.com, bewaterwise.com)
- Social Media (Twitter, Facebook, Instagram, YouTube)
- MetAlert Emergency Notification System + RSS Feeds
- Internal memos to the workforce
- Press Releases and statements
- Participation in joint information centers
- For localized emergencies: community bulletin boards, Nextdoor

Information Dissemination

- Public Information
  - Activate and manage the mechanisms for responding to public requests for information via social media, telephone, in writing, or by e-mail
  - Prepare Metropolitan's telephone operators for responding to and monitoring calls related to emergency incidents; brief them and provide scripts on how to respond to questions and where to direct calls for other requests
  - Respond to media inquiries and prepare subject matter experts to participate in media interviews and press conferences.
  - Monitor news media and work with editors/producers to correct any inaccuracies, as necessary
  - Work with subject matter experts to create situation-specific talking points, fact sheets, Q&A documents and updates

- Respond to requests and inquiries from special interest groups
- Oversee and manage Metropolitan's emergency response website if needed, in addition to mwdh2o.com, social media, telephone, and public email correspondence response systems; establish and maintain links to other emergency response websites
- Manage the development and testing of messages and materials for cultural and language requirements of special populations
- Post updates on social media channels. Monitor and respond to comments as needed/appropriate

- Member agencies, partnering agencies and elected/legislative officials:
  - The Public Information Officer (PIO) or Crisis Communications Team will communicate, as needed, with the PIOs for member agencies and other partnering agencies
  - Help organize and facilitate official meetings and briefings to provide information and receive input from member agencies, other partners or stakeholders
  - Notify legislative/elected officials as needed

A.4.6. Legal Authorities

This section describes the legal authorities that empower Metropolitan to implement and enforce its shortage response actions. Metropolitan is a wholesale water provider organized as a cooperative of 26 voluntary members. Metropolitan was formed pursuant to the Metropolitan Water District Act, Statutes 1969, chapter 209, as amended, codified at California Water Code, Appendix Section 109 (the "MWD Act"). Pursuant to the MWD Act, Metropolitan has the express and implied statutory authority to "[p]rovide, sell, and deliver water at wholesale for municipal and domestic uses and purposes," among other powers. (MWD Act, §§ 120, 130.) To accomplish the provision of water, Metropolitan is also expressly authorized to promote and implement conservation programs, including during times of water shortage. (MWD Act, § 130.5.)

Metropolitan also has authority under the California Water Code to implement supply shortage programs. (Cal. Water Code, §§ 350-359, 375-378.) For example, Section 375(a) of the Water Code provides:

> *Notwithstanding any other provision of the law, any public entity which supplies water at retail or wholesale for the benefit of persons within the service area or area of jurisdiction of the public entity may, by ordinance or resolution adopted by a majority of the members of the governing body after holding a public hearing upon notice and making appropriate findings of necessity for the adoption of a water conservation program, adopt and enforce a water conservation program to reduce the quantity of water used by those persons for the purpose of conserving the water supplies of the public entity.*

Cal. Water Code, § 375(a). Water Code Section 375(b) also provides the authority for pricing to encourage water conservation.

> *With regard to water delivered for other than agricultural uses, the ordinance or resolution may specifically require the installation of water-saving devices that are designed to reduce water consumption. The ordinance or resolution may also encourage water conservation through rate structure design.*

Metropolitan's Board of Directors has approved many policies and rules, codified in Metropolitan's own Administrative Code, which further provide Metropolitan the authority to ensure the availability of its water during times of shortages. For example, Administrative Code Section 3107 requires that any territory annexed to Metropolitan comply with Metropolitan's water use efficiency guidelines.

The Board has also ratified various policies and rules to implement a Water Supply Allocation Plan (WSAP) to address shortage conditions. Metropolitan's WSAP provides a standardized methodology for allocating supplies during times of shortage. The WSAP is authorized pursuant to the following Board actions:

- By Minute Item 43514, dated April 13, 1999, the Board adopted the WSDM Plan.
- By Minute Item 44005, dated June 17, 2000, the General Manager has the authority to reduce Interim Agriculture Water Program deliveries up to 30 percent prior to imposing any mandatory allocation under the WSDM Plan.
- By Minute Item 47393, dated February 12, 2008, the Board adopted the WSAP.

- By Minute Item 48376, dated August 17, 2010, the Board approved adjustments to the WSAP.
- By Minute Item 48803, dated September 12, 2011, the Board approved adjustments to the WSAP.
- By Minute Item 74526, dated February 11, 2014, the Board adopted the Water Supply Alert Resolution.
- By Minute Item 49979, dated December 9, 2014, the Board approved adjustments to the WSAP.
- By Minute Item 52802, dated April 26, 2022, the Board declared a Water Shortage Emergency Condition, authorized the Emergency Water Conservation Program, and expressed support for the Governor's Executive Order N-7-2
- By Minute Item 52946, dated August 16, 2022, the Board adopted a resolution committing to regional reliability for all member agencies.

In addition to the statutes and other legal authorities set forth above, Metropolitan is empowered to implement and enforce its shortage response actions pursuant to various resolutions. For example, on April 11, 2016, Metropolitan's Board voted to adopt Metropolitan's 2015 UWMP and authorized its submittal to the State of California as stated in Resolution 9209. Metropolitan's 2015 UWMP contains Metropolitan's December 2014 WSAP in Appendix 4. Metropolitan's 2015 UWMP also describes in Section 2.4 Metropolitan's WSAP and WSDM Plan, which guides Metropolitan's planning and operations during both shortage and surplus conditions. Similarly, on May 11, 2021, Metropolitan's Board voted to adopt Metropolitan's UWMP and this WSCP as stated in Resolutions 9279 and 9281, respectively. These two Resolutions authorize Metropolitan to implement and enforce its shortage response actions contained in the WSCP, which was attached as Appendix 4 to the 2020 UWMP.

Additionally, numerous agreements allow Metropolitan to take its core supplies and shortage response actions. Core supplies and supply augmentation actions are authorized by the agreements shown in 2025 UWMP Appendix 3: Justifications for Supply Projections, which include:

Colorado River Supplies

- 1931 Seven Party Agreement dated August 18, 1931
- Metropolitan's 1930, 1931, and 1946 water delivery contracts with the Secretary of the Interior
- Consolidated Decree of the Supreme Court of the United States in *Arizona v. California*
- 2003 Quantification Settlement Agreement (QSA) and related agreements
- 2005 Settlement Agreement with the Quechan Indian Tribe
- 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead

- 1988 IID-Metropolitan Conservation and Use of Conserved Water Agreement
    - 1989 Approval Agreement
    - 1989 Supplemental Approval Agreement
- August 2004 Forbearance and Fallowing Program Agreement with PVID
    - Landowner Agreements for Fallowing in PVID
- 2003 Delivery and Exchange Agreement between Metropolitan and Coachella Valley Water District
- 2004 Storage and Interstate Release Agreement among Metropolitan, the Colorado River Commission of Nevada, Southern Nevada Water Authority, and the United States
- 2007 Lower Colorado Water Supply Project Contract among the United States, the City of Needles, and Metropolitan
- 2007 Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement among the Arizona Department of Water Resources, PVID, IID, the City of Needles, CVWD, Metropolitan, SNWA, and the Colorado River Commission of Nevada
- 2007 California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus among Metropolitan, PVID, IID, CVWD, and the City of Needles
- 2007 Agreement among the United States, the Colorado River Commission of Nevada, and the SNWA for the Funding and Construction of the Lower Colorado River Drop 2 Storage Reservoir Project
- 2007 Delivery Agreement between the United States and Metropolitan
- 2008 Metropolitan Notice of Election to Participate as a Party to the Drop 2 Funding Agreement
- 2009 Agreement among the United States, Metropolitan, the Colorado River Commission of Nevada, SNWA, and the Central Arizona Water Conservation District for a Pilot Project for Operation of the Yuma Desalting Plant
- 2010 Yuma Desalting Plant Pilot Project Delivery Agreement between the United States and Metropolitan
- 2012 Agreement among the United States, Metropolitan, the Colorado River Commission of Nevada, SNWA, and the Central Arizona Water Conservation District for a Pilot Program for the Conversion of Intentionally Created Mexican Allocation to Intentionally Created Surplus
- 2012 Interim Operating Agreement for Implementation of Minute No. 319 of the International Boundary and Water Commission
- 2012 Lower Colorado River Basin Forbearance Agreement for Binational Intentionally Created Surplus

- 2012 Binational ICS Delivery Agreement
- 2013 Agreement between Metropolitan and IID Regarding Binational Intentionally Created Surplus
- 2015 Amendment 1 to the California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus
- 2017 Agreement among the United States, Metropolitan, the Colorado River Commission of Nevada, SNWA, IID, and the Central Arizona Water Conservation District for a Pilot Program for the Conversion of Mexico's Water Reserve to Binational ICS
- 2017 Interim Operating Agreement for Implementation of Minute No. 323
- 2017 Binational ICS Agreement
- 2017 Binational ICS Delivery Agreement
- 2019 Lower Basin Drought Contingency Plan
- December 2019 Agreement for the Implementation of a Seasonal Land Fallowing Program in Bard Water District
    - Agreements for Seasonal Fallowing in Bard Unit (Farmer Fallowing Agreements)
- May 2020 First Amended Agreement for the Implementation of a Seasonal Land Fallowing Program in Bard Water District
- December 2021 Agreement for the Implementation of a Pilot Seasonal Land Fallowing Program with the Quechan Indian Tribe of the Fort Yuma Indian Reservation.
    - Agreements for Seasonal Fallowing on Tribe-leased lands (Farmer Fallowing Agreements for the Quechan Pilot)
- December 2023 First Amendment to the Agreement for the Implementation of a Pilot Seasonal Land Fallowing Program with the Quechan Indian Tribe of the Fort Yuma Indian Reservation.
- September 2024, Metropolitan entered into the System Conservation Implementation Agreement with the U.S. Bureau of Reclamation. The agreement would fund the Bard Seasonal Fallowing Program for up to 3,000 fallowable acres through 2026 to produce system water to be stored in Lake Mead.
    - February 2025, the agreement was amended to include additional 3,000 fallowable acres, which would make a maximum of 6,000 fallowable acres.
- Agreement Relating to Supplemental Water among The Metropolitan Water District of Southern California, the San Luis Rey Settlement Parties, and the United States
- 2003 Amended and Restated Agreement between The Metropolitan Water District of Southern California and the San Diego County Water Authority for the Exchange of Water.

- 1998 Agreement between Imperial Irrigation District and San Diego County Water Authority for Transfer of Conserved Water.
- 2003 Allocation Agreement among the United States, CVWD, IID, SDCWA, Metropolitan, and the San Luis Rey Settlement Parties.
- 2003 Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement.

State Water Project Supplies

- 1960 Contract between the State of California and The Metropolitan Water District of Southern California for a Water Supply
- Port Hueneme Water Agency Annexation: By Minute Item 41728, dated January 9, 1996, Metropolitan's Board adopted Resolution 8487 granting the concurrent annexation of Annexation No. 32 to Calleguas Municipal Water District and The Metropolitan Water District of Southern California, and fixing Metropolitan's terms and conditions for the annexation
- 1996 Sublease Agreement between the Port Hueneme Water Agency and Metropolitan
- 1967 and 1983 Water Exchange Contract and Agreements with Desert Water Agency and Coachella Valley Water District
- 1984 Advance Delivery Agreement with Desert Water Agency and Coachella Valley Water District
- The 2003 Exchange Agreement with Desert Water Agency and Coachella Valley Water District
- November 2012 Letter Agreement with Coachella Valley Water District
- 2019 Amended and Restated Agreement for Exchange and Advance Delivery with Desert Water Agency and Coachella Valley Water District
- 1997 Arvin-Edison/Metropolitan Water Management Agreement
- 1998 Turn-in/out Construction and Maintenance Agreement between DWR, Kern County Water Agency, Arvin-Edison, and Metropolitan
- 1998-2002 Water Delivery and Return Agreements with DWR, Kern County Water Agency, Arvin-Edison, and Metropolitan
- 2004 Point of Delivery Agreement with DWR, Kern County Water Agency, and Metropolitan
- 2004 Introduction of Water into the California Aqueduct with DWR, Kern County Water Agency, and Arvin-Edison
- 2007 First Amended and Restated Agreement Between Arvin-Edison Water Storage District and The Metropolitan Water District of Southern California for a Water Management Program

- 2000 Coordinated Operating Agreement between Metropolitan and San Bernardino Valley Municipal Water District
- 2001 Coordinated Operating Agreement between Metropolitan and San Bernardino Valley Municipal Water District
- 2011 Coordinated Operating, Water Storage, Exchange and Delivery Agreement among Metropolitan, Municipal Water District of Orange County, and Irvine Ranch Water District
- 2013 San Gabriel Valley MWD Exchange and Purchase Agreement
- 2019 Board Approval of the High Desert Water Bank Agreement with Antelope Valley East Kern Water Agency
- 2001 Kern Delta/Metropolitan Principles of Agreement
- 2002 Kern Delta and Metropolitan Boards of Directors Approval
- 2007 DWR-Yuba County Water Agency Purchase Agreement
- 2007 DWR-Metropolitan Yuba Dry Year Program Participation Agreement
- 2014 Amended DWR-Metropolitan Yuba Dry Year Program Participation Agreement
- 2019 Amended and Restated Agreement Among The Metropolitan Water District of Southern California, Coachella Valley Water District, and Desert Water Agency for the Exchange and Advance Delivery of Water
- 2020 Amended DWR-Metropolitan Yuba Dry Year Program Participation Agreement
- 2021 Coordinated Operating Agreement. The Coordinated Operating Agreement between Metropolitan and San Bernardino Valley District was approved by Metropolitan's Board in March 2021. The agreement will terminate on December 31, 2035 unless there is an extension of the SWP Contract.
- 2013 San Gabriel Valley MWD Exchange and Purchase Agreement. The agreement between Metropolitan and San Gabriel Valley MWD was executed in September 2013.
- 2013 Board Approval of the San Gabriel Valley MWD Exchange and Purchase Agreement. In August 2013, Metropolitan's Board authorized entering into the agreement with San Gabriel Valley MWD.

In-Region Storage and Supplies

- November 1974 Memorandum of Understanding and Agreement on Operation of Lake Skinner
- November 1994 Memorandum of Understanding on Operation of Domenigoni Valley Reservoir (now known as Diamond Valley Lake)
- Elderberry Forebay Contract for Conditions for Use
- June 2002 Division of Safety of Dams Certificate of Approval
- October 1991 Final EIR for the Eastside Reservoir Project (Diamond Valley Lake)
- 1995 amendment to Metropolitan's SWP contract to include Article 54, "Usage of Lakes Castaic and Perris"
- November 1974 Memorandum of Understanding and Agreement on Operation of Lake Skinner
- June 2002 Division of Safety of Dams Certificate of Approval
- Principles for groundwater storage adopted by the Metropolitan Board in January 2000
- Resolution for Proposition 13 Funds adopted by the Metropolitan Board in October 2000
- Agreement executed with the DWR for Interim Water Supply Construction Grant Commitment Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection (Proposition 13, Chapter 9, Article 4) providing for Metropolitan to administer $45 million in state Proposition 13 grant funds for groundwater reliability programs; October 2000
- Agreement executed for Long Beach Conjunctive Use Project, July 2002, amended in July 2003, October 2005, and November 2008
- Agreement executed for Live Oak Conjunctive Use Project, October 2002
- Agreement executed for Foothill Area Groundwater Storage Project, February 2003, amended in August 2006, April 2008, and February 2009
- Agreement executed for Chino Basin Programs, June 2003, amended in May 2004, August 2004, August 2005, May 2008, March 2009, September 2009, July 2010, and January 2015
- Agreement executed for Orange County Groundwater Storage Program, June 2003, amended in July 2004, December 2005, and July 2008
- Agreement executed for Compton Conjunctive Use Program, February 2005
- Agreement executed for Long Beach Conjunctive Use Project — Expansion in Lakewood, July 2005, amended in April 2006, August 2007, November 2008, and February 2010

- Agreement executed for Upper Claremont Basin Groundwater Storage Program, September 2005, amended in April 2008
- Agreement executed for Elsinore Basin Conjunctive Use Program, December 2006, amended in May 2008

These agreements are described in more detail in Appendix 3 to Metropolitan's 2025 UWMP.

If necessary, Metropolitan shall declare a water shortage emergency in accordance with CWC Chapter 3 (commencing with Section 350) of Division 1. In addition, Metropolitan shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

A.4.7. Financial Consequences of and Responses for Drought Conditions

A water shortage may be created by a reduction in water supply, an increase in water demand, or a combination of both. Metropolitan's shortage response actions include supply augmentation, demand management, and operational flexibility, all of which could impact Metropolitan financially. For example, exercising the options to take water from supply augmentation programs may increase costs. Similarly, operational changes could result in higher system costs and lower revenues from on-system hydropower generation, and an increase in conservation and outreach efforts would also increase costs. On the other hand, if core supplies from the SWP or the Colorado River were reduced, variable power costs to move water into the service area would likely decrease. Additionally, effective demand management during shortages tends to decrease Metropolitan's water sales when effective, thereby potentially reducing revenue for Metropolitan. From these various financial effects, there is a potential for expenditures exceeding revenues more than budgeted, thereby requiring unanticipated draws from reserves.

Variation in the amount of revenues is already part of Metropolitan's financial planning. Revenues vary according to regional weather and the availability of statewide water supplies. In dry years, local demands increase, and Metropolitan may receive higher than anticipated revenues due to increased sales volumes. In contrast, in wet years, demands decrease, and revenues drop due to lower sales volumes. In addition, statewide supply shortages such as those in 2009 and 2015 also affect Metropolitan's revenues. Such revenue surpluses and shortages could cause instability in water rates. To mitigate this risk, Metropolitan maintains financial reserves, with a minimum and target balance, to stabilize water rates during times of reduced water sales. The reserves hold revenues collected during times of high water sales and are used to offset the need for revenues during times of low sales. Metropolitan's practice of using reserves to buffer unexpected increases or decreases in budgeted revenue also applies to unexpected expenditure increases or decreases resulting from shortage responses.

Metropolitan uses its financial reserves to mitigate the impacts of water shortages. This policy applies to each of the six shortage levels described in this WSCP. Financial reserves create a buffer to reduce the financial impact of the water shortage. Other mitigation actions such as reducing operations and maintenance expenses, deferring capital projects, and rates/charges increases are part of Metropolitan's biennial budget and rate design cycle, are not used routinely to mitigate financial impacts of water shortage response actions.

Metropolitan's reserve policy provides for a minimum reserve requirement and target amount of unrestricted reserves at June 30 of each year. Funds in excess of the target amount are to be utilized for capital expenditures in lieu of the issuance of additional debt, or for the redemption, defeasance or purchase of outstanding bonds or commercial paper as determined by the Board. However, if the fixed charge coverage ratio (the amount necessary to cover all fixed costs) is at or above 1.2, amounts over the minimum may be expended for any lawful purpose of Metropolitan, as determined by the Board. Therefore, unrestricted reserves are intended to be available to address Metropolitan's shortage response actions, as well as the consequences of those actions, so long as its fixed charge coverage ratio is at or above 1.2.

A.4.8. WSCP Adoption and Refinement Procedures

WSCP Public Notice and Adoption

Placeholder text to be updated

Metropolitan provided notice of the availab cluding Appendix 11) and WSCP, and notice of th ption of both plans in accordance with CWC Sections 1 ment Code Section 6066, and Chapter 17.5 (starting v of Title 1 of the Government Code. The public review drafts of the 2020 UWMP, Appendix 11 to the 2015 UWMP, and the WSCP were posted prominently on Metropolitan's website, mwdh2o.com, on February 1, 2021, more than 60 days in advance of the public hearing on April 12, 2021. The notice of availability of the documents was sent to Metropolitan's member agencies, as well as to cities and counties in Metropolitan's service area. In addition, a public notice advertising the public hearing in English and Spanish was published in 12 Southern California newspapers. The notification in English language newspapers was published on February 1 and 8, 2021. The notification was published on January 28-30, 2021 and February 1, 4-6, and 8, 2021 in Spanish language newspapers, satisfying the requirement for non-English language notification. Copies of: (1) the notification letter sent to the member agencies, cities and counties in Metropolitan's service area, and (2) the notice published in the newspapers are included in the 2020 UWMP Section 5. Table 5-3 in the 2020 UWMP provides a list of participating member agencies and other appropriate agencies that Metropolitan coordinated with in its regional planning, as well as the cities and counties that were notified about the preparation of its 2020 UWMP, Appendix 11 to the 2015 UWMP, and WSCP. In addition, the list of newspaper publications is included in Table 5-4.

Metropolitan held the public hearing for the draft 2020 UWMP, draft Appendix 11 to the 2015 UWMP, and draft WSCP on April 12, 2021, at the Board's Water Planning and Stewardship Committee meeting, held online due to COVID-19 concerns. On May 11, 2021, Metropolitan's Board determined that the 2020 UWMP and the WSCP are consistent with the MWD Act and accurately represent the water resources plan for Metropolitan's service area. In addition, Metropolitan's Board determined that Appendix 11 to both the 2015 UWMP and the 2020 UWMP includes all of the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003) which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. As stated in Resolutions 9279, 9280, and 9281, the Board adopted the 2020 UWMP, Appendix 11 to the 2015 UWMP, and the WSCP and authorized their submittal to the State of California. Copies of Resolutions 9279, 9280, and 9281 are included in the 2020 UWMP Section 5, and Resolution 9281 for the WSCP is attached to this WSCP as Attachment C.

Submission and Availability of 2025 UWMP and WSCP

In fulfillment of CWC Sections 10632(c) and 10645(a) and (b), Metropolitan's final 2025 UWMP and its WSCP were posted on the mwdh2o.com website in May 2026, following their adoption by the Metropolitan board. This satisfies the requirement to make the plans available for public review and to make the WSCP available to Metropolitan's customers (which are its member agencies).

In fulfillment of CWC Sections 10632(c), 10635(c) and 10644(a)(1), Metropolitan also mailed copies of the final 2025 UWMP and WSCP (in electronic pdf format) to the California State Library and all cities and counties within Metropolitan's service area within 30 days of Board adoption.

In June 2026, in fulfillment of CWC Section 10621(f) and Sections 10644(a)(1), (2), and (b), Metropolitan's final 2025 UWMP and WSCP were electronically submitted to the State of California through DWR's WUE data website https://wuedata.water.ca.gov/secure/.

WSCP Reevaluation and Improvement Procedures

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 may be revised and updated during the UWMP update cycle to incorporate updated and new information. For example, new supply augmentation actions may be added, and actions that are no longer applicable for reasons such as program expiration may 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, Metropolitan staff will routinely consider the functionality of the overall WSCP and will prepare recommendations for Metropolitan's Board of Directors if changes are found to be needed.

ATTACHMENTS

Attachment A – Water Surplus and Drought Management Plan

Attachment B – Water Supply Allocation Plan

Attachment C – WSCP Resolution XXXX

ATTACHMENT A

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

WATER SURPLUS AND DROUGHT MANAGEMENT PLAN

REPORT NO. 1150

AUGUST 1999

ACKNOWLEDGMENTS

The consensus reached in the Water Surplus and Drought Management Plan would not have been possible without the dedication and participation of the Rate Refinement Process Workgroup, comprises made by the General Manager, staff from Metropolitan's member agencies, Metropolitan staff, and the dedication and work of the consultants.

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ATTACHMENT A

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ATTACHMENT A

WATER SURPLUS AND DROUGHT MANAGEMENT PLAN

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

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EXECUTIVE SUMMARY

INTRODUCTION

The Water Surplus and Drought Management (WSDM) Plan for the Metropolitan Water District of Southern California (Metropolitan) is a ten-year plan that will be used to direct Metropolitan's resource operations to help attain the region's 100% reliability goal. The WSDM Plan recognizes the interdependence of surplus and shortage actions and is a coordinated plan that utilizes all available resources to maximize supply reliability. The overall objective of the WSDM Plan is to ensure that shortage allocation of Metropolitan's imported water supplies is not required.

The central effort in developing the WSDM Plan was a participatory process involving Metropolitan and its member agencies. Metropolitan staff and member agency representatives coordinated the Plan's development during a series of meetings of the Rate Refinement Team.

To lay a foundation for the WSDM Plan, participants in the Rate Refinement Process developed a set of proposed WSDM Principles and Implementation Goals which were subsequently adopted by the Metropolitan Board of Directors in September 1998. These Principles and Implementation Goals outline fundamental policies for guiding surplus and shortage management and establish a basis for dealing with shortages in an equitable and efficient manner.

WSDM PRINCIPLES AND IMPLEMENTATION GOALS

Guiding Principle

- Metropolitan will encourage storage of water during periods of surplus and work jointly with its Member Agencies to minimize the impacts of water shortages on the region's retail consumers and economy during periods of shortage.

Supporting Principles

- Maintain an ongoing coordinated effort among Metropolitan and its Member Agencies to encourage efficient water use, develop cost-effective local resource programs, and inform the public on water supply and reliability issues

- Encourage local and regional storage during periods of surplus and use of storage during periods of shortage

- Manage and operate Metropolitan's regional storage and delivery system in coordination with local facilities to capture and store surplus water in local groundwater and surface reservoirs

- Arrange for secure sources of additional water from outside the region for use during periods of shortage

- Call upon sources of additional water from outside the region and water stored locally to meet the needs of consumers and protect the economy during periods of shortage

WSDM Plan Implementation Goals

- Avoid mandatory import water allocations to the extent practicable

- Equitably allocate imported water on the basis of agencies' needs

  Considerations to create an equitable allocation of imported water may include:

  - Impact on retail consumers and economy
  - Reclamation/Recycling
  - Conservation
  - Population and economic growth
  - Investment in local resources
  - Change and/or loss of local supply
  - Participation in Metropolitan's Non-firm (interruptible) programs
  - Investment in Metropolitan's facilities

- Encourage storage of surplus supplies to mitigate shortages and improve water quality

SURPLUS AND SHORTAGE ACTIONS

The region's ability to implement a long-term WSDM Plan results from the significant investments Metropolitan and its member agencies have made in a variety of resources since 1991. These additional resources include increased local conservation and water recycling, improvements in the reliability of imported supplies, increased regional storage, and increased conjunctive use groundwater programs. Together these improvements allow a comprehensive approach to water management.

The growing variety of resources available to the region is transforming Metropolitan from an agency with relatively modest storage capacity to one that will have storage sufficient to manage many shortages without impacts to its member agencies or retail customers. To attain this level of reliability, all storage programs and facilities, along with conservation, recycling, and other programs, must be managed as an integrated set of regional resources. To accomplish this, the WSDM Plan establishes the linkage between surplus and shortage resource management actions.

When imported supplies exceed projected demands for imported water within Metropolitan's service area, Metropolitan can operate available storage facilities to maximize the benefits of stored water to its member agencies. A number of factors affect Metropolitan's ability to divert surplus water into storage. Some of these factors include facility outages, system capacity, water quality (including requirements for managing total dissolved solids), and varying supply and demand patterns. The WSDM Plan provides a description of storage options available to Metropolitan and a framework for storing water in these programs and facilities when surplus supplies are available.

Except in severe or extreme shortages (defined in the Introduction) or emergencies, Metropolitan's resource management will allow shortages to be mitigated without impacting retail Municipal and Industrial (M&I) customers. A list of resource management actions and their descriptions are provided

below. This list emphasizes critical storage programs and facilities, and conservation programs that make up part of Metropolitan's response to shortages. The order in which these actions are presented does not imply the exact operational management of resources that would occur during a shortage, rather it represents a general framework and guide. In fact, several actions are likely to be taken concurrently. Many factors will dictate the exact order in which these actions will be taken during shortages. One action, however, will have an assigned prioritization: the curtailment of Full Service (firm) deliveries will be last. The following summarizes the drought actions:

- Draw on storage in the Eastside Reservoir Project
- Draw on out-of-region storage in Semitropic and Arvin-Edison
- Reduce/suspend long-term seasonal and groundwater replenishment deliveries
- Draw on contractual groundwater storage programs in the region
- Draw on State Water Project (SWP) terminal reservoir storage (per Monterey Agreement)
- Call for extraordinary drought conservation and public education
- Reduce Interim Agricultural Water Program (IAWP) deliveries
- Call on water transfer options contracts
- Purchase transfers on the spot market
- Implement the allocation of Metropolitan's imported supplies to its member agencies

For the ten-year period addressed by the WSDM Plan, 1999-2008, the majority of shortage contingencies will be managed by withdrawals from storage, groundwater management and options transfers. Shortages managed using these actions would not impact the quantity of water delivered to member agencies for consumptive uses. In fact, when coupled with other drought actions such as extraordinary conservation and reduction of agricultural deliveries, it is fully expected that an allocation of firm imported water supplies will not be necessary during the next ten years. Under this worse-case scenario, an approach to allocate Metropolitan's firm imported water supplies in a fair and equitable manner will be developed.

The overall policy objective of the allocation method will be to minimize the impacts to any one agency and the region as a whole. To meet that objective, the method of allocating firm imported supply will account for:

- Each agency's demands on Metropolitan,
- Each agency's local resources
- Each agency's total retail demands.

The WSDM Plan allocation method would address each of these supply and demand components and account for each agency's conservation and recycled water programs. A pricing structure will be coupled with the WSDM allocation method to accomplish two goals:

- Encourage conservation and water recycling
- Ensure that the regional impact of the shortage is as small as possible

To provide as much water as possible without changing wholesale prices, the allocation of all available supplies will be made at the prevailing rates for firm deliveries. In order to encourage conservation to the level of allocation, the rate for agency usage from 100-102% of its allocation will be the Full Service rate plus $175. Usage above 102% of allocated supply will be charged at three times the Full Service rate. Any substantial change in Metropolitan's water rate structure may require these rates to be revised.

During severe or extreme shortage conditions, public outreach will play a critical role in shaping consumer response. Public information campaigns will send clear signals if extraordinary drought conservation is required. An effective public information campaign requires a joint effort among Metropolitan and its member agencies. Under this Plan, the administration of the Public Information and Government Affairs program will be the responsibility of a Drought Program Officer (DPO). The DPO will be responsible for integrating the various activities in these areas, coordinating efforts with Metropolitan's Board of Directors and member agencies, and designing the region-wide messages for the general public and various target audiences. Important constituencies are residential users, industrial and institutional users, business interests, agricultural users, elected officials, officials of various agencies such as the Department of Water Resources, and the media.

INTEGRATED RESOURCES MANAGEMENT

Throughout the Integrated Resources Planning process and the development of the WSDM Plan, extensive analysis of resource management strategies focused on maximizing supply reliability while minimizing overall resource costs. Various management strategies were analyzed trader shortage scenarios based on historical hydrologic data. The WSDM Plan presents a resource management framework to guide Metropolitan's integrated approach to supply management.

The resource management framework does not dictate a scripted response to shortage or surplus. The framework recognizes the complexity and variety of conditions that require action. Supporting this framework are general rules that describe the actions to be taken in each stage of surplus or shortage. These rules depend on shortage stage, account for monthly delivery requirements, and depend on when various supplies would be available.

One of the fundamental trade-offs in dealing with supply shortages is the need to maintain flexibility while providing supply certainty to member agencies and consumers. A central focus of the WSDM Plan is the analysis of information about supplies and demands. When do various pieces of information about the supply/demand balance become more certain? When should this information impact policy-making and trigger various resource actions? The WSDM Plan addresses these questions and the actual implementation of the Plan during a shortage.

Appendix A of this report provides a ten-year simulation of projected demands and supplies showing an example of how the region can maintain 100% reliability.

INTRODUCTION

The Metropolitan Water District of Southern California (Metropolitan) provides water to a service area covering approximately 5,200 square miles. Over 16.5 million people live within the service area, which supports a $500 billion economy. Metropolitan provides supplemental supplies to twenty-seven member agencies, both retail and wholesale agencies, who in turn provide water to over three hundred cities and local agencies providing supplies at the retail level. In recent years Metropolitan supplemental deliveries have accounted for about one-half to two-thirds of the region's total water demands. With supplies from its Colorado River Aqueduct (CRA) and the State Water Project (SWP), Metropolitan delivers water for municipal and industrial (M&I) uses, agricultural uses, and augmentation of local storage.

As part of the implementation of the regional Integrated Resources Plan (IRP), Metropolitan and its member agencies have developed the Water Surplus and Drought Management (WSDM) Plan for Southern California. This ten-year plan will direct Metropolitan's resource operations to help attain the region's 100% reliability goal. Over this ten-year period, the WSDM Plan will be updated to account for changes impacting supplies from the Colorado River and California's Bay-Delta. In the past, Metropolitan has developed drought management plans that simply addressed shortage actions and primarily focused on issues of short-term conservation and allocation of imported water. The WSDM Plan recognizes the interdependence of surplus and shortage actions and is a coordinated plan that utilizes all available resources to maximize supply reliability. The overall goal of the WSDM Plan is to ensure that shortage allocation of Metropolitan's imported water supplies is no---At required.

Because it addresses both surplus and shortage contingencies, the WSDM Plans draws clear distinctions among the terms *surplus, shortage, severe shortage,* and *extreme shortage.*

***Surplus**: Supplies are sufficient to allow Metropolitan to meet Full Service demands, make deliveries to all interruptible programs (replenishment, long-term seasonal storage, and agricultural deliveries), and deliver water to regional and local facilities for storage.*

***Shortage**: Supplies are sufficient to allow Metropolitan to meet Full Service demands and make partial or full deliveries to interruptible programs, sometimes using stored water and voluntary water transfers.*

***Severe Shortage**: Supplies are insufficient and Metropolitan is required to make withdrawals from storage, call on its water transfers, and possibly call for extraordinary drought conservation and reduce deliveries under the IAWP.*

***Extreme Shortage**: Supplies are insufficient and Metropolitan is required to allocate available imported supplies.*

WSDM PRINCIPLES AND IMPLEMENTATION GOALS

The central effort in developing the WSDM Plan was a participatory process involving Metropolitan and its member agencies. Metropolitan staff and member agency representatives coordinated the Plan's development during a series of meetings of the Rate Refinement Team and the Integrated Resources Planning Workgroup. To lay a foundation for the WSDM Plan, participants in the Rate Refinement Process developed a set of "WSDM Principles and Implementation Goals."

Guiding Principle

- Metropolitan will encourage storage of water during periods of surplus and work jointly with its Member Agencies to minimize the impacts of water shortages on the region's retail consumers and economy during periods of shortage.

Supporting Principles

- Maintain an ongoing coordinated effort among Metropolitan and its Member Agencies to encourage efficient water use and cost-effective local resource programs and to inform the public on water supply and reliability issues

- Encourage local and regional storage during periods of surplus and use of storage during periods of shortage

- Manage and operate Metropolitan's regional storage and delivery system in coordination with local facilities to capture and store surplus water in local groundwater and surface reservoirs

- Arrange for secure sources of additional water from outside the region for use during periods of shortage

- Call upon sources of additional water from outside the region and water stored locally to meet the needs of consumers and protect the economy during periods of shortage

WSDM Plan Implementation Goals

• Avoid mandatory import water allocations to the extent practicable

- Equitably allocate imported water on the basis of agencies' needs

  Considerations to create an equitable allocation of imported water may include:
  - Impact on retail consumers and economy
  - Reclamation/Recycling
  - Conservation
  - Population and economic growth
  - Investment in local resources
  - Change and/or loss of local supply
  - Participation in Metropolitan's Non-firm (interruptible) programs
  - Investment in Metropolitan's facilities.

- Encourage storage of surplus supplies to mitigate shortages and improve water quality

REGIONAL RESOURCES AND DEMANDS

Southern California receives its water supplies from a variety of different sources, both local to the region and imported from outside the region. These sources are summarized below.

Local Supplies

Local supplies include groundwater pumping of local aquifers, surface reservoir production, recycled water, and supplies imported through wheeling arrangements or through the Los Angeles Aqueduct, which is owned and operated by the City of Los Angeles. Local supplies have, in the past, provided as much as 2.1 million acre-feet (maf) of water to meet the region's water demands. By far the largest component of local supplies is groundwater pumping, providing over 75% of historical local supplies.

Colorado River Supplies

The distribution and management of Colorado River water is governed by a complex body of laws, court decrees, compacts, agreements, regulations, and an international treaty collectively known as the "Law of the River." Metropolitan's entitlement is established by the fourth and fifth priorities of California's Seven Party Agreement, included in Metropolitan's 1931 and 1946 contracts with the Secretary of the Interior. These priorities provide 550,000 acre-feet (af) per year and 662,000 af per year, respectively. In addition, Metropolitan holds a surplus water contract for delivery of 180,000 af. The physical capacity of the CRA is slightly in excess of 1.3 maf per year, based on a pumping capacity of 1,800 cubic feet per second (cfs). Metropolitan's long-held objective is to maximize the availability of Colorado River water, up to the maximum capacity of the CRA, subject to environmental, contractual, legal, political, financial, and institutional constraints. A California 4.4 Plan is being developed among California parties that will help ensure that full CRA deliveries are maintained, while addressing the concerns of the other Colorado River basin states that rely on the river. The California 4.4 Plan includes core transfers (such as the IID/MWD conservation agreement and the proposed IID/SDCWA transfer), system conservation (such as the lining of the All American Canal), offstream storage (such as the Arizona groundwater storage program), dry year option transfers (such as PVID land fallowing), and river re-operations.

State Water Project

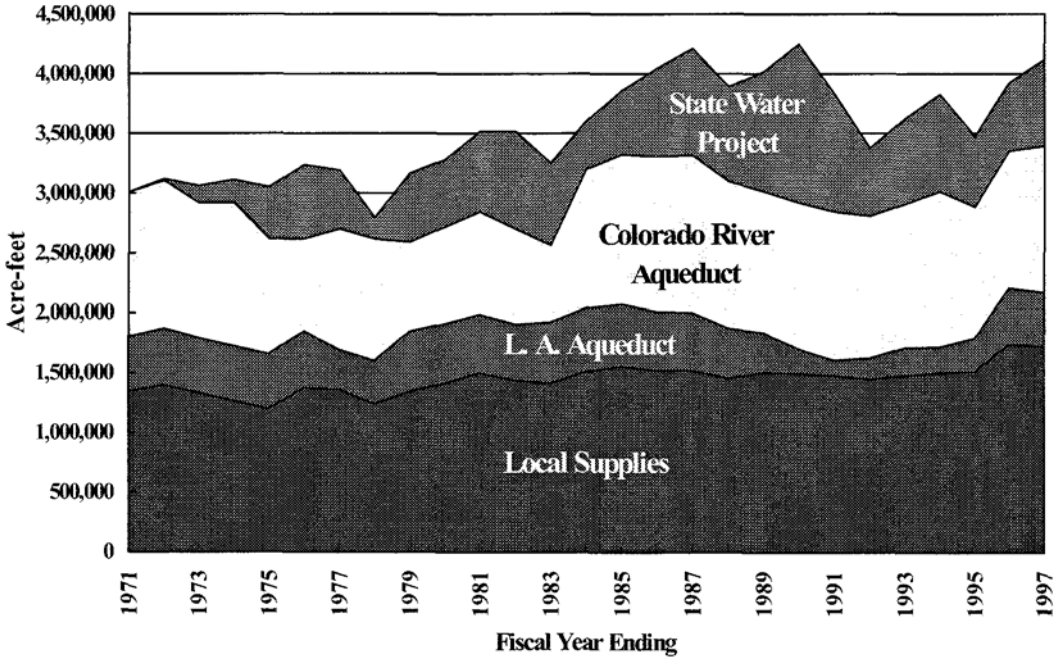
Metropolitan is one of 29 water agencies that have contracted with the State of California, through the Department of Water Resources (DWR), for water deliveries from the SWP system. Metropolitan's contracted entitlement is for 2.01 maf per year, or about 48 percent of the total contracted entitlement of 4.2 maf per year. SWP deliveries to Metropolitan are made via the SWP's California Aqueduct.

Initial SWP facilities, completed in the early 1970's, have produced average supply yields adequate to meet just over half of the total contracted entitlement. While it was intended that additional SWP facilities would be constructed as SWP contractor demands increased up to their contracted entitlements, few facilities have been constructed since that time.

The SWP obtains its supplies primarily from the Sacramento River Basin. About half of the total supply diverted from the Delta for the SWP is regulated flow from the Feather River (a tributary to the Sacramento River), while the other half is unregulated flow from runoff downstream of Sacramento River reservoirs and from other rivers that flow into the Delta. The Sacramento River watershed is subject to wide annual variations in total runoff. The Sacramento River Index (SRI), which measures runoff in the watershed, has averaged about 18 maf per year over the last 90 years. However, runoff varies widely from year to year. For example, the SRI measured 7.8 mafin 1994 and 32.5 mafin 1995.

Figure 1 shows the historical total regional supply production by type. As shown in Figure 1, water supplies were as high as 4.25 mafin 1990 and within two years dropped to 3.4 mar, a 20% decrease.

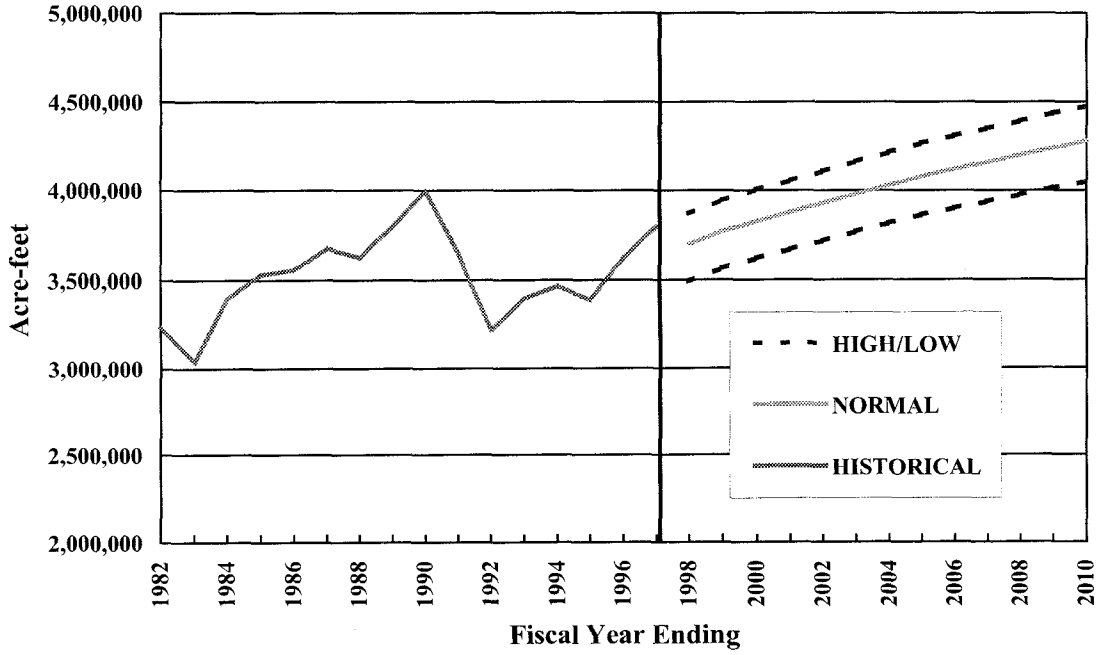
Figure 1. Historical Supply Production by Type of Supply



RETAIL DEMANDS

From 1982 through 1995, the region experienced retail water demands averaging 3.5 mar. In dry years retail demands are approximately 5 to 7% greater than normal years, while demands in wet years are about 6 to 8% below normal demands. Under normal weather conditions, assuming full implementation of conservation best management practices, total regional retail demands are projected to increase from about 3.7 mar in 1997 to almost 4.3 mar in 2010. Without conservation, demands in 2010 would be about 10 to 12% greater than projected. Increases in retail demand are driven by demographics and economics, including changes in population, housing, employment, and income. Figure 2 shows the historical and projected retail demands in Metropolitan's service area.

Figure 2. Regional Retail Water Demands



The historical variability in demands from 1982 to 1997 is mainly due to weather and the economy. In 1983, extreme wet weather caused a significant drop in retail demands. During the period from 1985 to 1990, hot and dry weather coupled with a strong economy resulted in increased demand from 3.5 maf to 4.0 maf, a 14% increase. In 1991, the 5th year of a prolonged drought, conditions forced many communities to implement mandatory supply reductions. These mandatory reductions coupled with extraordinary drought conservation caused a 10 to 15% decrease in retail demands for the region. In addition, the period between 1992 and 1995 was very wet (with the exception of 1994, which was dry), and was a period of severe economic recession. Southern California alone lost some 700,000 jobs from 1990 through 1995. The combination of wet weather, economic recession, and conservation resulted in demands decreasing by over 17%.

DEMANDS ON METROPOLITAN

For many member agencies, Metropolitan's water deliveries represent a supplemental supply. Most member agencies have local water supplies, but agencies differ in how much their supplies alone can meet their respective retail demands. Local supplies are often base-loaded (maximized subject to various constraints) and purchases from Metropolitan are used to meet remaining demands. In addition, to meeting consumptive demands, Metropolitan's deliveries are used to replenish local groundwater and surface reservoirs. To project demands on Metropolitan, projections of member agency's retail water demands and local water supplies are made. Local supplies are then subtracted from retail demands to get consumptive demands on Metropolitan. A projection of Metropolitan's long-term seasonal and replenishment deliveries are made based on safe groundwater yield and weather/hydrology.

Metropolitan forecasts its demands for three different broad categories: Full Service, Seasonal (reservoir storage and groundwater replenishment delivered for shift or long-term storage purposes and sold at a discount), and Agricultural (deliveries of water sold at a discount for agricultural use). Overall, demands on Metropolitan can vary -+ 11 to 18% from normal conditions due to weather and hydrology.

The following four figures show historical and projected demands on Metropolitan by category. Figure 3 shows Basic Water Deliveries, Figure 4 shows Seasonal Water Deliveries, Figure 5 shows Interim Agricultural Water Program (IAWP) Deliveries, and Figure 6 shows Total Water Deliveries for Metropolitan.

Figure 3. MWD Basic Water Deliveries

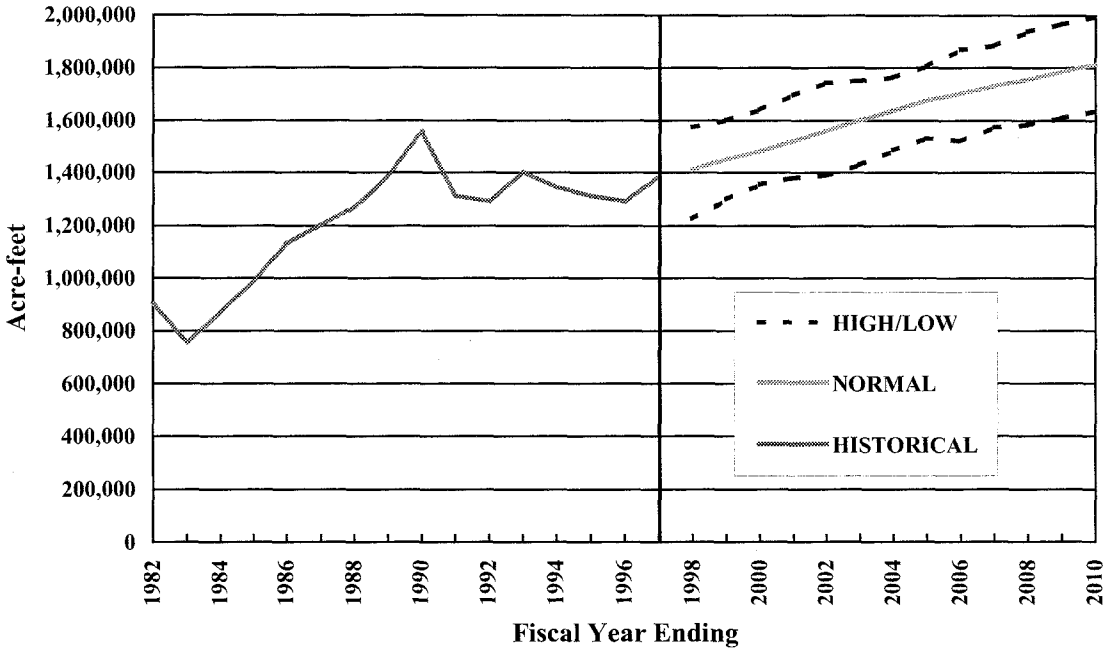


Figure 4. MWD Seasonal Water Deliveries

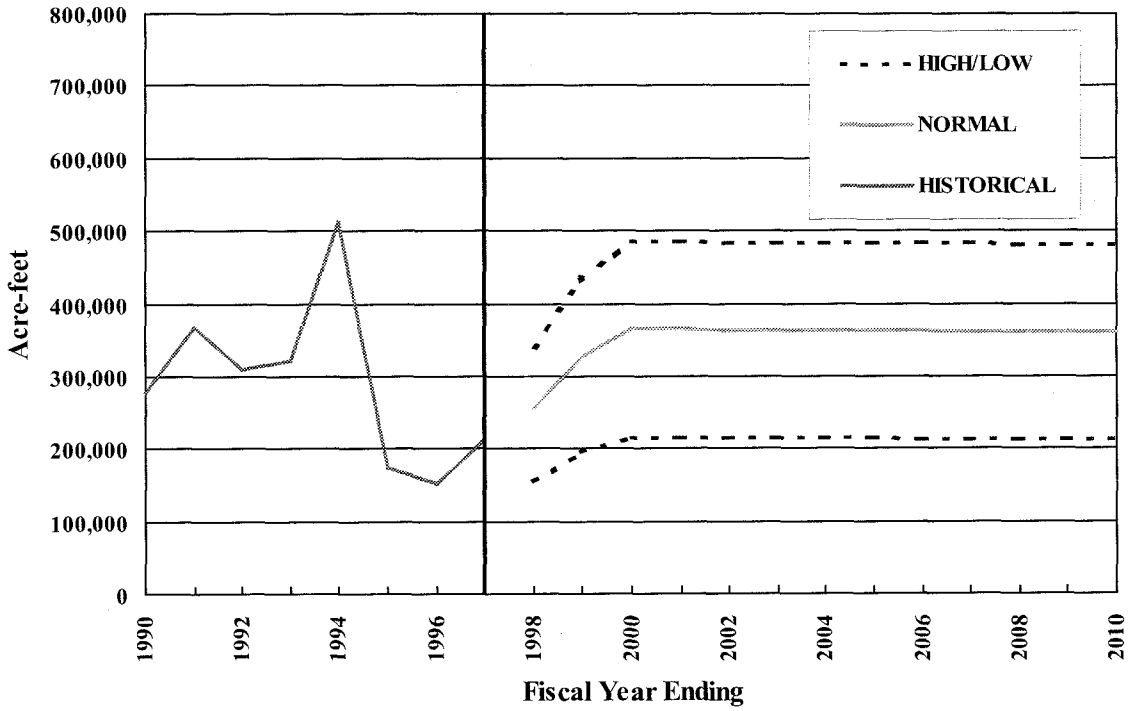


Figure 5. MWD Interim Agricultural Water Program (IAWP) Deliveries

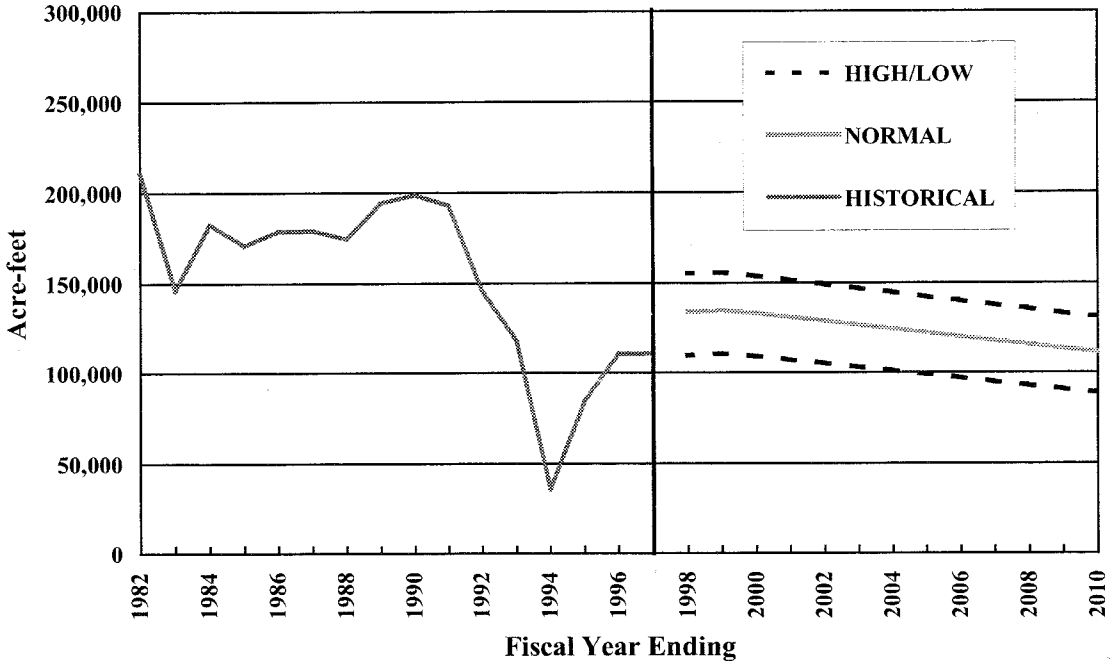
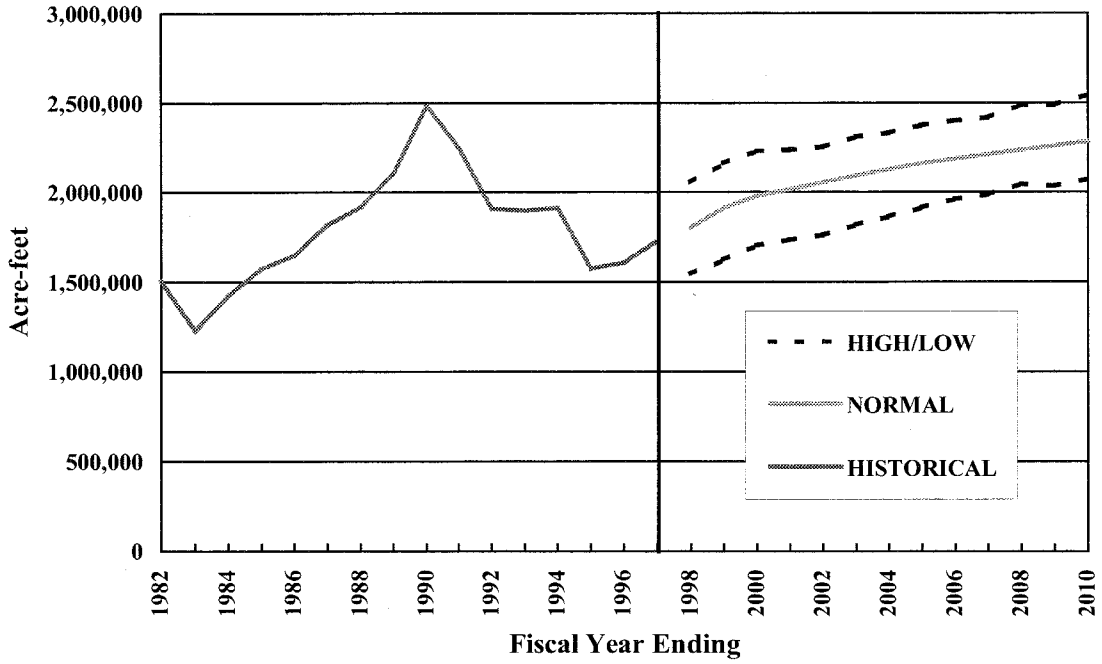


Figure 6. MWD Total Water Deliveries



INTEGRATED RESOURCES PLANNING

To ensure supply reliability under various drought conditions, Metropolitan and its member agencies developed an Integrated Resources Plan (IRP). The IRP, adopted by Metropolitan's Board of Directors in January 1996 and periodically updated, guides Metropolitan's resource and capital improvements investments. The region's ability to develop a long-term WSDM Plan results from the significant investments Metropolitan and its member agencies have made in resources since 1991. To date, these investments include:

- Local supplies: Metropolitan co-funded over 23 local projects and 200 conservation programs that will yield a total of 160,000 af per year.

- **Colorado River Aqueduct:** Metropolitan developed transfers and storage programs to help ensure a full aqueduct. The landmark Metropolitan/Imperial Irrigation District Conservation Program (IID), will result in a savings of 107,000 af per year. Storage programs in Arizona and California, combined with the IID savings, yield a total of 280,000 af of annual core, dry year options, and storage supply.

- **State Water Project:** Metropolitan and other parties negotiated the Bay-Delta Accord and the Monterey Amendment. The Bay-Delta Accord and subsequent efforts will increase the reliability of Metropolitan's entitlement deliveries. The Monterey Amendment provides access to 220,000 af of SWP storage.

- **In-Basin Storage:** Metropolitan is constructing the Eastside Reservoir Project, with 800,000 af of storage (400,000 af of which is emergency storage for use in case of facility failure as a result of earthquake or other event).

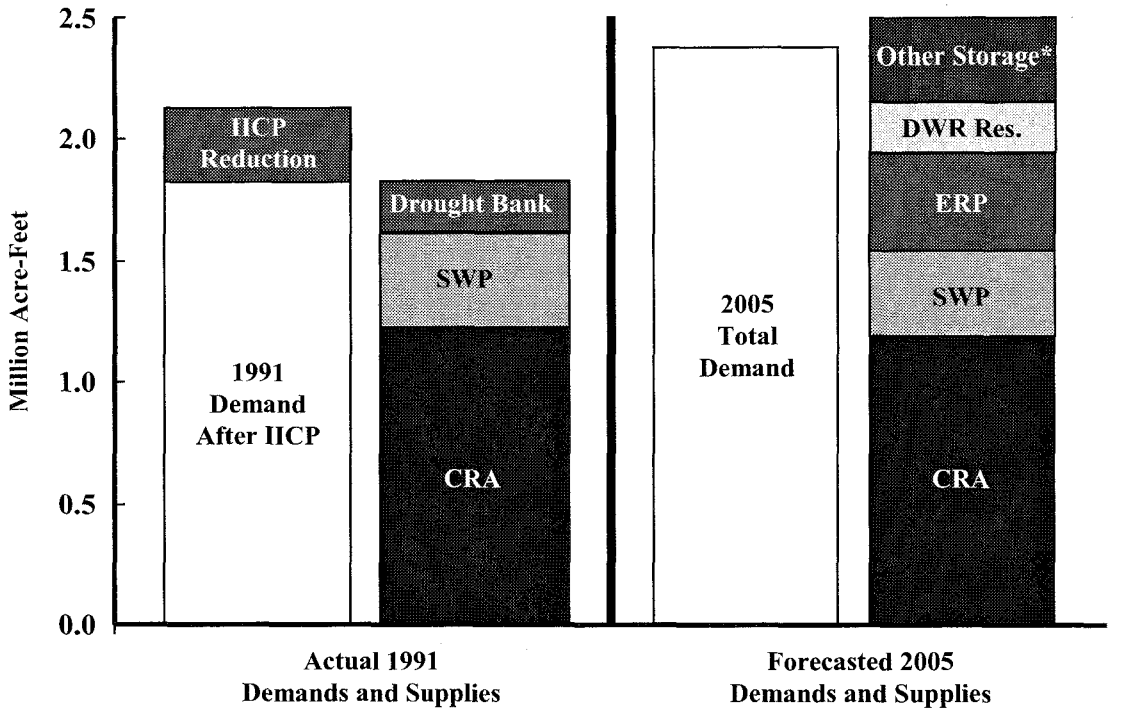
- **Groundwater Conjunctive Use Storage:** Metropolitan developed a conjunctive use storage program in the North Las Posas Basin in Ventura County with an anticipated capacity of 210,000 af and a dry-year withdrawal rate of up to 70,000 af.

- **Transfers and Storage:** Metropolitan developed the Semitropic Storage Program, with 350,000 af of storage and dry-year withdrawals averaging about 60,000 af. Metropolitan also approved the Arvin-Edison Storage and Transfer Program, with 250,000 af of storage and dry-year withdrawals averaging about 70,000 af. Metropolitan is also exploring storage and transfer programs with the Coachella Valley Water District and the Cadiz Land Company.

As a result of these investments, it is anticipated that Metropolitan and its member agencies will be 100% reliable over the next 10 years even under a repeat of the 1991 drought condition. Figure 7 compares actual Metropolitan demands and supplies during 1991 (the last year in a multiyear severe drought) and projected demands and supplies in year 2005 (assuming a repeat of 1991 conditions). In 1991, the region faced shortages that required Metropolitan to allocate water under the Incremental Interruption and Conservation Plan (IICP). The reduction in deliveries came after demands had already been reduced as a result of local conservation. In addition, water had to be purchased from the Governor's drought emergency water bank. By the year 2005 with the investments made to date,

Metropolitan's additional water supplies will be more than adequate to meet demands under a repeat of the 1991 drought event--even with increased demands due to growth.

Figure 7. Historical and Projected Metropolitan Supplies and Demands Under Drought Conditions



*** Groundwater management, Semitropic Storage Program, and Arvin-Edison Storage Program**

SURPLUS AND SHORTAGE RESOURCE ACTIONS

Metropolitan's investments in water resources, facilities, and programs has transformed it from an agency with relatively modest storage capacity to one that will have storage sufficient to manage many shortages without negative impacts to its member agencies or retail customers. To attain this level of reliability, storage programs and facilities, along with conservation, recycling, and other programs, must be managed as an integrated set of regional resources. To accomplish this, the WSDM Plan recognizes the linkage between surplus and shortage resource management actions.

SURPLUS ACTIONS

The combination of Metropolitan's regional storage facilities, such as Lake Mathews, Lake Skinner, the future Eastside Reservoir Project, and the storage capacity available to Metropolitan in Castaic Lake and Lake Perris as a result of the Monterey Amendment, allows Metropolitan great flexibility in managing its water resources. The development of storage programs both outside and within the service area provides even greater flexibility in storing surplus water. Each of the storage facilities and programs plays an important role in achieving Metropolitan's reliability goal.

When imported supplies exceed projected demands for imported water within Metropolitan's service area, Metropolitan can operate storage facilities to maximize stored water to benefit its member agencies. A number of factors affect Metropolitan's ability to divert surplus water into storage. Some of these factors include facility outages, system capacity, water quality (including requirements for managing total dissolved solids), and varying supply and demand patterns. This section provides a description of storage options available to Metropolitan and a framework for storing water in these programs and facilities when surplus supplies are available.

Storage of Colorado River Supplies

Metropolitan has participated in a number of programs to maximize the reliability of supplies from the Colorado River. The landmark Metropolitan/Imperial Irrigation District Conservation Program will result in a savings of 107,000 af per year. These supplies will increase the reliability of Metropolitan's entitlement of Colorado River water. Other programs yield shortage benefits by increasing amounts of water stored for use during shortages. Between August 1992 and July 1994, Metropolitan and the Palo Verde Irrigation District conducted a Test Land Fallowing Program. Approximately 20,000 acres of farmland in the Palo Verde Valley were not irrigated, saving 186,000 af of water which was stored in Lake Mead for later use by Metropolitan. With Arizona and Nevada water agencies, Metropolitan is participating in a Central Arizona Groundwater Storage Demonstration Program that has encouraged the storage of water. To date, 139,000 af of supplies have been stored in groundwater basins in Central Arizona. The Desert Coachella program is an exchange and storage program with agencies situated along the Colorado River Aqueduct. Metropolitan releases Colorado River water for storage in the Coachella Groundwater Basin. Metropolitan then exchanges these supplies for the

participating agencies' SWP supplies. These programs serve as models for future programs that could increase the reliability of Colorado River supplies. Metropolitan continues to explore other possible options that would increase the reliability of supplies. The California 4.4 Plan is being developed among California parties to increase storage programs for Colorado River supplies. In addition to core transfers and conservation programs, the California 4.4 Plan includes offstream storage (such as the Arizona groundwater storage program), dry year option transfers (such as PVID land fallowing), and river re-operations. These programs, in conjunction with favorable supply determinations by the Secretary of Interior, will ensure the highest possible reliability of Colorado River supplies.

In addition to the programs mentioned above, the Colorado River system itself contributes to the high reliability of Metropolitan's Colorado River supplies. Currently, the average Colorado River runoff exceeds basin-wide demands by over 1.0 maf per year. The Colorado River system also contains a great deal of reservoir storage capacity. The total storage capacity in the Colorado River Basin is approximately 60 maf, almost four times the Colorado River's average annual flow. For much of 1997, system storage levels were at 80% or more of total capacity. These factors allow the Bureau of Reclamation, operators of the Colorado River system, to store significant supplies for use during shortages.

Storage of State Water Project Supplies

Total storage capacity is a critical factor in comparing the operations of the Colorado River system with the SWP. On average, both systems have similar amounts of water available on an annual basis. The SWP's watersheds in the Sacramento River Basin have produced about 18 maf per year over the long term, as represented by the Sacramento River Index (SRI.) Long-term runoff on the Colorado River has averaged more than 16 maf annually since 1906. However, the ability to carry over unused water from a wet year for use in a dry year differs substantially between the two systems. State Water Project storage facilities have storage capacity of about 4.5 maf, while system storage in the Colorado River Basin totals nearly 60 maf. This gives the operators of the Colorado River reservoirs much more flexibility in storing unused water from a wet year for use in a subsequent dry year.

When water from the SWP cannot be put to immediate use in Metropolitan's service area, the water may be stored for future use. Provided storage capacity is available, the water may remain in either Oroville Reservoir (as SWP storage for delivery to all contractors the following year) or San Luis Reservoir (as carryover storage assigned to Metropolitan). Through the carryover storage program, as amended by the Monterey Amendment, Metropolitan can place a maximum of 200,000 af per year of allocated supplies in SWP surface reservoirs. The program also allows for carryover storage in non-project facilities, including surface reservoirs and groundwater basins. In the case of carryover storage in San Luis Reservoir, SWP supplies allocated to but unused by a contractor may, under certain conditions, be assigned as carryover if storage capacity is available at the end of the calendar year. However, carryover water stored for a contractor has lower priority than storage of SWP water and consequently "spills" first as San Luis Reservoir fills.

Also, in a wet year such as 1995, low demands may allow DWR to operate San Luis Reservoir nearly full, eliminating any possibility of contractor carryover storage into the following year. As a result, carryover storage on the SWP may not be possible, and even when possible, is subject to spilling.

Due to these carryover storage limitations, Metropolitan has invested a great deal to expand its ability to store surplus SWP supplies. Metropolitan has entered into a number of water transfer and storage agreements. The Semitropic Water Banking and Exchange program allows Metropolitan to store up to 350,000 afin the groundwater basin underlying the Semitropic Water Storage District. The storage and withdrawal capacities of the program are shared with other participants in the storage program, with Metropolitan's share equaling 35%. Dry-year withdrawals will average about 60,000 af.

Metropolitan and the Arvin-Edison Water Storage District have developed a program that allows Metropolitan to store water in the groundwater basin in the Arvin-Edison service area. The program would allow the storage and withdrawal of 250,000 af of supplies over the next 25430 years. Dry-year withdrawals will average about 70,000 af.

Storage in Regional Facilities

In addition to the storage of Colorado River and SWP supplies outside the region, Metropolitan has established a number of programs for storing supplies within the region. Metropolitan owns and operates two main surface reservoirs, Lake Mathews and Lake Skinner, which have a combined storage of about 226,000 af. Only a small portion of this capacity is available for shortages, with the balance being used to regulate flows in Metr0Politan's delivery system. The Eastside Reservoir Project, currently under construction, will have a total capacity of 800,000 af, with approximately 400,000 af of operational drought and seasonal storage and 400,000 af of emergency storage. Through the Monterey Amendment, Metropolitan obtained the fight to use up to 220,000 af of water stored in the SWP terminal reservoirs. However, withdrawals from these terminal reservoirs must be replaced within five years.

Metropolitan and its member agencies have established the cyclic storage program to increase storage in groundwater basins within the service area. Regional groundwater basins offer an economical way for Metropolitan to improve supply reliability by storing water within the service area. This makes water readily accessible in times of need, either in emergency situations or during shortages. Some limitations are imposed by the fact that such water can generally only be used through pumping from the groundwater basin by an overlying member agency or local agency. Storage in groundwater basins takes place either by direct replenishment (spreading or injection), or through in-lieu means. Spreading (or injection) is desirable because direct measurement of the amount of stored water is a relatively simple, verifiable transaction. The main disadvantage to direct spreading is that spreading can occur only under certain conditions. For example, spreading cannot occur when spreading facilities are being used to capture local storm runoff for flood control purposes, or when the amount of local runoff precludes the need

for imported water to replenish the basins. Also, spreading basins require frequent maintenance to assure maximum efficiency. These and other conditions can limit the ability to deliver water for spreading at a time when surplus supplies are available.

In-lieu replenishment allows most member agencies to participate in groundwater replenishment without needing direct access to replenishment facilities. Their wells, in effect, become their replenishment facilities. Both direct and in-lieu replenishment from 1986 through 1990 served the region well during the critical drought years from 1991 through 1993.

The overall objective of the various storage programs is to maximize the availability of imported water during times of need by storing surplus water in a strategic manner and utilizing the storage available within the region. Many factors affect the availability of storage capacity and Metropolitan's ability to move water to and from various facilities. After reviewing the full range of shortage actions available to Metropolitan, a framework for prioritizing the full range of surplus and shortage actions will be presented.

In addition to pricing incentives used to encourage local agencies to store water in groundwater basins, Metropolitan has developed a conjunctive use contractual storage program with the Calleguas MWD in the North Las Posas Basin. Metropolitan will fund the construction of wells which will be called upon to meet demands during dry years. This program will yield a dry year supply of about 70,000 af.

SHORTAGE ACTIONS

Except in severe or extreme shortages or emergencies, Metropolitan's management of available resources will allow shortages to be mitigated without negatively impacting retail M&I demands. Below is a list of drought actions that will be taken during periods of shortage. The goal of these actions is to avoid, to the extent practicable, the allocation of Metropolitan's firm supplies. The order in which these actions are presented does not imply the exact operational management of resources that would occur. In fact, several actions are likely to be taken concurrently. Many factors dictate the particular order in which actions will be taken during an actual shortage, although it is clear that the last action will be the curtailment of firm deliveries to the member agencies.

- Draw on storage in the Eastside Reservoir Project
- Draw on out-of-region storage in Semitropic and Arvin-Edison
- Reduce/suspend long-term seasonal and groundwater replenishment deliveries
- Draw on contractual groundwater storage programs in the region
- Draw on SWP terminal reservoir storage (per Monterey Agreement)
- Call for extraordinary drought conservation and public education
- Reduce IAWP deliveries
- Call on water transfer options contracts
- Purchase transfers on the spot market
- Implement an allocation of Metropolitan's imported supplies to its member agencies

Even with dedicated programs to meet the reliability goal for the region, proper management and operations of these resources is critical to ensure reliability. The prioritization of both surplus and shortage actions need to account for several important criteria. It is also important to recognize that these criteria will need to be balanced. The criteria include:

Location: Out-of-region storage is more vulnerable than in-basin-storage due to the risks of seismic events. To only maximize out-of-region storage will put reliability at risk.

Take capacity: Surface reservoirs generally have the ability to be filled and drawn down very quickly. Certain groundwater storage programs have limited take capacities--requiring several years at full take capacity to withdraw **all** available storage. Stored water will be balanced so that dry year supplies are maximized.

Cost: Programs vary with respect to their marginal operating costs. Program actions will be taken to maximize supply reliability while minimizing cost.

Flexibility: Not all storage programs and transfers offer the same flexibility to Metropolitan. Some programs can only meet specific overlying demands, while others can meet demands anywhere in the system.

DESCRIPTIONS OF RESOURCE ACTIONS

Draw on storage in the Eastside Reservoir Project: Withdrawals from the Eastside Reservoir Project would provide a flexible supply for meeting a shortage. Eastside Reservoir Project supplies can be drawn upon quickly. The amount of water drawn from the Eastside Reservoir Project before exercising other shortage actions will depend on the severity of the shortage and the overall condition of other resources available to Metropolitan.

Draw on out-of-region storage in Semitropic and Arvin-Edison programs: Out-of-region programs such as Semitropic and Arvin-Edison provide cost-effective shortage supplies. These supplies also provide flexibility, as they can be distributed as effectively as any SWP supplies coming into Metropolitan's service area. Exercising these programs relatively early in the order of actions reduces the risk of leaving supplies out-of-region. Based upon the ratio of storage capacity to take capacity, these programs will generally provide supplies over several years. This provides the rationale for calling on these programs relatively early in a shortage.

Reduce Long-Term Seasonal and Replenishment Deliveries, and call on cyclic storage accounts: Certain interruptible supply programs provide benefits during shortage. Reducing deliveries to interruptible programs established for storage purposes, while continuing expected levels of groundwater production, allows limited supplies to go toward meeting direct consumptive uses. In addition, calling on cyclic storage accounts can extend the replenishment needs for several years. Most replenishment supplies would be expected to be interruptible for a minimum of two years before agencies would be allowed to claim a local supply adjustment on such supplies. Some programs have longer interruption requirements. For example, most Groundwater Recovery Programs are governed by contracts that require supply production through a three-year interruption in service.

Draw on contractual groundwater storage programs: In-region contractual groundwater programs provide cost-effective supplies that would be drawn upon during shortages. These programs are also

limited by their take capacities and generally have several years of withdrawals in storage. For this reason, these programs might be called upon before withdrawing heavily from surface reservoir storage.

Draw on SWP terminal reservoir storage: The storage available in the SWP terminal reservoirs provides a flexible and cost-effective shortage supply. Supplies withdrawn from this program must be replaced within five years of withdrawal. For this reason, the storage in these reservoirs would be reserved for more serious shortage conditions and would be utilized after the programs and facilities listed above were used to meet the shortage.

Call for extraordinary drought conservation: Voluntary conservation programs have historically been effective in reducing water demand during drought. However, voluntary conservation programs are not without impact to the retail customer and can be perceived as a failure of water agencies to properly plan for shortages. Therefore, the call for extraordinary drought conservation will only be taken with the consent of Metropolitan's Board of Directors.

Reduce agricultural deliveries: The Interim Agricultural Water Program (IAWP) offers interruptible water to southern California's agricultural industry at discounted rates. These supplies will be interrupted as part of Metropolitan's shortage actions. Metropolitan will work with IAWP participants to provide as much advance warning of interruption as possible. The IAWP reflects current policies toward agricultural water users. The policies underlying this program are due to be reviewed during the ten-year period of the WSDM Plan. The WSDM Plan will be changed accordingly.

Call on water transfer option contracts: Transfer options programs provide cost-effective supplies when the region is faced with reducing deliveries to meet consumptive demands. These programs might also be used to increase storage levels in Metropolitan storage facilities. Replenishment of these facilities reduces the risk of leaving available supplies outside the region and helps to protect the region during extended shortages.

Purchase transfers on the spot market: During the 1987-92 drought, the Drought Water Bank proved to be one mechanism for California to reduce the overall impacts of the shortage. However, the cost of spot market supplies may cause Metropolitan to use them as a last increment of supply before the region implements reductions in M&I deliveries. It is likewise possible that availability and cost will make spot market options more favorable under certain conditions. If this occurs then spot market supplies will be sought prior to calls on option transfers. However, participation in the spot market may be restricted to those agencies that have already taken significant actions in response to the shortage.

Implement allocation plan: As the final stage in responding to shortages, Metropolitan will implement an allocation plan to deliver reduced supplies to its member agencies. The issues of allocation and the methods of allocation are outlined in the following section.

ALLOCATION OF SUPPLY FOR M&I DEMANDS

The equitable allocation of supplies is addressed by the Implementation Goals established for the WSDM Plan, with the first goal being to "avoid mandatory import water allocations to the extent practicable." The second fundamental goal is to "equitably allocate imported water on the basis of agencies' needs." Factors for consideration in establishing the equitable allocation include retail and economic impacts, recycled water production, conservation levels, growth, local supply production, and participation and investment in Metropolitan's system and programs. In the event of an extreme shortage an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

INTEGRATED RESOURCE MANAGEMENT STRATEGY

Throughout the Integrated Resources Planning process and the development of the WSDM Plan, extensive analysis of resource management strategies focused on maximizing supply reliability while minimizing overall resource costs. Various management strategies were analyzed under shortage scenarios based on historical hydrologic data. Certain strategies yield high reliability but incur very high costs. This is the case for strategies that utilize relatively costly transfer programs early in a shortage while maintaining high storage levels. If a shortage is short, this results in high transfer costs and shortage storage programs that are not fully utilized. Other strategies draw more heavily on storage early in a shortage and do not use options transfer programs. Later in a shortage, the yields from these transfer programs, combined with low yields from depleted storage facilities, might not make up for continuing or deepening shortages. Overall, such approaches may be inexpensive to pursue at the wholesale level but have high costs associated with retail level impacts. The resource management framework presented results from extensive analysis of various strategies for managing available resources under a variety of surplus and shortage conditions. Although the extent to which various actions are exercised may still vary depending on specific shortage conditions, the ordering presented does reflect Metropolitan's anticipated order of actions during shortages.

RESOURCE MANAGEMENT FRAMEWORK

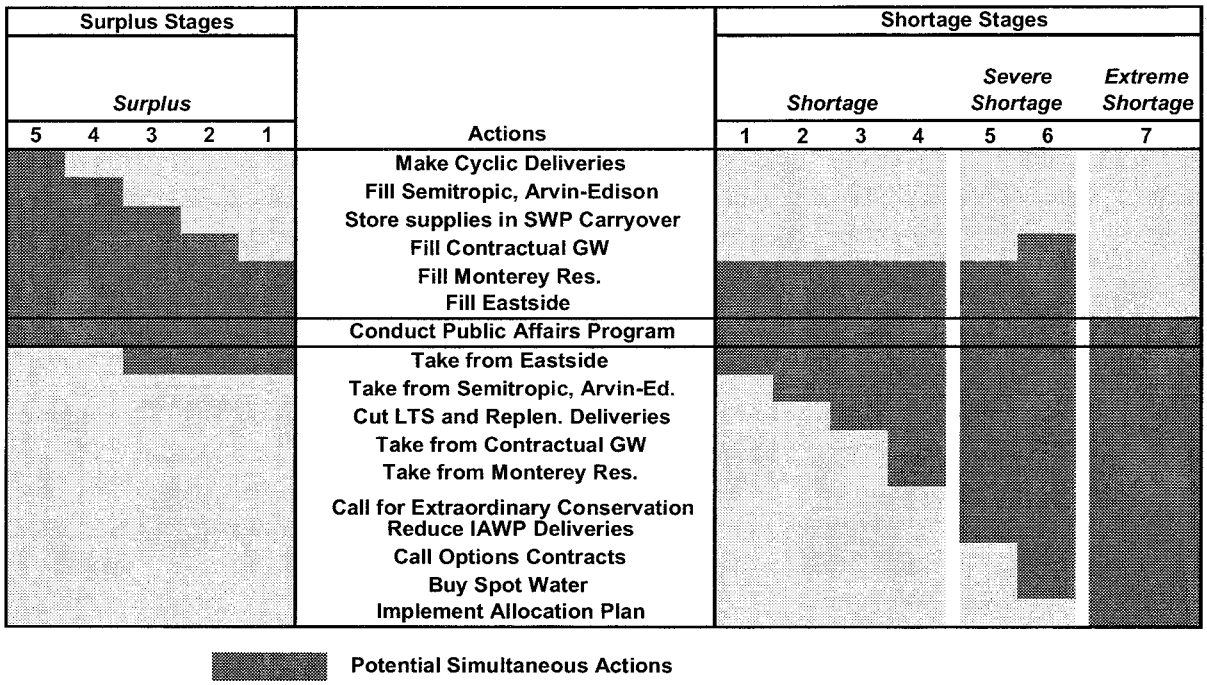
The analysis of surplus and shortage actions yields a water management framework that accounts for the degree or "stage" of surplus and shortage. These stages are defined by parameters such as storage levels and expected SWP supplies. Each stage has associated actions that could be taken as part of the response to prevailing shortage conditions. For example, Surplus Stage 1 might have as associated actions to place water in the highest-priority storage resources. Figure 8 shows the mapping between actions and stages. The darkly shaded diagonal area identifies actions that can be undertaken concurrently, while the lightly shaded areas show actions that will not be taken. For example, Metropolitan will not withdraw water from most storage resources during a surplus.

Figure 8 highlights several aspects of the WSDM Plan's approach to supply management. First and most importantly, it does not dictate a response to shortage or surplus. The framework recognizes the complexity and variety of conditions that could require various responses. Supporting this framework are general "rule curves" that dictate the extent to which particular actions are taken in various stages of surplus or shortage. For example, the rule curves indicate approximately how much water should be taken from the Eastside Reservoir Project before calling on supplies from the Semitropic or Arvin-Edison storage programs. If a shortage were greater than the desired initial withdrawal from the Eastside Reservoir Project, then Stage 2 actions would be taken. The rule curves for a particular resource would take into account shortage stage, monthly delivery requirements, and when various supplies are available.

Surplus and Shortage Stages are determined by the total amount of water that would be stored or produced by exercising the actions in that Stage. Overall storage levels in each stage are determined by the extent to which storage is increased or reduced by earlier actions. Therefore, each Stage is defined by supplies (stored or produced) and an approximate overall level of storage remaining in all resources. Up through Shortage Stage 4, the actions taken will not result in negative impacts to any consumptive uses. Shortage Stages 1 through 4 constitute shortage management without retail level impacts. The conservation efforts and reductions in IAWP deliveries in Shortage Stage 5 will result in retail impacts.

Action by the Metropolitan Board of Directors would be required before actions corresponding to Stages 5, 6, and 7.

Figure 8. Resource Stages and Actions Matrix



The Stages and Actions Matrix (Figure 8) is read from the center moving outward. Moving from the center to the left, are actions that Metropolitan will take during surplus conditions. For instance, in a Stage 3 Surplus, Metropolitan will be adding water to the Eastside Reservoir Project, the Monterey Reservoirs (if any water is due for repayment), Contractual Groundwater Programs, and carryover storage on the State Water Project. Moving from the center to the right are actions that Metropolitan will take during periods of shortage. For instance, in a Stage 3 Shortage, Metropolitan will be pulling water from the Eastside Reservoir Project, the Semitropic and Arvin Edison programs, and interrupting deliveries of Long-Term Seasonal and Replenishment program water. In addition, the Stages and Actions Matrix allows for surplus actions to be taken during shortages and vice versa, but these actions are strictly a result of prudent water management. For example, in a Stage 6 Shortage, Figure 8 shows Metropolitan potentially filling the Eastside Reservoir Project, the Monterey Reservoirs, and contractual groundwater programs while calling on spot transfers and buying spot water. Through these actions Metropolitan will be ensuring that water supply opportunities during a drought are realized--ultimately adding to the drought reserves of southern California.

Figure 8 also highlights the on-going efforts by Metropolitan and its member agencies in the conduct of public outreach and active conservation programs. Through all conditions, effective pubilc outreach and conservation programs are an integral part of Metropolitan's management of resources. In addition to ongoing conservation and water efficiency programs, Stage 5 of the Stages and Actions Matrix calls for participation of the citizens of southern California to take extraordinary conservation measures to cut water demand during droughts.

As with the listing of shortage actions earlier in the report, the Stages/Actions matrix in Figure 8 only highlights certain programs and response actions. However, unlike the discussion of actions earlier, Figure 8 is intended to convey Metropolitan's currently anticipated ordering for those actions listed. As the supply and demand outlooks, programs, and other factors continue to change, the analysis of the ordering of actions will continue during the ten-year period of the WSDM Plan.

SUPPLY CERTAINTY AND THE TIMING OF RESOURCE ACTIONS

One of the fundamental trade-offs in dealing with supply shortages is the need to maintain flexibility while providing supply certainty to member agencies and consumers. A central focus of the WSDM Plan is the analysis of information about supplies and demands. When do various pieces of information about the supply/demand balance become more certain? When should this information impact policy-making and trigger various resource actions? The WSDM Plan addresses these questions and the actual implementation of the Plan during a shortage.

Figure 9 shows a hypothetical shortage year. With respect to the supply and demand outlook, a typical shortage year will have periods of certainty and stability, and other periods of relative uncertainty and transition. Important supply components--such as the SWP, CRA, Los Angeles Aqueduct (LAA), and local supplies--are closely monitored through the early part of the year. These supplies and demands are fairly well-known through the April-September period. Storage is assessed in the post-summer period and decisions about certain programs, such as long-term (LT) seasonal deliveries could be made at this time.

Figure 9. Water Supply Outlook Throughout the Year

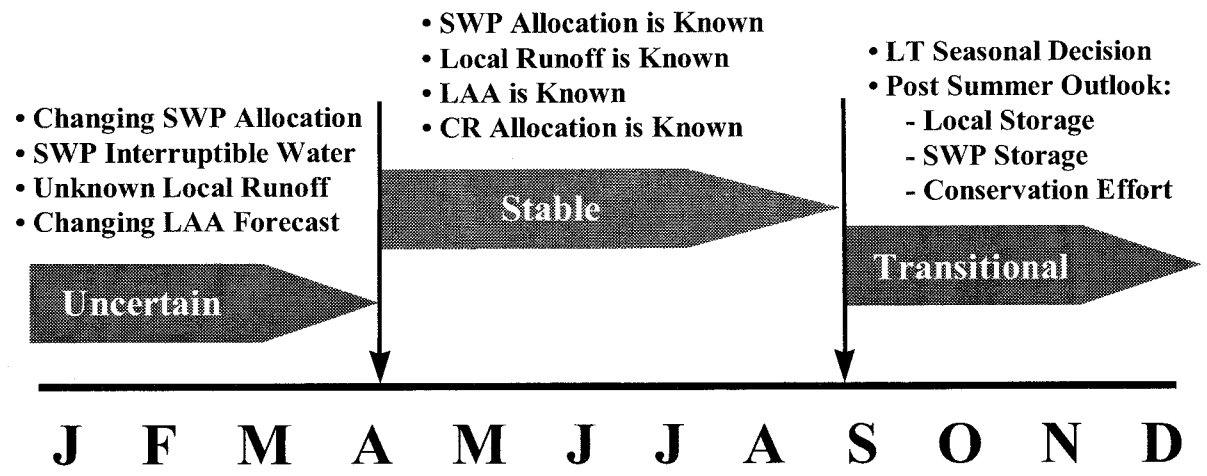
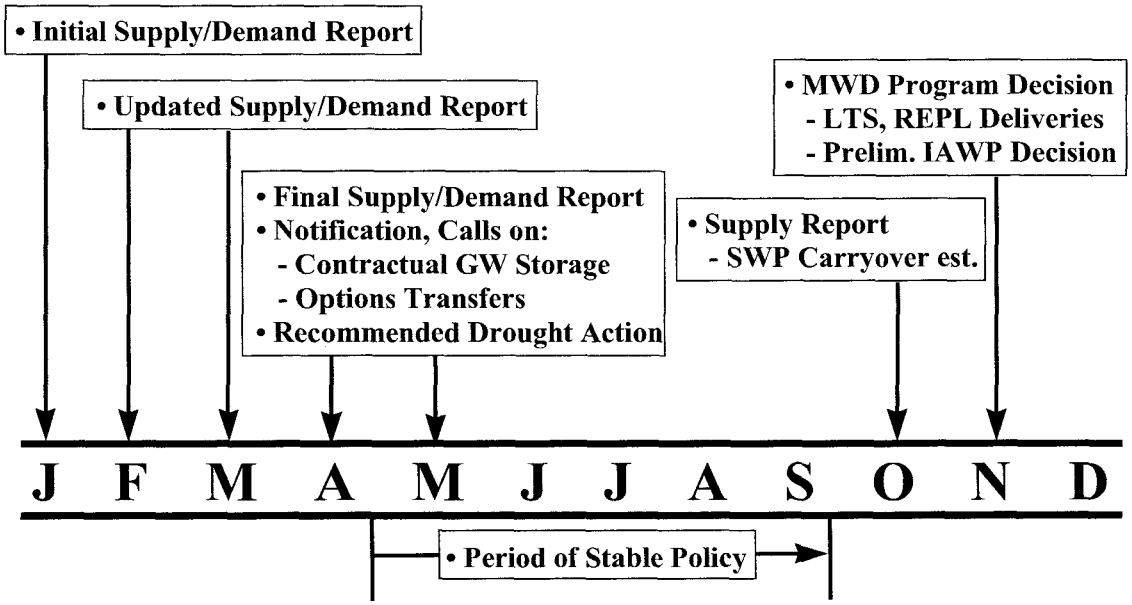


Figure 10 presents the annual schedule for actions taken in response to shortage conditions. Starting in January, an initial supply/demand report will be presented to the Metropolitan Board of Directors. SWP allocations are still only estimates in January and become more certain towards April and May. Demands for Metropolitan deliveries depend in part on how the winter hydrology develops and the condition of local supplies. These factors start to become known during the February-March period and will be reported to the Board in the Supply Report Update. By April-May, the outlook for imported supplies is known to a fairly high degree of certainty and a Final Supply Report will be produced. The May-September period will be one in which the import supply situation does not change drastically and drought policies can be implemented. Demands can be more or less than anticipated as a result of unusually hot or cool weather. At the end of summer, carryover SWP storage will be determined. October through December is a transitional period during which early assessments of available supplies for the following year will be made. During this period, Board actions would determine the management of various Metropolitan programs such as long-term seasonal (LTS) and IAWP deliveries. The following list presents major information and decision points during the year.

Month	Information/Action
January	Initial Supply/Demand Reports
February, March	Updated Supply/Demand Reports
April, May	Final Supply/Demand Report
	Notification on Contractual GW and Options Transfer Programs
	Recommended Drought Actions
May-September	Stable Policy Period
October	Supply and Carryover Storage Report
November	MWD Program Decisions - LT Seasonal, Replenishment, IAWP

Figure 10. One Year of a Hypothetical Shortage - Supply and Demand Reports and Response Actions



PUBLIC OUTREACH AND CONSERVATION

Mechanisms are already in place to implement most of the water management actions and programs that are addressed in the WSDM Plan. Under the majority of supply and demand conditions, the actions of Metropolitan's Board of Directors, the General Manager, the operational activities of Metropolitan, and its member agencies would constitute all actions necessary to mitigate the shortage. Several aspects of the WSDM Plan, however, require additional attention to the administration of programs and actions. In particular, a shortage contingency requires special programs in the areas of public and governmental affairs and conservation. Metropolitan maintains an on-going public information program to encourage efficient water use. Public outreach programs are conducted at all times under both surplus and shortage conditions (see Figure 8). The actions discussed in this section constitute special actions in times of shortage.

During shortage conditions, public outreach will play a critical role in shaping consumer response. Public information campaigns need to send clear signals if extraordinary drought conservation is to achieve needed reductions in demands. Given Metropolitan's diverse set of customers and the varying impacts that shortages can have on different consumer groups, an effective public information campaign will require a joint effort among Metropolitan and its member agencies. Under this Plan, the administration of the Public Information and Government Affairs programs will be the responsibility of a Drought Program Officer (DPO). The DPO will be responsible for integrating the various activities in these areas, coordinating efforts with Metropolitan's Board of Directors and member agencies, and designing the region-wide messages for the general public and various target audiences. Important constituencies that have been identified in the process are residential users, business interests, agricultural users, elected officials, officials of various agencies (such as the Department of Water Resources), and the media.

Many conservation programs, such as Metropolitan's ultra-low flush toilet rebate program, are driven by member agency requests. Based on history, Metropolitan expects member agency requests to increase during droughts. Metropolitan is committed to increasing overall conservation program funding to meet member agency requests during droughts and attain higher levels of savings. These programs will be implemented by Metropolitan and member and local agency conservation staff. As many of the short-term conservation objectives during a shortage would be dependent upon an effective public information program, the Drought Program Officer will also be responsible for monitoring the effectiveness of the augmented conservation programs. A monthly conservation reporting process will be implemented. Quarterly estimates of regional conservation will be developed to track the progress of various actions in mitigating the shortage.

APPENDIX A: RESOURCE AND STORAGE SIMULATION

The Water Surplus and Drought Management Plan (WSDM Plan) uses the Stages and Actions Matrix (Figure 8) as a guide for the operation of storage and transfers for the next ten years, 1999-2008**.** Metropolitan asserts that the investments that Metropolitan and its member agencies have made in water supply and storage, managed in a coordinated manner as presented in the WSDM Plan, will be sufficient to assure that retail firm water demands will be met 100% of the time through the year 2008. Metropolitan performed an extensive analysis of projected water demands, current and expected water supplies, along with hydrologic variations to support this assertion. Appendix A presents a summary of this analysis which includes statistical probabilities of actions under the WSDM Plan and two illustrative examples of how supply resources may be used in the future under worst-case drought events. Although the WSDM Plan is intended to be in effect through 2008, for the purposes of analysis the planning horizon was extended through 2010.

The WSDM Plan seeks to define the operational envelope for the Metropolitan system into the near future. Although the WSDM Plan only looks out ten years, it nonetheless involves the operation of some storage and water transfer projects that have not yet become fully operational. This makes the estimation of storage and transfers operations difficult. Compounding this problem is the lack of certainty around future demands, economic conditions, or even the weather over the next ten years. To manage these uncertainties, Metropolitan has developed a computer based simulation model called the Integrated Resources Planning Simulation Model or IRPSIM.

IRPSIM uses a modeling method known as sequentially indexed monte-carlo simulation. Simply put, the model looks at projected regional retail demand and supplies of water over the next twelve years and adjusts each, up or down, based on an assumed pattern of future weather. For instance, if Metropolitan expected the weather over the next twelve years (1999-2010) to be the same as the last twelve years (1987-1998), then IRPSIM would adjust the projected 1999 demands and supplies based on the historical 1987 hydrology, and adjust the projected 2000 demands and supplies using the historical 1988 hydrology, and so on. One obvious drawback to this approach is that Metropolitan does not know what future weather will be. Therefore, Metropolitan runs the models over and over again until all recorded hydrologies, 70 in all, have been tried. In this way, Metropolitan can look at probabilistic results of being in shortage year by year through 2010.

Although the projections of water supplies used in this analysis required certain assumptions to be made, they were based on most likely or probable outcomes. In most cases, projected water supplies represented projects that are currently operational, under construction, or in the final stages of negotiations. The following represents a summary of these assumptions:

- Local recycling and groundwater recovery: assumes currently operational projects with expected increases in supply yield as demand increases

- Conjunctive use groundwater storage: assumes Las Posas (under final stages of construction) and implementation of similar programs which are under negotiation (such as Raymond, Orange, and Chino Basins)

- Semitropic and Arvin-Edison storage: assumes use of both programs which are operational with water already stored

- Eastside Reservoir Project: assumes use of non-emergency storage from the reservoir currently under construction and an initial fill projected to start in approximately one year

- The Monterey Reservoirs: assumes use of State Water Project terminal reservoir supplies, Castaic and Perris Reservoirs, per the Monterey Amendment

- Colorado River Aqueduct: assumes a full aqueduct through the implementation of the California Plan (including lining of All American and Coachella canals, SD/IID water transfer/exchange, conjunctive use off-aqueduct storage, and river re-operations)

- State Water Project: assumes continuance of Bay-Delta Accord (with only current facilities)

One way of viewing the result of Metropolitan's WSDM Plan analyses is by summary statistics. Table A- 1 gives the probabilities of shortage actions over the next twelve years.

Table A-1. Probability of Shortage Stage[1] by Forecast Year

1999	13%	13%	11%	7%	3%	0%	O%
2000	13%	13%	11%	9%	3%	O%	0%
2001	19%	17%	13%	10%	6%	O%	0%
2002	19%	17%	13%	10%	4%	1%	0%
2003	19%	19%	14%	11%	4%	0%	0%
2004	20%	19%	16%	13%	4%	0%	0%
2005	21%	19%	17%	13%	6%	O%	O%
2006	21%	19%	19%	13%	6%	0%	0%
2007	23%	20%	19%	13%	4%	0%	0%
2008	26%	21%	19%	16%	6%	1%	0%
2009	26%	24%	19%	17%	6%	1%	0%
2010	26%	26%	19%	19%	6%	1%	O%

Table A-1 can be read in one of two ways, by column or row. The Stage 7 column indicates that there are no historical weather conditions that require allocation over the next twelve years. This is the single most important conclusion of the WSDM Plan analysis. The Stage 6 column indicates that only in a few years--2002, and 2008 through 2010--would Metropolitan need have a need for option or spot transfer water. Read by row, Table A-1 indicates that in the year 2008 there is a 21% likelihood of taking some water from the Eastside Reservoir Project, a 19% likelihood of taking water from Semitropic or Arvin-Edison storage programs, a 17% likelihood of interrupting long-term seasonal and replenishment deliveries for two years, and so on. It should be noted that these probabilities represent the best current estimates by Metropolitan, but are based entirely on historical weather conditions. Conditions that fall outside of historical ranges, either in duration or severity, are not represented by this data.

Another way to view the WSDM Plan analysis is by observing the operation of a single hydrology. Table A-2 provides an example of resource operations for the period 1999 through 2010 assuming a repeat of the 1923 through 1934 hydrology. The table provides descriptions of hydrologic conditions to aid in understanding the example.

[1] Stage 1 consists of withdrawal from the Eastside Reservoir Project. Stage 2 consists of the above plus withdrawals from the Semitropic and Arvin-Edison water storage and transfer projects. Stage 3 consists of the above plus an interruption of Long-Term Seasonal and Replenishment discount water. Stage 4 consists of the above plus withdrawal from contractual groundwater programs and the Monterey Reservoirs. Stage 5 consists of the above plus a call for extraordinary drought conservation and interruption in agricultural discount water. Stage 6 consists of the above plus calls on option contract water and purchases of water on the open market. Stage 7 consists of the above plus allocation of remaining shortages. For a full description of stages and action, see Surplus and Shortage Resource Actions section and Figure 8 above.

For instance, 1923 was considered to be a dry year in southern California (defined as less than 9 inches of rain at the Los Angeles Civic Center) and is categorized by the California Department of Water Resources (DWR) as a below normal year for State Water Project deliveries. In this example, 1923 weather increases southern California's demand for water and decreases imported State Water Project supplies. The Colorado River Aqueduct supplies are influenced by yet another hydrologic indicator, but for the next ten year Metropolitan expects the Aqueduct to be full.

Table A-2 indicates that retail water demands in 1999, assuming a 1923 hydrology, will be 3.979 million acre-feet (maf). Adding expected long-term seasonal and replenishment demands of 0.165 maf gives a regional total water demand of 4.144 maf. After subtracting local supplies of 2.192 maf, which are also adjusted for 1923 weather, Metropolitan expects to see a demand of 1.952 maf. In 1999, under a 1923 hydrology, Metropolitan expects to see 2.954 maf of supply. This is enough to meet all expected demands and put over 1.0 maf into storage.

The 1923 through 1934 hydrology is significant because it starts and ends dry with little recovery in the middle. However, even in these most adverse conditions the actions proposed by the WSDM Plan provides the region with enough water to avoid shortage allocation. Again the most important result of this example is read from the last line, which indicates that there are no remaining shortages through 2008

Table A-3 provides a second example of using the 1980 through 1991 hydrology. This hydrology contains the most significant drought in recent record, ending with a critically dry year on the State Water Project that is expected to yield a mere 0.389 maf. However, even under these conditions the WSDM Plan provides a method to avoid firm water allocation.

The analyses performed using the prioritized action of the Stages and Actions Matrix support Metropolitan's assertion that water supply reliability can be attained through the use of regional storage, interruption of discounted water supplies, and transfers. And, through the implementation of the WSDM Plan, Metropolitan does not expect to allocate firm water deliveries for at least the next ten years.

Table A-2. A Simulation of Water Supplies and Demands 1923-1934 Hydrology

Forecast Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hydrology Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Hydrologic Conditions												
Southern California Year Type	Dry	Dry	Dry	Wet	Wet	Dry	Dry	Normal	Wet	Normal	Wet	Normal
Sacramento River Index D1630 Year Type	Below Normal	Critically Dry	Dry	Dry	Wet	Above Normal	Critically Dry	Dry	Critically Dry	Dry	Critically Dry	Critically Dry
Demands												
Retail Demand	3.979	4.152	4.149	4,018	4.005	**4.249**	4.237	4.223	4.280	4.280	4.407	4.500
Long-term/Replenishment Demand	0.165	0.182	0.226	0.188	0.149	0.176	0,213	0.203	0.164	0.175	0.141	0.163
Total Demand	4.144	4.334	4.375	4.205	4.154	4.425	4.450	4.426	4,443	4.455	4.548	4,663
Local Supplies												
Groundwater Production	1.529	1.545	1.537	1.288	1.299	1.575	**1.568**	1.434	1.307	1.439	1.318	1.454
L. A. Aqueduct Production	0.383	0,287	0.304	0.316	0.392	0.302	0,245	0.235	0.174	0,324	0.251	0.220
Recycling Production	0.152	0.162	0.174	0.186	0,197	0.207	0.217	0.230	0,242	0.254	0.266	0.277
Surface Production	0,128	0,089	0,076	0.116	0.154	0.147	0.108	0.094	0,133	0,136	0.151	0.145
Total Local Supply	2,192	2.084	2.091	1.905	2,043	2.231	2,139	1.993	1.856	2.153	1.986	2,097
Total MWD Demand	1.952	2.250	2,284	2,300	2.112	2.194	2.311	2.433	2.587	2.302	2.562	2.566
MWD Supply Sources												
Colorado River Aqueduct Supply	1.200	1.200	1.200	1.200	1.200	**1.200**	1.200	1.200	1.200	1.200	1.200	1.200
State Water Project Supply	1.754	0.812	0.783	1.280	1.678	1.438	0,764	1.163	0,589	0.843	0.559	0.620
MWD Cyclic Groundwater Deliveries	0.000	0.060	0.060	0.000	0.000	0,000	0.060	0,060	0.060	0.059	0.000	0.000
Eastside Reservoir	0.000	0.066	0.058	0.000	0.000	0.000	0,060	0.010	0.425	0.023	0.219	0.041
Arvin/Semitropic Groundwater Storage	0.000	0.111	0.115	0,000	0.000	0,000	0,119	0,000	0.115	0.117	0.059	0.041
Longterm Seasonal Demand Cuts	0.000	0,000	0,166	0.000	0.000	0.000	0.153	0.000	0.104	0,116	0.000	0.000
Cyclic Benefits	0.000	0.000	0.000	0.000	0.000	0.000	0,000	0,000	0,000	0,000	0.060	0.060
Contractual Groundwater Storage	0.000	0.000	0.000	0,000	0.000	0.000	0.000	0,000	0.095	0.000	0.095	0.084
DWR Reservoirs (Monterey Agreement)	0.000	0.000	0,000	0.000	0.000	0.000	0.000	0.000	0,000	0,000	0.131	0.088
Voluntary Conservation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0,000	0.000	0.206	0.210
MWD Ag Cuts	0.000	0.000	0.000	0.000	0.000	0,000	0.000	0.000	0.000	0.000	0.033	0.031
Central Valley Transfers	0.000	0.000	0,000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.193
Storage Puts	1.003	0.000	0.097	0.180	0.549	0.438	0.045	0.000	0,000	0.056	0.000	0.000
Remaining Shortage	0,000	0,000	0.000	0,000	0.000	0.000	0.000	0,000	0.000	0.000	0.000	0.000

Table A-3. A Simulation of Water Supplies and Demands 1980-1991 Hydrology

Forecast Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hydrology Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Hydrologic Conditions												
Southern California Year Type	Wet	Normal	Normal	Wet	Dry	Dry	Wet	Normal	Normal	Dry	Dry	Normal
Sacramento River Index D1630 Year Type	Above Normal	Dry	Wet	Wet	Wet	Dry	Wet	Dry	Critically Dry	Dry	Critically Dry	Critically Dry
Demands												
Retail Demand	3.781	4.170	3.930	3.647	4.308	4.250	4.151	4.281	4.380	4.550	4.663	4.497
Lon£1-term/Replenishment Demand	0.105	0.141	0.171	0.101	0.136	0.187	0.183	0.201	0.191	0.219	0.224	0.214
Total Demand	3.886	4.311	4.101	3.748	4.444	4.437	4.334	4.483	4.572	4.769	4.887	4.712
Local Supplies												
Groundwater Production	1.292	**1.440**	**1.381**	1.248	1.546	1.565	1.275	1.413	1.438	1.588	1.600	1.446
L. A. Aqueduct Production	0.462	0.372	0.499	0.529	0.516	O.367	0.472	0.400	0.326	0.278	0.213	0.223
Recycling Production	0.152	0.162	0.174	0.186	0.197	0.207	0.217	0.230	0.242	0.254	0.266	0.277
Surface Production	0.225	0.175	0.154	0.194	0.195	0.151	0.115	0.116	0.115	0.081	0.068	0.081
Total Local Supply	2.131	2.149	2.208	2.156	2.455	2.290	2.081	2.159	2.122	2.200	2,146	2.027
Total MWD Demand	1.755	2.162	1.894	1.591	1.989	2.147	2.253	2.324	2.450	2.569	2.741	2.684
MWD Supply Sources												
Colorado River Aqueduct Supply	1.200	1.200	1.200	1,200	1.200	1.200	1.200	1.200	**1.200**	1.200	1.200	1.200
State Water Project Supply	1.561	1.441	1.725	1.886	1.643	1.590	1.441	1.292	0.611	1.285	0.877	0.389
MWD Cyclic Groundwater Deliveries	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.060	0.060	0.060
Eastside Reservoir	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.199	0.024	0.222	0.209
Arvin/Semitropic Groundwater Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.115	0.000	0.122	0.104
Long-term Seasonal Demand Cuts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.131	0.000	0.164	0.154
Cyclic Benefits	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Contractual Groundwater Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.133	0.000	0.095	0.085
DWR Reservoirs (Monterey Agreement)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.216
Voluntary Conservation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.235
MWD Ag Cuts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
Central Valley Transfers	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Storage Puts	1.006	0.260	0.344	0.240	0.200	0.200	0.388	0.168	0.000	0.000	0.000	0.000
Remaining Shortage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ATTACHMENT B

Water Supply Allocation Plan

December 2014 Revision

Metropolitan Water District of Southern California

Inside cover: Photo courtesy of Cora Edmonds/ArtXchange for the Healing Planet

Water Supply Allocation Plan

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List of Tables and Figures

List of Acronyms

AF – Acre-feet
CUP – Groundwater Conjunctive Use Program
CWD – County Water District
DWP – Drought Management Plan
IAWP – Interim Agricultural Water Program Reductions and Rates
IICP – Incremental Interruption and Conservation Plan
IRP – Integrated Resources Plan
GPCD – Gallons per Capita per Day
M&I – Municipal and Industrial
MWD – Municipal Water District
RUWMP – Regional Urban Water Management Plan
SWP – State Water Project
WSAP – Water Supply Allocation Plan
WSDM – Water Surplus and Drought Management

Definitions

Extraordinary Supplies- Deliberate actions taken by member agencies to augment the total regional water supply only when Metropolitan is allocating supplies through the WSAP.

Groundwater Recovery- The extraction and treatment of groundwater making it usable for a variety of applications by removing high levels of chemicals and/or salts.

In-lieu deliveries- Metropolitan-supplied water bought to replace water that would otherwise be pumped from the groundwater basins.

Seawater Barrier- The injection of fresh water into wells along the coast to protect coastal groundwater basins from seawater intrusion. The injected fresh water acts like a wall, blocking seawater that would otherwise seep into groundwater basins as a result of pumping.

Section 1: Introduction

Calendar Year 2007 introduced a number of water supply challenges for the Metropolitan Water District of Southern California (Metropolitan) and its service area. Critically dry conditions affected all of Metropolitan's main supply sources. In addition, a ruling in the Federal Courts in August 2007 provided protective measures for the Delta Smelt in the Sacramento-San Joaquin River Delta which brought uncertainty about future pumping operations from the State Water Project. This uncertainty, along with the impacts of dry conditions, raised the possibility that Metropolitan would not have access to the supplies necessary to meet total firm demands[1] and would have to allocate shortages in supplies to the member agencies.[2]

In preparing for this possibility, Metropolitan staff worked jointly with the member agency managers and staff to develop a Water Supply Allocation Plan (WSAP). The WSAP includes the specific formulas for calculating member agency supply allocations and the key implementation elements needed for administering an allocation should a shortage be declared. The WSAP became the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and was incorporated into Metropolitan's 2010 Regional Urban Water Management Plan (RUWMP).

Section 2: Development Process

Member Agency Input

Between July 2007 and February 2008, Metropolitan staff worked cooperatively with the member agencies through a series of member agency manager meetings and workgroups to develop a formula and implementation plan to allocate supplies in case of shortage. These workgroups provided an arena for in-depth discussion of the objectives, mechanics, and policy aspects of the different parts of the WSAP. Metropolitan staff also met individually with fifteen member agencies for detailed discussions of the elements of the recommended proposal. Metropolitan introduced the elements of the proposal to many nonmember retail agencies in its service area by providing presentations and feedback to a number of member agency caucuses, working groups, and governing boards. The discussions, suggestions, and comments expressed by the member agencies during this process contributed significantly to the development of this WSAP.

Board of Directors Input

Throughout the development process Metropolitan's Board of Directors was provided with regular progress reports on the status of this WSAP, with oral reports in September, October, and December 2007, an Information Board of Directors Letter with a draft of the WSAP in November 2007, and a Board of Directors Report with staff recommendations in January 2008. Based on Water Planning and Stewardship Committee discussion of the staff recommendations and further review of the report by

[1] Firm demands are also referred to as uninterruptable demands; likewise non-firm demands are also called interruptible demands.
[2] See Appendix A: Metropolitan Member Agencies.

the member agencies, refinements were incorporated into the WSAP for final consideration and action in February 2008. The WSAP was adopted at the February 12, 2008 Board of Directors meeting.[3]

The 12-Month Review Process

When the Board adopted the WSAP in February 2008, the decision specified a formal revisit of the WSAP commencing in February 2010. The scheduled revisit was meant to ensure the opportunity for Metropolitan staff and the member agencies to re-evaluate the WSAP and recommend appropriate changes to the Board of Directors.

In April 2009, the Board voted to implement the WSAP for the first time. The WSAP was implemented at a Level 2 allocation level, and was in effect for the period of July 1, 2009, through June 30, 2010. Since implementation of the 2009/10 WSAP began in July 2009, a number of practical issues relating to the WSAP were identified by staff and the member agencies for further consideration during the 12-Month Review Process. Metropolitan staff engaged with the member agencies in a formal review of the WSAP from January through May 2010. During the review process the member agency managers participated in a series of six workshops. The focus of these workshops was to facilitate in-depth discussion on WSAP-related issues and lessons learned since the WSAP was implemented in July 2009. The proposed adjustments to the WSAP developed during the review process were adopted at the August 17, 2010 Board of Directors meeting[4].

The Three-Year Review Process

The Board action to adopt of the WSAP in February 2008 also directed staff to review the WSAP formula three years after the February 2008 adoption. February 2011 marked the three-year anniversary since the adoption of the WSAP. Similar to the 12-Month Review Process, the purpose of the Three-Year Review Process was to provide an opportunity for Metropolitan staff and the member agencies to re-evaluate the plan and recommend appropriate changes for board consideration.

Metropolitan staff met with the member agencies in a formal review of the WSAP from February through August 2011. Staff and member agency managers participated in a series of eleven workshops. Proposed adjustments to the WSAP developed during the process were adopted at the September 13, 2011 Board of Directors meeting.[5]

[3] A complete listing of member agency meetings and Board of Directors reporting activities is contained in Appendix B: Water Supply Allocation Plan Process Timeline.

[4] A complete listing of member agency meetings and Board of Directors reporting activities is contained in Appendix C: 12-Month Review Process and Results.

[5] A complete listing of member agency meetings and Board of Directors reporting activities is contained in Appendix D: Three-Year Review Process and Results.

2014 Review Process

In 2014, California was challenged with a third year of severe drought.[6] Metropolitan managed its operations through significant use of regional storage reserves. It was anticipated that end of year total dry storage reserves would approach levels similar to those when the WSAP was last implemented in 2009.

Following discussion at the June 2014 Water Planning and Stewardship Committee, Metropolitan staff convened a member agency working group to revisit the WSAP. The purpose of the working group was to collaborate with member agencies to identify potential revisions to the WSAP in preparation for mandatory supply allocations in 2015. There were eight working group meetings and three discussions at the monthly Member Agency Managers' Meetings.

The process focused on three areas of the WSAP: the Base Period, the Allocation Formula, and the Allocation enforcement mechanism. Proposed adjustments to the WSAP developed during the process were adopted at the December 9, 2014 Board of Directors meeting. [7]

[6] The Governor of California proclaimed a State of Emergency due to drought conditions on January 17, 2014 and, on April 24, 2014 issued an Executive Order proclaiming a continued State of Emergency noting drought conditions have persisted for the last three years and authorizing adoption and implementation of emergency regulations.

[7] A complete listing of member agency meetings and Board of Directors reporting activities is contained in Appendix E: 2014 Review Process and Results.

Section 3: Review of Historical Shortage Plans[8]

The WSAP incorporates key features and principles from the following historical shortage allocation plans but will supersede them as the primary and overarching decision tool for water shortage allocation.

Interruptible Water Service Program

As part of the new rate structure implemented in 1981, Metropolitan's Board of Directors adopted the Interruptible Water Service Program (Interruptible Program) which was designed to address short-term shortages of imported supplies. Under the Interruptible Program, Metropolitan delivered water for particular types of use to its member agencies at a discounted rate. In return for this discounted rate, Metropolitan reserved the right to interrupt delivery of this Interruptible Program water so that available supplies could be used to meet municipal and industrial demands.

Incremental Interruption and Conservation Plan

The ability to interrupt specific deliveries was an important element of Metropolitan's strategy for addressing shortage conditions when it adopted the Incremental Interruption and Conservation Plan (IICP) in December 1990. Reductions in IICP deliveries were used in concert with specific objectives for conservation savings to meet needs during shortages. The IICP reduced Interruptible Service deliveries in stages and provided a pricing incentive program to insure that reasonable conservation measures were implemented.

1995 Drought Management Plan

The 1995 Drought Management Plan (DMP) was a water management and allocation strategy designed to match supply and demand in the event that available imported water supplies were less than projected demands. Adopted by the Metropolitan Board of Directors in November 1994, the 1995 DMP was a short-term plan designed to provide for the 1995 calendar year only. The primary objective of the 1995 DMP was to identify methods to avoid implementation of mandatory reductions. The 1995 DMP included various phases and a step-by-step strategy for evaluating supply and demand conditions and utilizing Metropolitan's available options, with the final phase being implementation of the revised IICP.

1999 Water Surplus and Drought Management Plan

Metropolitan staff began work on the Water Surplus and Drought Management (WSDM) Plan in March 1997 as part of the Integrated Water Resources Plan (IRP), which was adopted by Metropolitan's Board of Directors in January 1996. The IRP established regional water resource targets, identifying the need for developing resource management policy to guide annual operations. The WSDM Plan defined Metropolitan's resource management policy by establishing priorities for the use of regional resources to achieve the region's reliability goal identified in the IRP. In April 1999, Metropolitan's Board of Directors adopted the WSDM Plan.

[8] A summary of the key elements in the following allocation plan is found in Appendix F: Summary of Historical Shortage Plans.

The WSDM Plan also included a set of principles and considerations for staff to address when developing specific allocation methods. The WSDM Plan stated the following guiding principle to be followed in developing any future allocation scheme:

> *"Metropolitan will encourage storage of water during periods of surplus and work jointly with its member agencies to minimize the impacts of water shortages on the region's retail consumers and economy during periods of shortage."*[9]

This principle reflects a central desire for allocation methods that are both equitable and minimize regional hardship to retail water consumers. The specific considerations postulated by the WSDM Plan to accomplish this principle include the following:[10]

- The impact on retail customers and the economy
- Allowance for population and growth
- Change and/or loss of local supply
- Reclamation/Recycling
- Conservation
- Investment in local resources
- Participation in Metropolitan's interruptible programs
- Investment in Metropolitan's facilities.

Section 4: Water Supply Allocation Formula

Based on the guiding principle and considerations described in the WSDM Plan, Metropolitan staff and the member agencies developed a specific formula for allocating water supplies in times of shortage. The formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level, and takes into account growth, local investments, changes in supply conditions and the demand hardening[11] aspects of non-potable recycled water use and the implementation of conservation savings programs. The formula, described below, is calculated in three steps: base period calculations, allocation year calculations, and supply allocation calculations.[12] The first two steps involve standard computations, while the third section contains specific methodology developed for this WSAP.

Base Period Calculations

The first step in calculating a water supply allocation is to estimate water supply and demand using a historical base 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 fiscal years (July through June) ending 2013 and 2014.[13]

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[9] WSDM Plan, p. 1. Emphasis added.
[10] WSDM Plan, p. 2.
[11] Demand hardening is the effect that occurs when all low-cost methods of decreasing overall water demand have been applied (e.g., low-flow toilets, water recycling) and the remaining options to further decrease demand become increasingly expensive and difficult to implement.
[12] Detailed operational elements of these objectives and a numerical example are discussed in Appendix G: Water Supply Allocation Formula Example.
[13] Exceptions to this methodology are noted in the descriptions of base period calculations.

Base Period Local Supplies: Local supplies for the base period are calculated using a two-year average of groundwater production, groundwater recovery, Los Angeles Aqueduct supply, surface water production, and other imported supplies. Non-potable recycling production is not included in this calculation due to its demand hardening effect.

Base Period Wholesale Demands: Demands on Metropolitan for the base period are calculated using a two-year average of firm purchases and in-lieu deliveries to long-term groundwater replenishment, conjunctive use, cyclic, and supplemental storage programs.

Base Period Retail Demands: Total retail-level municipal and industrial (M&I) demands for the base period are calculated by adding the Base Period Wholesale Demands and the Base Period Local Supplies. This estimates an average total demand for water from each agency.

Base Period Mandatory Conservation Credit: Metropolitan allows a consultation process that enables member agencies to describe mandatory water use restrictions and/or rationing restrictions that were in place within their service areas during the Base Period. Restrictions may vary among agencies but include restricted water uses, fines, and water budget or penalty based rate structures that are enacted by the governing body of the member agency or retail agency. Following the consultation process, Metropolitan staff will recommend adjustments based on evidence of reduced GPCD. To qualify for an adjustment, GPCD reductions would have to be observed that are beyond those expected from the agency's ongoing conservation efforts and trends.

Allocation Year Calculations

The next step in calculating the 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 or economic growth and changes in local supplies.

Allocation Year Retail Demands: Total retail M&I demands for the allocation year are calculated by adjusting the Base Period Retail Demands for baseline inflation and growth.

Baseline Inflation Adjustment: Baseline inflation occurs when non-potable recycling or conservation is developed after the Base Period. The development of these supplies reduces actual demands for water in the Allocation Year. Because non-potable-recycling and conservation are excluded from the WSAP formula, the actual need for water in the Allocation year is overestimated. The Baseline Inflation Adjustment removes increases in non-potable recycling and conservation annually from the Base Period forward to better reflect the true need for water in the Allocation Year.

Growth Adjustment: The growth adjustment is calculated using the estimated actual annual rate of population growth at the county level, as generated by the California Department of Finance, whenever possible. For years without complete data, the growth rate is calculated using an average of the three most recent years available. Growth will be allocated based on historical per capita water use during the Base Period, with a cap equal to Metropolitan's IRP Target for Water Use Efficiency. For

allocation years up to and including 2014, the cap will be 163 GPCD, and for allocation years 2015-2020 the cap will reduce linearly from 163 to 145 GPCD. On an appeals basis, member agencies may request that their adjustment be calculated using member agency level population growth. A weighted combination of actual population and actual employment growth rates may also be requested.

Allocation Year Local Supplies: Allocation Year Local Supplies include groundwater production, groundwater recovery, Los Angeles Aqueduct supply, surface water production, seawater desalination, and other imported supplies. Estimates of Allocation Year Local Supplies are provided by the member agencies upon implementation of a WSAP. If estimates are not provided, Metropolitan will use the sum of the Base Period Local Supplies and Base Period In-Lieu Deliveries as a default. Agencies may provide updated estimates at any time during the Allocation Year to more accurately reflect their demand for Metropolitan supplies.

Extraordinary Supplies: Under the WSAP formula, local supply production in the Allocation Year can either be designated as a "planned" supply, or as an "extraordinary" supply.[14] This is an important designation for a member agency because the two types of supplies are accounted for differently in the WSAP formula. Local supplies classified at Extraordinary Supply are only partially included (scaled depending on the WSAP Level) as local supplies. This has the effect of providing significantly more benefit to the member agency in terms of total water supply that is available to the retail customer.[15]

Allocation Year Wholesale Demands: Demands on Metropolitan for the allocation year are calculated by subtracting the Allocation Year Local Supplies from the Allocation Year Retail Demands.

Water 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. The following table displays the elements that form the basis for calculating the supply allocation. Each element and its application in the allocation formula are discussed below.

Table 1: Shortage Allocation Index

(a) Regional Shortage Level	(b) Wholesale Minimum Percentage	(c) Maximum Retail Impact Adjustment Percentage
1	92.5%	2.5%
2	85.0%	5.0%
3	77.5%	7.5%
4	70.0%	10.0%

[14] Appendix H: Board Policy Principles on Determining the Status of Extraordinary Supply lists the key Board principles used in determining if a supply qualifies as an Extraordinary Supply.

[15] See Appendix G: Water Supply Allocation Formula Example for specific allocation formulae.

5	62.5%	12.5%
6	55.0%	15.0%
7	47.5%	17.5%
8	40.0%	20.0%
9	32.5%	22.5%
10	25.0%	25.0%

Regional Shortage Level: The WSAP formula allocates shortages of Metropolitan supplies over ten levels.

Wholesale Minimum Allocation: The Wholesale Minimum Allocation ensures a minimum level of Metropolitan supplied wholesale water service to each member agency.

Maximum Retail Impact Adjustment: The purpose of this adjustment is to ensure that agencies with a high level of dependence on Metropolitan do not experience disparate shortages at the retail level compared to other agencies when faced with a reduction in wholesale water supplies. The Maximum Retail Impact Percentage is prorated on a linear scale based on each member agency's dependence on Metropolitan at the retail level. This percentage is then multiplied by the agency's Allocation Year Wholesale Demand to determine an additional allocation.

Conservation Demand Hardening Credit: The Conservation Demand Hardening Credit addresses the increased difficulty in achieving additional water savings at the retail level that comes as a result of successful implementation of water conserving devices and conservation savings programs. To estimate conservation savings, each member agency will establish a historical baseline Gallons Per Person Per Day (GPCD) calculated in a manner consistent with California Senate Bill SBx7-7.[16] Reductions from the baseline GPCD to the Allocation Year are used to calculate the equivalent conservation savings in acre-feet. The Conservation Demand Hardening Credit is based on an initial 10 percent of the GPCD-based Conservation savings plus an additional 5 percent for each level of Regional Shortage set by the Board during implementation of the WSAP. The credit will also be adjusted for:

- The overall percentage reduction in retail water demand
- The member agency's dependence on Metropolitan

The credit is calculated using the following formula:

Conservation Demand Harding Credit = Conservation Savings x (10% + Regional Shortage Level Percentage) x (1 +((Baseline GPCD – Allocation Year GPCD)/Baseline GCPD)) x Dependence on MWD Percentage

[16] California Department of Water Resources, February 2011, "Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use. Available at: http://www.water.ca.gov/wateruseefficiency/sb7/docs/MethodologiesCalculatingBaseline_Final_03_01_2011.pdf

This provides a base demand hardening credit equal to 10 percent of conservation savings and increases the credit as deeper shortages occur, which is when conservation demand hardening has a bigger impact on the retail consumer. The credit also increases based on the percentage of an agency's demand that was reduced through conservation. This accounts for increased hardening that occurs as increasing amounts of conservation are implemented. Lastly, the credit is scaled to the member agency's dependence on Metropolitan to ensure that credits are being applied to the proportion of water demand that is being affected by reductions in Metropolitan supply.

Minimum Per-Capita Water Use Credit: This adjustment creates a minimum per capita water use threshold. Member agencies' retail-level water use is compared to two different thresholds. The proposed minimum thresholds are based upon compliance guidelines established under Senate Bill X7-7.

- 100 GPCD total water use
- 55 GPCD residential water use

Agencies that fall below either threshold under the WSAP will receive additional allocation from Metropolitan to bring them up to the minimum GPCD water use level. If an agency qualifies under both thresholds, the one resulting in the maximum allocation adjustment will be given.[17] To qualify for this credit, member agencies must provide documentation of the total agency level population and the percent of retail level demands that are residential; no appeal is necessary.

Total WSAP Allocation: The allocation to an agency for its M&I retail demand is the sum of the Wholesale Minimum Allocation, the Retail Impact Adjustment, the Conservation Demand Hardening Credit, and the Minimum Per-Capita Water Use Credit.[18]

Total Metropolitan Supply Allocations: In addition to the WSAP Allocation described above, agencies may also receive separate allocations of supplies for and seawater barrier and groundwater replenishment demands. Allocations of supplies to meet seawater barrier demands are to be determined by the Board of Directors independently but in conjunction with the WSAP. Separating the seawater barrier allocation from the WSAP allocation allows the Board to consider actual barrier requirements in the Allocation Year and address the demand hardening issues associated with cutting seawater barrier deliveries. According to the principles outlined for allocating seawater barrier demands, allocations should be no deeper than the WSAP Wholesale Minimum Percentage implemented at that time.

The WSAP also provides a limited allocation for drought-impacted groundwater basins based on the following framework:[19]

[17] See Appendix J: Per Capita Water Use Minimum Example for specific minimum per-capita water use credit formulae and example.
[18] See Appendix G: Water Supply Allocation Formula Example for specific allocation formulae.
[19] See Appendix L: Groundwater Replenishment Allocation for more information.

1. Metropolitan staff will hold a consultation with the requesting member agency and the appropriate groundwater basin manager to document whether the basin is in one of the following conditions:
    a. Groundwater basin overdraft conditions that will result in water levels being outside normal operating ranges during the WSAP allocation period; or
    b. Violations of groundwater basin water quality and/or regulatory parameters that would occur without imported deliveries
2. An allocation is provided based on the verified need for groundwater replenishment. The allocation would start with a member agency's ten-year average purchases of imported groundwater replenishment supplies (excluding years in which deliveries were curtailed). The amount would then be reduced by the declared WSAP Regional Shortage Level.

Section 5: WSAP Implementation

The WSAP will take effect if a regional shortage is declared by the Board of Directors. The following implementation elements are necessary for administering the WSAP during a time of shortage. These elements cover the processes needed to declare a regional shortage level as well as provide information pertaining to the allocation surcharge.

Allocation Period

The allocation period covers twelve consecutive months, from July of a given year through the following June. This period was selected to minimize the impacts of varying State Water Project (SWP) allocations and to provide member agencies with sufficient time to implement their outreach strategies and rate modifications.

Setting the Regional Shortage Level

Metropolitan staff is responsible for recommending a Regional Shortage Level for the Board of Directors' consideration. The recommendation shall be based on water supply availability, and the implementation of Metropolitan's water management actions as outlined in the WSDM Plan. Metropolitan staff will keep the Board of Directors apprised to the status of water supply conditions and management actions through monthly reports to the Water Planning and Stewardship Committee. To further facilitate staff in the development of a recommended regional shortage level, member agency requests for local supply adjustments shall be submitted by April 1st.

Metropolitan's Board of Directors, through the Water Planning and Stewardship Committee, is responsible for approving the final Regional Shortage Level at its April meeting. By the April meeting, the majority of the winter snowfall accumulation period will have passed and will allow staff to make an allocation based on more stable water supply estimates. Barring unforeseen large-scale circumstances, the Regional Shortage Level will be set for the entire allocation period, which will provide the member agencies an established water supply level for their planning.

Exit Strategy

While the Board ultimately has discretion to implement or lift and allocation at any point of time during the year; the WSAP includes a two-part exit strategy that is meant to streamline the WSAP implementation decision making process.

- If the Board decides to implement the WSAP, then any current WSAP allocation would remain in place until the end of the Allocation Year.
- If the Board decides not to implement the WSAP, then any current WSAP allocation would be terminated concurrent with the Board decision.

Allocation Appeals Process

An appeals process is necessary for the administration of any changes or corrections to an agency's allocation. Metropolitan's General Manager will designate, subsequent to a declaration of an allocation by the Board of Directors, an Appeals Liaison as the official point of contact for all information and inquiries regarding appeals. All member agency General Managers will be notified in writing of the name and contact information of the Appeals Liaison. Only appeals that are made through the Appeals Liaison and in accordance with the provisions outlined in Appendix N: Allocation Appeals Process will be evaluated. Basis for appeals claims can include but are not limited to:

- Adjusting erroneous historical data used in base period calculations
- Adjusting for population growth rates
- Determining if a local supply qualifies as Extraordinary Supply

Additional details and a checklist for the appeals process are available in Appendix N: Allocation Appeals Process and Appendix O: Appeals Submittal Checklist.

Allocation Surcharge

Member agency allocations are supported by an Allocation Surcharge. The Allocation Surcharge is charged to water use above the Member Agency allocation and is charged in addition to Metropolitan's standard rates for water service. Allocation Surcharges will only be assessed to the extent that an agency's total annual usage exceeds its total annual allocation. Any revenues collected through the Allocation Surcharge will be applied towards Metropolitan's Water Management Fund, which is used to in part to fund expenditures in dry-year conservation. No billing or assessment of allocation surcharges rates will take place until the end of the twelve-month allocation period.

Allocation Surcharge: The application of the Allocation Surcharge structure is a two tier structure that provides a lower level of Allocation Surcharge for minor overuse of allocations and a higher level of Allocation Surcharge for major overuse of allocations. The structure and applicable Allocation Surcharges are listed in Table 2.

Table 2: Allocation Surcharge			
Water Use	**Base Water Rate[20]**	**Allocation Surcharge[21]**	**Total Rate**
100% of Allocation	Tier 1	0	Tier 1
Between 100% and 115%	Tier 1	$1,480	Tier 1 + ($1,480)
Greater than 115%	Tier 1	$2,960	Tier 1 + ($2,960)

Qualifying Income-Based Rate Allocation Surcharge Adjustment:[22] Any Allocation Surcharges incurred by a member agency under the WSAP will be adjusted to reflect the extent to which retail customers within a member agency's service area are served under a "lifeline" or similar qualified discounted rate program based on income or ability to pay ("Income-Based Rate").

Any member agency who is assessed Allocation Surcharges under the WSAP may submit an acre-foot equivalent of water used by retail customers served under a qualifying Income-Based Rate.[23] This amount of water use would be multiplied by the percentage of retail-level reduction in allocation year demand necessary for that member agency to avoid exceeding its WSAP allocation. The monetary amounts resulting from these acre feet are subtracted from the total monetary amounts incurred by an agency for exceeding its allocation. In the case that the monetary amounts associated with the Income-Based Rate are greater than the total Allocation Surcharges an agency incurs, no Allocation Surcharges will be incurred. The end result of this adjustment is that the member agency will not be subject to Allocation Surcharges for the use of water by their retail customers served under a qualifying Income-Based Rate.

Growth Rate Allocation Surcharge Adjustment": In recognition of member agency differences in geography and climate, a Growth Rate Allocation Surcharge Adjustment will be given to any agency that exceeds its WSAP Allocation. The Allocation Surcharge reduction will be based on the difference in acre-feet between the Growth Adjustment applied at Metropolitan's IRP planning goal rate, and the greater of the following:

- The IRP planning goal rate adjusted for the member agency's ETo, or
- The member agency's certified and documented 20x2020 targeted GPCD

If both of these alternatives result in a lower growth adjustment than the IRP planning goal, no Allocation Surcharge reduction will be made.

[20] The base water rate shall be the applicable water rate for the water being purchased. In most cases, it will be the Tier 1 rate (plus Treatment Surcharge for treated water deliveries). However, it is possible that the water being purchased would be in the amount that would put an agency beyond its Tier 1 limit. In that case, the base water rate will be the Tier 2 rate (plus Treatment Surcharge for treated water deliveries).

[21] Allocation Surcharge is applied to water use in excess of an agency's WSAP allocation.

[22] See Appendix K: Qualifying Income-Based Rate Allocation Surcharge Adjustment Example for specific penalty adjustment formulae and example.

[23] Appropriate documentation and certification will be required.

Tracking and Reporting

Subsequent to a declared regional shortage by the Board of Directors, Metropolitan staff will produce monthly reports of each member agency's water use compared to its allocations based on monthly delivery patterns to be submitted by the member agency. In order to produce these reports, member agencies are requested to submit their local supply use on a monthly basis and certify end of allocation year local supply use. These reports and comparisons are to be used for the purposes of tracking and communicating potential underage/overage of an agency's annual allocations.

Key Dates for Water Supply Allocation Implementation

The timeline for implementation of an allocation is shown in Table 3. A brief description of this timeline follows:

January to March: Water Surplus and Drought Management reporting occurs at Metropolitan's Water Planning and Stewardship Committee meetings. These reports will provide updated information on storage reserve levels and projected supply and demand conditions.

April: Member agencies report their projected local supplies for the coming allocation year. This information is incorporated in staff analysis of storage reserves and projected supply and demand conditions in order to provide an allocation recommendation to the Board. Metropolitan's Board will consider whether an allocation is needed. A declaration of an allocation will include the level of allocation to be in effect for the allocation year. Likewise, member agencies will report their projected demands and local supplies needed to meet seawater barrier and groundwater replenishment requirements for the allocation year. Metropolitan's Board will consider whether allocations for seawater barrier demands and groundwater replenishment demands are needed independently from the WSAP allocation decision.**July 1st**: If the Board declared an allocation in April, then it will be effective starting July 1st. The allocation level will be held through June 30th, barring unforeseen circumstances. Member agencies will now be requested to submit their local supply use on a monthly basis and certify end of allocation year local supply use. Local production data must be reported to Metropolitan by the end of the month following the month of use (use in July must be reported by the end of August). This information will be combined with Metropolitan sales information in order to track retail water use throughout Metropolitan's service area. Each month Metropolitan will report on member agency water sales compared to their allocation amounts.

June 30th: The allocation year is complete.

July: Member agency local supplies must be certified for the month of June, the last month of the previous allocation year.

August: Metropolitan will calculate each member agency's total potable water use based on local supply certifications and actual sales data for the allocation year of July through June. Allocation surcharges will be assessed for usage above a given member agency's final adjusted allocation (reflecting the actual local supply and imported water use that occurred in the allocation year).

Table 3: Board Adopted Allocation Timeline					
Year	**Month**	**Year 1 Board Decision**	**Year 1 Allocation Year**	**Year 2 Board Decision**	**Year 2 Allocation Year**
Year 1	January				
	February				
	March				
	April	Declaration *			
	May				
	June				
	July		**Effective Period** Continuous Tracking of Member Agency Local Supply and Imported Water Use		
	August				
	September				
	October				
	November				
	December				
Year 2	January				
	February				
	March				
	April			Declaration *	
	May				
	June				
	July				**Effective Period** Continuous Tracking of Member Agency Local Supply and Imported Water Use
	August		Assess		
	September				
	October				
	November				
	December				
Year 3	January				
	February				
	March				
	April				
	May				
	June				

*Member agency projections of local supplies are due on April 1st to assist Metropolitan staff in determining the need for an allocation in the coming allocation year.

Appendix A: Metropolitan Member Agencies

Table 4: Member Agencies		
City of Anaheim	City of Glendale	City of San Marino
City of Beverly Hills	Inland Empire Utilities Agency	City of Santa Ana
City of Burbank	Las Virgenes MWD	City of Santa Monica
Calleguas MWD	City of Long Beach	Three Valleys MWD
Central Basin MWD	City of Los Angeles	City of Torrance
City of Compton	MWD of Orange County	Upper San Gabriel MWD
Eastern MWD	City of Pasadena	West Basin MWD
Foothill MWD	San Diego CWA	Western MWD
City of Fullerton	City of San Fernando	

Source: http://mwdh2o.com/WhoWeAre/Member-Agencies/

Appendix B: Water Supply Allocation Plan Process Timeline

July 2007

- City of Long Beach Water Department staff briefing
- Member Agency Managers/Member Agency Workgroup meeting
- Northern Managers Group meeting
    - Foothill MWD, City of Pasadena, City of Long Beach, Calleguas MWD, City of Los Angeles, West Basin MWD, City of Burbank, Three Valleys MWD, City of Glendale, Upper San Gabriel MWD

August 2007

- Central Basin MWD staff briefing
- Eastern MWD staff briefing
- San Diego CWA staff briefing
- Member Agency Managers/Member Agency Workgroup meeting
- Western MWD staff briefing
- City of Beverly Hills staff briefing

September 2007

- Member Agency Subgroup meetings
    - MWD of Orange County, San Diego CWA, West Basin MWD, Central Basin MWD
- MWD of Orange County staff briefing
- Member Agency Workgroup meeting
- Member Agency Workgroup meeting
- MWD Board of Directors Oral Report

October 2007

- Inland Empire Utilities Agency staff briefing
- Central Basin MWD Caucus Meeting (included sub-agencies)
- Three Valleys MWD staff briefing
- MWD of Orange County staff briefing
- West Basin MWD staff briefing
- MWD Board of Directors Oral Report

November 2007

- West Basin MWD Caucus Meeting (included sub-agencies)
- West Basin Water Users Association presentation
- Walnut Valley MWD staff briefing (sub-agency of Three Valleys MWD)
- Foothill MWD Managers Meeting (included sub-agencies)
- Central Basin MWD staff briefing
- City of Claremont City Council (sub-agency of Three Valleys MWD)
- MWD Board of Directors Information Letter with Draft Proposal

December 2007

- Northern Managers Group Meeting
- California Department of Public Health staff briefing
- City of Long Beach Water Department staff briefing
- Santa Ana River Watershed Project Authority presentation
- Foothill MWD Managers Meeting (included sub-agencies)
- MWD Board of Directors Oral Report

January 2008

- Northern Managers Group Meeting
- Water Replenishment District Board of Directors presentation
- Three Valleys MWD staff briefing
- Member Agency Conservation Coordinator's Group presentation
- Member Agency Managers/Member Agency Workgroup meeting
- City of Chino Hills presentation (sub-agency of IEUA)
- Member Agency Workgroup meeting
- Hemet/San Jacinto Exchange Club presentation
- MWD Board of Directors Report with Staff Recommended Water Supply Allocation Plan

February 2008

- MWD of Orange County and Irvine Ranch WD staff briefing
- MWD Board of Directors Action Item
- San Gabriel Valley Water Association Meeting
- Orange County Water Policy Meeting
- SCAG Water Policy Task Force Meeting

Appendix C: 12-Month Review Process and Results

January 2010

- WSAP 12-Month Review Process workshop #1
  - Focused discussion of WSAP issues identified by Metropolitan staff and by member agencies since the July 2009 implementation began.

February 2010

- WSAP 12-Month Review Process workshop #2
  - Continuation of focused discussion
- WSAP 12-Month Review Process workshop #3
  - Continuation of focused discussion

March 2010

- WSAP 12-Month Review Process workshop #4
  - Continuation of focused discussion
- MWD Board of Directors information item
  - Review of potential modifications to the WSAP definition of Extraordinary Supply

April 2010

- WSAP 12-Month Review Process workshop #5
  - Recap of identified issues and discussion of Metropolitan staff proposals for adjustments to the WSAP
- Member Agency Managers Meeting
  - Update on the 12-Month Review Process
- WSAP 12-Month Review Process workshop #6
  - Discussion of WSAP issues related to groundwater replenishment
- Member Agency Managers conference call
  - Clarification of WSAP definition for Extraordinary Supply

May 2010

- Member Agency Managers Meeting
  - Discussion of proposed Extraordinary Supply policy principles and WSAP Local Supply certification process.
- Member Agency Managers conference call
  - Discussion of proposed Extraordinary Supply policy principles

June 2010

- MWD Board of Directors action item

July 2010

- MWD Board of Directors information item
  - Review of proposed adjustments to the WSAP developed in the 12-Month Review Process

August 2010

- MWD Board of Directors action item

Resulting Changes

- Removed references to Gains and Losses of Local Supply
    - Removed references in the WSAP to "gains and losses of local supplies" in order to better facilitate the accounting of historical base year and allocation year local supplies. This change did not affect the WSAP formula or allocations.
- Removed references to the Regional Shortage Percentage
    - Removed references to the "Regional Shortage Percentage" in the WSAP to reduce unintended confusion between calculation factors and shortage amounts. This change did not affect the WSAP formula or allocations.
- Included the Retail Impact Adjustment in all shortage levels
    - Included the Retail Impact Adjustment for Regional Shortage Levels 1 and 2. This change results in additional allocations to Metropolitan-dependent agencies under Level 1 and Level 2 regional shortages.
- Revised the accounting of Extraordinary Supplies
    - Revised the methodology for accounting of Extraordinary Supply in the WSAP formula by:
        - Removing the Base Period Local Supply threshold provision,
        - Removing the sliding-scale sharing mechanism from the formula, and
        - Including the full amount of the Extraordinary Supply in the calculation of the Retail Impact Adjustment.
- Included a Minimum Per Capita Water Use Threshold
    - Developed a minimum water use credit based on two GPCD water use thresholds. Member agencies would receive additional Metropolitan allocation for an acre-foot equivalent of GPCD below the minimum threshold. Member agency water use, on a gallon per capita per day (GPCD) basis, is compared to the following minimum thresholds established under Senate Bill X7-7 (Water Conservation Act of 2009)
        - 100 GPCD total use or
        - 55 GPCD residential indoor use
- Excluded Seawater Barrier from the WSAP Formula
    - Excluded seawater barrier supplies from the WSAP Base Period and Allocation Year local supply calculations. This allows the Board to determine allocations for seawater barrier demands separately from the WSAP.

Appendix D: Three-Year Review Process and Results

February 2011

- WSAP 3-Year Review Process workshop #1
  - Review of the existing WSAP policy formula; review of the process timeline; and focused discussion of WSAP issues identified by Metropolitan staff and by member agencies since the WSAP's adoption in February 2008

March 2011

- WSAP 3-Year Review Process workshop #2
  - Discussion of issues related to local supplies and baseline inflation due to adjustments for recycling in the WSAP formula
- WSAP 3-Year Review Process workshop #3
  - Continuation of prior workshop

April 2011

- WSAP 3-Year Review Process workshop #4
  - Discussion of issues and alternatives related to base period selection and baseline inflation in the WSAP formula
- WSAP 3-Year Review Process workshop #5
  - Discussion of recommendations to address baseline inflation in the WSAP formula

May 2011

- WSAP 3-Year Review Process workshop #6
  - Discussion of issues and alternatives for the growth adjustment methodology in the WSAP formula
- WSAP 3-Year Review Process workshop #7
  - Continuation of prior workshop

June 2011

- WSAP 3-Year Review Process workshop #8
  - Continuation of prior workshop, discussion of WSAP implementation exit strategy
- WSAP 3-Year Review Process workshop #9
  - Continuation of exit strategy discussion, discussion of baseline inflation due to conservation and related conservation demand hardening issues

July 2011

- WSAP 3-Year Review Process workshop #9
  - Continued discussion of baseline inflation and conservation issues, and discussion of sharing allocations between agencies with common local resources

August 2011

- WSAP 3-Year Review Process workshop #10
  - Discussion of WSAP Allocation Year timing vs. Tier 1-Tier 2 rate cycle timing, discussion of approaches for encouraging completion of WSAP local supply certifications
- Review WSAP at Member Agency Managers Meeting
  - Discussion of proposed WSAP adjustments to address baseline inflation issues, revise the growth adjustment methodology, and establish a WSAP exit strategy

September 2011

- MWD Board of Directors action item

Resulting Changes

- Baseline Inflation Adjustment
    - Removed non-potable recycling and conservation from the WSAP baseline
        - Increases in recycling and conservation will be subtracted annually from the Base Period forward
        - The annual population growth rate will be applied after deducting the annual increases in recycling and conservation
        - If an agency ends up in allocation penalty, a penalty reduction will be applied in an amount equal to the Code-Based and rate Structure conservation savings that were removed from the WSAP baseline
- Changed the Growth Adjustment methodology
    - Growth will be allocated at historical per capita rate capped at the 2010 Integrated Water Resource Plan (IRP) Target for Water Use Efficiency
        - For years up to and including 2014, the cap will be 163 GPCD
        - For years 2015-2020, the cap will reduce linearly from 163 to 145 GPCD
    - If an agency exceeds its allocation, a penalty reduction will be applied based on either:
        - The differential Evapotranspiration (ETo) of its service area compared to the MWD average, or
        - Certified and documented 20 x 2020 targeted GPCD
- Exit Strategy
    - Clarified the course of action for an existing WSAP allocation when Metropolitan's Board makes a declaration decision for the following WSAP year
        - If there is an allocation for the next year, then the current allocation stays in place
        - If there is no allocation for the next year, then the current allocation is lifted concurrent with the April decision

Appendix E: 2014 Review Process and Results

July 2014

- WSAP Workgroup Meeting #1
  - First meeting of the 2014 WSAP Review process; review of the existing WSAP policy and formula; review of the process timeline; began discussion of issues related to base period selection
- WSAP Workgroup Meeting #2
  - Discussion of base period selection

August 2014

- WSAP Workgroup Meeting #3
  - Continuation of prior workshop discussion; comparison of base period alternatives

September 2014

- WSAP Workgroup Meeting #4
  - Discussion of a base period proposal; discussion of replenishment issues in the WSAP; discussion of 2015 water supply scenarios
- Review WSAP at Member Agency Managers Meeting
  - Review of WSAP workgroup process; discussion on issues related to base period, demand hardening, and local resources development
- WSAP Workgroup Meeting #5
  - Review of base period recommendation; discussion of issues regarding agencies in mandatory conservation during a base period; discussion on replenishment in the WSAP

October 2014

- WSAP Workgroup Meeting #6
  - Continuation of prior workshop discussion; discussion of alternative methods for conservation demand hardening credit; discussion of new and existing local supplies
- Review WSAP at Member Agency Managers Meeting
  - Review of WSAP workgroup process; discussion of issues related to base period and demand hardening

November 2014

- WSAP Workgroup Meeting #7
  - Review and discussion of issues and potential methods for base period selection and adjustment, replenishment allocation, and conservation demand hardening credit; review of estimated effects of potential WSAP changes at the regional level
- WSAP Workgroup Meeting #8
  - Review of proposed recommendations for the WSAP based on workgroup discussion
- Review WSAP at Member Agency Managers Meeting
  - Review of proposed recommendations for the WSAP based on workgroup discussion

Resulting Changes

- Base Period Update to FY2013 and FY2014
    - Changed the WSAP Base Period from calendar years 2004-2006 to fiscal years ending July 2013 and 2014
    - Mandatory Conservation Adjustment
        - Agencies with mandatory conservation in effect during the base period (FY 2013 and/or FY 2014) may qualify for a demand hardening adjustment, adjustment is subject to a consultation process that includes consideration historical demand and GPCD information

- Modify Conservation Demand Hardening Credit
    - Replaced device calculation-based estimates of conservation savings with a GPCD-based method
        - Conservation savings are calculated by comparing GPCD from a historical baseline to the Allocation Year; the difference is converted to acre-feet using the Allocation Year population.
            - Baseline GCPD is 10-year average ending between 2004 and 2010, with gross water, using gross water use minus non-potable recycled water production and documented historical population
    - Replaced formula for calculating the credit for each Regional Shortage Level
    - Conservation Demand hardening credit will be based on an initial 10 percent of GPCD-based conservation savings plus an additional 5 percent for each level of Regional Shortage; the credit will also be adjusted for the overall percentage reduction in retail water demand and the member agency's dependence on Metropolitan.
- Allocation Surcharge
    - Replaced the WSAP Penalty Rate with an Allocation Surcharge based on the estimated cost of Turf Replacement conservation programs

Appendix F: Summary of Historical Shortage Plans

These five elements incorporated into the WSAP have, in four out of five instances, been used in previous shortage plans. Both the IICP and the 1995 DMP used a historical base period calculation, adjusted for growth, made local supply adjustments, and used conservation hardening credits in their formulations. The retail impact adjustment is the only feature of the WSAP that has not been used historically.

Table 5: Historical Shortage Plan Overview

Plan Element	1991 IICP	1995 DMP	WSAP
Historical Base Period	√	√	√
Growth Adjustment	√	√	√
Local Supply Adjustment	√	√	√
Conservation Hardening Credit	√	√	√
Retail Impact Adjustment			√

Appendix G: Water Supply Allocation Formula Example

The following example gives a step-by-step description of how the formula would be used to calculate an allocation of Metropolitan supplies for a hypothetical member agency. All numbers are hypothetical for the purpose of the example and do not reflect any specific member agency.

Step 1: Calculate Base Period Retail Demand

Base Period Local Supplies: Calculated using a two-year average of groundwater (gw), groundwater recovery (gwr), Los Angeles Aqueduct supply (laa), surface water (sw), seawater desalination (sd), and other non-Metropolitan imported supplies (os). For the purpose of this example, assume that the two year average is 59,000 af.

$$[(gw1+gwr1+laa1+sw1+sd1+os1) + (gw2+gwr2+laa2+sw2+sd2+os2)] \div 2 = 59{,}000 \text{ af}$$

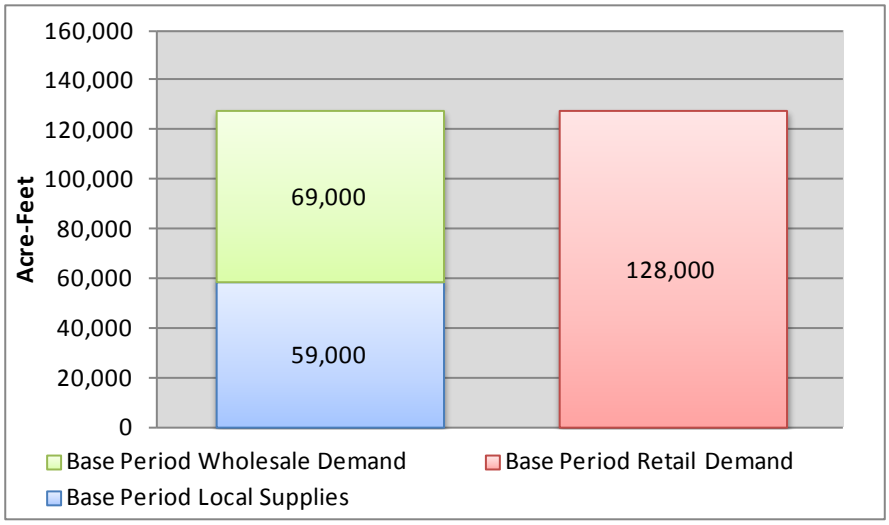
Base Period Wholesale Demands: Calculated using the same two-year time period as the Base Period Local Supplies. The Base Period Wholesale Demands include firm purchases (fp) and in-lieu deliveries to long-term groundwater replenishment (il), conjunctive use (cup), cyclic (cyc), and supplemental storage programs (ss). For the purpose of this example, assume that the two year average is 69,000 af.

$$[(fp^1 + + il^1 + cup^1 + cyc^1 + ss^1) + (fp^2 + il^2 + cup^2 + cyc^2 + ss^2)] \div 2 = 69{,}000 \text{ af}$$

Base Period Retail Demands: Calculated as the sum of the Base Period Local Supplies and Base Period Wholesale Demand.

$$59{,}000 + 69{,}000 = 128{,}000 \text{ af}$$

Figure 1: Base Period Retail Demand Calculation



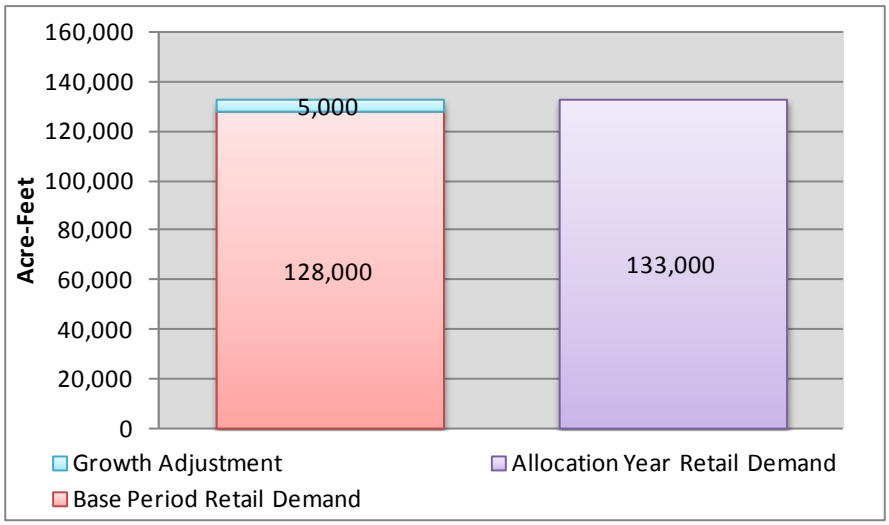
Calculate Adjustment for Base Period Mandatory Rationing (if applicable): The hypothetical agency used in this example is assumed not to qualify for the Base Period Mandatory Rationing Adjustment. A detailed discussion of the adjustment methodology can be found in Appendix I: Base Period Rationing Adjustment Example.

Step 2: Calculate Allocation Year Retail Demand

Allocation Year Retail Demand: Calculated by adjusting the Base Period Retail Demand for any baseline inflation and growth that occurred since the Base Period.

128,000 af + 5,000 af (net adjustment to retail demand) = 133,000 af

Figure 2: Allocation Year Retail Demand Calculation



Step 3: Calculate Allocation Year Wholesale Demand

Allocation Year Local Supplies: Estimates of Allocation Year Local Supplies are provided by the member agencies upon implementation of a WSAP. If estimates are not provided, Metropolitan will use the sum of the Base Period Local Supplies and Base Period In-Lieu Deliveries as a default. Agencies may provide updated estimates at any time during the Allocation Year to more accurately reflect their demand for Metropolitan supplies. For this example assume that the Allocation Year Local Supplies total 65,000 acre-feet.

Allocation Year Local Supplies = 65,000 af

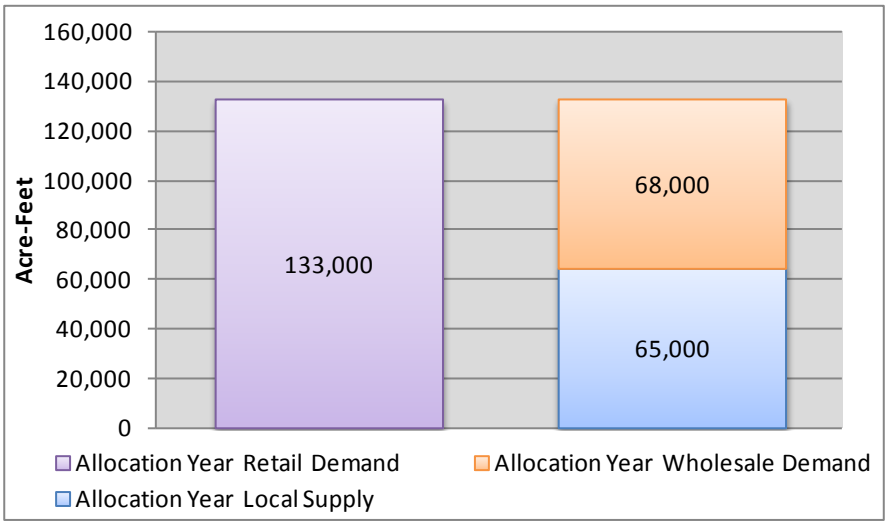
For this example assume also that this agency has an additional 5,000 acre-feet of supplies that meet the determinations for Extraordinary Supply. These supplies are withheld from the allocation formula except for in calculating the Retail Impact Adjustment Allocation.

Extraordinary Local Supplies = 5,000 af

Allocation Year Wholesale Demands: Calculated by subtracting the Allocation Year Local Supplies (65,000 af) from the Allocation Year Retail Demands (133,000 af).

133,000 af - 65,000 af = 68,000 af

Figure 3: Allocation Year Wholesale Demand Calculation



Step 4: Calculate the Wholesale Minimum Allocation

Wholesale Minimum Percentage: Calculate from Table 1 for Regional Shortage Level 4.

Table 1: Shortage Allocation Index		
(a) Regional Shortage Level	(b) Wholesale Minimum Percentage	(c) Maximum Retail Impact Adjustment Percentage
4	70.0%	10.0%

Wholesale Minimum Allocation: Calculated by multiplying the agency's Allocation Year Wholesale Demand (68,000 af) by the Wholesale Minimum Percentage (70%) from the Table 1 for Regional Shortage Level 4.

68,000 af * 70% = 47,600 af

Step 5: Calculate the Retail Impact Adjustment Allocation

Maximum Retail Impact Adjustment Percentage: Calculate from Table 1 for Regional Shortage Level 4.

Retail Impact Adjustment Allocation: Calculated first by determining the agency's dependence on Metropolitan by dividing the Allocation Year Wholesale Demand (68,000 af) minus the Extraordinary Supply (5,000 af) by the Allocation Year Retail Demand (133,000 af) and multiplying by 100.

[(68,000 af - 5,000 af)/ 133,000 af] * 100 = 47%

Next, this percentage dependence on Metropolitan (47%) is multiplied by the Maximum Retail Impact Percentage for Shortage Level 4 (10%).

47% * 10% = 4.7%

This percentage is now multiplied by the Allocation Year Wholesale Demand (68,000 af) for the Retail Impact Adjustment Allocation.

68,000 af * 4.7% = 3,221 af

Step 7: Calculate the Conservation Demand Hardening Adjustment

Calculate Baseline GPCD: To estimate conservation savings, each member agency will establish a historical baseline GPCD calculated in a manner consistent with California Senate Bill SBx7-7, using a 10 or 15-year average ending between 2004 and 2010, using gross water use minus non-potable recycle water production and documented historical population. For this example assume that the Baseline GPCD is 154 GPCD

Baseline GPCD = 154 GPCD

Calculate Allocation Year GPCD: Next, calculate the allocation year GPCD by converting the Allocation Year Retail Demand to GPCD and dividing by the Allocation Year Population from the WSAP. For this example the Allocation Year Retail Demand is 133,000 AF (see Step 2 above) and assume the Allocation Year Population is 905,000 persons. The resulting GPCD is 131 GPCD.

Allocation Year GPCD = 133,000 af/year * 325,851 gallons/af ÷ 365 days/year ÷ 905,000 persons = 131 GPCD

Calculate Reduction in GPCD: Subtract Allocation Year GPCD from Baseline GPCD to determine the GPCD Reduction.

GPCD Reduction = 154 GPCD – 131 GPCD = 23 GPCD

Calculate Conservation Savings: Convert the GPCD Reduction to the equivalent annual conservation savings in acre-feet, using the Allocation Year Population.

$$\text{Conservation Savings} = \frac{(\text{GPCD Reduction}) \times 365 \text{ days/yr} \times \text{Population}}{325{,}851 \text{ gallons/af}}$$

Conservation Savings = 23 x 365 x 905,000 ÷ 325,851 = 23,316 af

Multiply by Regional Shortage Level Percentage: Multiply the Conservation Savings by 10 percent plus an additional 5 percent for each level of Regional Shortage (see Step 4 above). This example assumes a Regional Shortage Level of 4. This scales the hardening credit by the level of regional shortage, thereby increasing the credit as deeper shortages occur when demand hardening has a larger impact on the retail consumer.

23,316 af x (10% + (4 x 5%) = 6,995 af

Multiply by Conservation Savings Percentage: Next, multiply by the percentage of an agency's demand that was reduced through conservation. This scales the hardening by the total percentage reduction to recognize that increased hardening occurs as increasing amounts of conservation are implemented.

Conservation Savings Percentage = 1 + ((Baseline GPCD – Allocation Year GPCD)/Baseline GPCD)

Conservation Savings Percentage = 1+ ((154 GPCD – 131 GPCD)/154 GPCD) = 115%

6,995 af x 115% = 8,044 af

Multiply by Dependence on MWD: Next, multiply by the agency's percentage dependence on MWD as shown in Step 5 above. This scales the credit to the member agency's dependence on MWD to ensure that credits are being applied to the proportion of water demand that is being affected by reductions in MWD's supply. For this example, dependence on MWD is 47%.

8.044 af x 47% = 3,781 af

Summary: The Conservation Demand Hardening Adjustment calculation is summarized by the following formula:

Conservation Demand Hardening Adjustment = Conservation Savings x (10% + Regional Shortage Level %) x (1+Conservation%) x Dependence on MWD %

Conservation Demand Hardening Adjustment = 23,316 af x (10% + (4 x 5%)) x (115%) x (47%) = 3,781 af

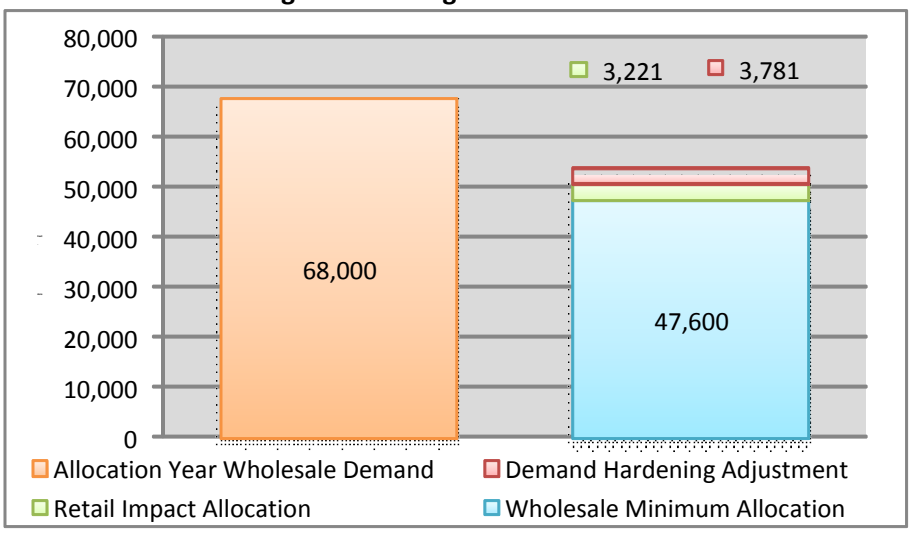
Step 8: Calculate the Low Per-Capita Adjustment Allocation: The hypothetical agency used in this example is assumed not to qualify for the Low Per-Capita Adjustment. A detailed discussion and example of the Low Per-Capita Adjustment calculation can be found in Appendix J: Per Capita Water Use Minimum Example.

Step 9: Calculate the total WSAP Allocation

WSAP Allocation: Calculated by adding the Wholesale Minimum Allocation (47,600 af), the Maximum Retail Impact Adjustment (3,221 af), the Demand Hardening Adjustment (3,781 af), and the Low Per-Capita Adjustment (0 af).

47,600 af + 3,221 af + 3,781 af + 0 af = 54,602 af

Figure 4: WSAP Allocation Regional Shortage Level 4



Step 10: Calculate total retail level reliability

Retail level reliability: Calculated by adding the WSAP Allocation (54,602 af), the Allocation Year Local Supply (65,000 af) and the Extraordinary Local Supply (5,000 af) and dividing by the Allocation Year Retail Demand (133,000 af).

(54,602 af + 65,000 af + 5,000 af) ÷ 133,000 af = 93.7%

Total Metropolitan Supply Allocations: In addition to the WSAP Allocation described above, agencies may also receive separate allocations of supplies for groundwater replenishment and seawater barrier demands. More information on the groundwater replenishment allocation is located in Appendix L: Groundwater Replenishment Allocation.

Appendix H: Board Policy Principles on Determining the Status of Extraordinary Supply

At the June 8, 2010 Water Planning and Stewardship Committee meeting Metropolitan's Board of Directors adopted the following policy principles to guide staff in determining the Extraordinary Supply status of future member agency supply programs.

No Negative Impacts to Other Member Agencies

A potential Extraordinary Supply for a member agency should not decrease the amount of Metropolitan water supply that would be available to the other member agencies in a WSAP. Programs that utilize Metropolitan supplies as a primary or in-lieu source or as a means of payback or future replenishment may have the effect of decreasing supplies, available to other agencies, if designated as Extraordinary Supply.

Provides Supply in Addition to Existing Regional Supplies

A potential Extraordinary Supply should provide a water supply that increases the overall water supplies that are available to the region in a WSAP. A program that is designed to move existing regional supplies from year to year would not qualify.

Specifically Designed Program or Supply Action

A potential Extraordinary Supply must be intentionally created and operated to provide additional supply yield. Normal variations in existing and planned local supply programs would not qualify.

Intended for Consumptive Use in a WSAP

A potential Extraordinary Supply should be designed with the primary intention to deliver water supply to a member agency only at a time when Metropolitan is allocating supplies. Programs designed to deliver water on a regular basis would not qualify. Exceptions for reasonable use of a supply program for emergency or other extenuating local circumstances should be considered.

Fully Documented Resource Management Actions

A potential Extraordinary Supply should have a full description as to the source, transmission, distribution, storage, and delivery of the water supply.

These principles are intended to identify deliberate actions taken by member agencies to augment supplies only when Metropolitan is allocating supplies through the WSAP. Production from existing local supplies, programs that are operated on an ongoing basis, and incidental increases in water supply would not qualify as Extraordinary Supply. The intent of the Extraordinary Supply designation is to recognize programs and actions that are additive to the total regional water supply as the region continues to confront the water supply challenges from drought and regulatory conditions. To that end, any supply actions taken after the initial implementation of the WSAP in July 2009 that utilize Metropolitan supplies either as a primary source, or to refill or replenish an incurred obligation or deficit at a future date would not qualify as Extraordinary Supply.

Appendix I: Base Period Mandatory Rationing Adjustment

Agencies that were under mandatory water use restrictions during the Base Period may have water use that is lower due to the mandatory actions already taken. Without adjusting for this, those agencies could be required to enforce even higher levels of restrictions under an allocation than those agencies that had not started mandatory restrictions.

To qualify for a Base Period Mandatory Rationing Adjustment, the member agency must provide Metropolitan staff with the following information:

- Time period when the mandatory conservation was in effect; it must be in effect during the Base Period
- A statement, with documentation, of how drought restrictions comply with the following Mandatory Conservation qualifications:
    - Governing Body-authorized or enacted
    - Includes mandatory demand reduction actions, restrictions or usage limitations including penalty-backed water budgets
    - Enforced by assessing penalties, fines, or rates based upon violating restrictions or exceeding usage limitations
- If the agency in question is a retail subagency, then the retailer's base period water demands during the Base Period in order to determine proportion to the member agency's total demand
- Historical data to construct GPCD base and trend for the consultation

Calculating the Base Period Rationing Adjustment involves following steps:

- Use the Baseline GPCD 10 or 15-year period selected by member agency for the Conservation Demand Hardening Adjustment calculation.
- Interpolate from the GPCD value of the midpoint of the Baseline GPCD period to the average GPCD of the two years preceding the agency's mandatory conservation
- Extrapolate to the WSAP Base Period (FY2013 and FY2014)
- Calculate the difference between estimated and observed GPCD for FY2013 and FY2014
- Convert to Acre-Feet and add to the member agency's Base Period Retail Demands

Appendix J: Per-Capita Water Use Minimum Example

This adjustment creates a minimum per capita water use threshold. Member agencies' retail-level water use under the WSAP is compared to two different thresholds. The minimum water use levels are based on compliance guidelines for total and residential water use established under Senate Bill X7-7.

Total Retail Level Use: 100 GPCD
Residential Retail Level Use: 55 GPCD

Agencies that fall below either threshold under the WSAP would receive additional allocation from Metropolitan to bring them up to the minimum GPCD water use level. To qualify for this credit, member agencies must provide documentation of the total agency level population and the percent of retail level demands that are residential; no appeal is necessary.

The following example gives a step-by-step description of how the Low Per-Capita Water Use Adjustment would be calculated for a hypothetical member agency. All numbers are hypothetical for the purpose of the example and do not reflect any specific member agency. This example was calculated using the following assumptions:

Allocation Year Retail Demand: 50,000 acre-feet
Allocation Year Local Supplies: 25,000 acre-feet;
Allocation Year Wholesale Demand: 25,000 acre-feet
Base Period Conservation: 5,000 acre-feet
Agency Population: 375,000
Percent of Retail Demands that are Residential: 60%

Step 1: Calculate Total Retail-Level Allocation Year Supplies

Table 6 shows the Allocation Year Local Supply, WSAP Allocation, and the total Allocation Year Supplies for the example agency at each Regional Shortage Level. The WSAP Allocation was calculated using the methodology detailed in Appendix G: Water Supply Allocation Formula Example and the assumptions listed above.

Table 6: Total Retail Level Allocation Year Supplies			
Regional Shortage Level	**Allocation Year Local Supply**	**WSAP Allocation**	**Total Allocation Year Supply**
1	25,000	23,594	48,594
2	25,000	22,188	47,188
3	25,000	20,781	45,781
4	25,000	19,375	44,375
5	25,000	17,969	42,969
6	25,000	16,563	41,563
7	25,000	15,156	40,156
8	25,000	13,750	38,750
9	25,000	12,344	37,344
10	25,000	10,938	35,938

Step 2: Calculate the Equivalent Total and Residential GPCD

The next step is to calculate the equivalent water use in gallons per capita per day (GPCD) for the Total Allocation Year Supply. The following equation shows the GPCD calculation under Regional Shortage Level 10.

35,938 af * 325,851 gallons ÷ 375,000 people ÷ 365 days = 85.6 GPCD

The residential per-capita water use is calculated in the same manner. Based on the assumption that 60% of the agency demands are residential, the following equation shows the residential GPCD calculation under Regional Shortage Level 10.

35,938 af * 60% * 325,851 gallons ÷ 375,000 people ÷ 365 days = 51.3 GPCD

Step 3: Compare the Total and Residential GPCD to the Minimum Water Use Thresholds

The next step is to compare the total GPCD water use to the 100 GPCD total water use threshold. In a Regional Shortage Level 10, the WSAP results in an allocation that is 14.4 GPCD below the minimum threshold.

100 GPCD – 85.6 GPCD = 14.4 GPCD

Likewise the residential GPCD water use is compared to the 55 GPCD residential water use threshold.

55 GPCD – 51.3 GPCD = 3.7 GPCD

Step 4: Determine the Allocation Adjustment in Acre-Feet

The final step is to calculate the acre-foot equivalent of the GPCD that fell below the minimum threshold. In a Regional Shortage Level 10, the adjustment provides 6,068 acre-feet of additional allocation to the agency; the results for Shortage Levels 1-10 are shown in Table 7.

14.4 GPCD ÷ 325,851 gallons * 375,000 people * 365 days = 6,068 acre-feet

Table 7: Total Per-Capita Water Use Adjustment				
Regional Shortage Level	**Allocation Year Supply**	**Equivalent GPCD**	**GPCD Below Threshold**	**Allocation Adjustment**
1	48,594	115.7	0	0
2	47,188	112.3	0	0
3	45,781	109.0	0	0
4	44,375	105.6	0	0
5	42,969	102.3	0	0
6	41,563	98.9	1.1	443
7	40,156	95.6	4.4	1,849
8	38,750	92.3	7.7	3,255
9	37,344	88.9	11.1	4,662
10	35,938	85.6	14.4	6,068

Again, this step is repeated for the residential water use. In a Regional Shortage Level 10, the adjustment provides 1,540 acre-feet of additional allocation to the agency; the residential water use results for Regional Shortage Levels 1-10 are shown in Table 8.

3.7 GPCD ÷ 325,851 gallons * 375,000 people * 365 days = 1,540 acre-feet

Table 8: Residential Per-Capita Water Use Adjustment				
Regional Shortage Level	**Allocation Year Supply**	**Equivalent GPCD**	**GPCD Below Threshold**	**Allocation Adjustment**
1	29,156	69.4	0	0
2	28,313	67.4	0	0
3	27,469	65.4	0	0
4	26,625	63.4	0	0
5	25,781	61.4	0	0
6	24,938	59.4	0	0
7	24,094	57.4	0	0
8	23,250	55.4	0	0
9	22,406	53.3	1.7	697
10	21,563	51.3	3.7	1,540

Agencies that fall below either threshold under the WSAP would receive additional allocation from Metropolitan to bring them up to the minimum GPCD water use level. If an agency qualifies under both thresholds, the one resulting in the maximum allocation adjustment would be given. Under this example the agency would receive 6,068 acre-feet of additional allocation in a Regional Shortage Level 10.

Appendix K: Qualifying Income-Based Rate Allocation Surcharge Adjustment Example

The following example provides a step by step description of how the qualifying income-based rate allocation surcharge adjustment is calculated. To qualify for this adjustment, member agencies must provide documentation showing the amount of retail demands that are covered by a qualifying income-based rate; no appeal is necessary.

The following list summarizes the allocation year demands, local supplies, and allocation as calculated in Appendix G: Water Supply Allocation Formula Example for a hypothetical agency under a Level 4 Regional Shortage. For detailed instructions on how to calculate these figures, reference Appendix G: Water Supply Allocation Formula Example.

Allocation Year Retail Demand: 133,000 acre-feet
Allocation Year Local Supplies: 68,000 acre-feet;
Level 4 WSAP Allocation: 52,735 acre-feet

Step 1: Allocation Surcharge Calculation

(a) Water Use above Allocation: The first step in calculating the income-based rate Allocation Surcharge adjustment is to calculate the agency's total Allocation Surcharge under the WSAP. If the agency did not incur any Allocation Surcharge from the allocation year, the income-based rate allocation surcharge adjustment would not apply. For the purpose of this example, the agency used 61,000 acre-feet of MWD supplies in the allocation year. This represents 8,265 acre-feet of use above the water supply allocation.

WSAP Allocation	52,735 af
Actual MWD Water Use	61,000 af
Use Above WSAP Allocation	8,265 af

(b) Total Allocation Surcharge: In this example the agency used 115.7% of its water supply allocation. 7,910 of the 8,265 acre-feet of use above the allocation would be assessed the Allocation Surcharge at an amount of $1,480 per acre-foot and 354 of the 8,265 acre-feet of use above the allocation would be assessed the Allocation Surcharge at an amount of $2,960.

Between 100% and 115% of Allocation	7,910 af	$1,480/af	$11,706,800
Greater than 115% of Allocation	354 af	$2,960/af	$1,047,840
Total	8,265 af		$12,754,640

Step 2: Effective Income-Based Rate Cutback

(a) Calculate Retail Cutback: The second step in calculating the income-based rate allocation surcharge adjustment is to calculate the amount of supply cutback that would have been expected from qualifying income-based rate customers under the WSAP. Using the water supply allocation that was calculated above, the total retail level impact on the agency can be

determined. In this example the agency receives a retail level cutback of 15,265 acre-feet, or 11.5% of their retail level demand.

WSAP Allocation + Allocation Year Local Supplies	117,735 af
Allocation Year Retail Demand	133,000 af
Effective Cutback	**15,265 af (11.5%)**

(b) Income-based Rate Customer Retail Cutback: To calculate the effective income-based rate cutback, the amount of demand covered by a qualifying income-based rate is multiplied by the effective retail level cutback. For this example assume that the agency has 10,000 acre-feet of qualifying demands.

Qualifying Income-Based Rate Demand	10,000 af
Effective Cutback Percentage	11.5%
Effective Income-Based Rate Cutback	**1,148 af**

(c) Income-based Rate Cutback Allocation Surcharge: Once the effective cutback has been calculated, the amount of Allocation Surcharge that is associated with qualifying income-based rate customers can be determined.

Between 100% and 115% of Allocation	794 af	$1,480/af	$1,175,120
Greater than 115% of Allocation	354 af	$2,960/af	$1,047,840
Total	**1,148 af**		**$2,222,960**

(d) Adjusted Allocation Surcharge Calculation: Finally, the Allocation Surcharge attributable to qualifying income-based rate customers is subtracted from the total Allocation Surcharge that was calculated above to determine the qualifying income-based rate adjusted allocation surcharge. In the case that the monetary amounts associated with the Income-Based Rate are greater than the total amounts an agency incurs, no Allocation Surcharge will be incurred.

Total Allocation Surcharge	$12,754,640
Qualifying Income-Based Rate Allocation Surcharge	$2,222,960
Qualifying Income-Based Rate Adjusted Allocation	**$10,531,680**

Appendix L: Groundwater Replenishment Allocation

Groundwater basins help provide vital local supplies that can buffer the region from short-term drought impacts. Longer droughts can result in reductions to the many sources of water that replenish groundwater basins, resulting in lower basin levels and potential impacts to the overlying consumptive demands. Limited imported deliveries under these conditions may help avoid impacts to the basins that may be drawn out of their normal operating range or subject to water quality or regulatory impacts. To this end, Metropolitan provides a limited allocation for drought impacted groundwater basins based on the following framework:

a) Staff hold a consultation with qualifying member agencies who have taken groundwater replenishment deliveries since 2010 and the appropriate groundwater basin managers to document whether their basins are in one of the following conditions:
    i. Groundwater basin overdraft conditions that will result in water levels being outside normal operating ranges during the WSAP allocation period; or
    ii. Violations of groundwater basin water quality and/or regulatory parameters that would occur without imported deliveries.

b) Provide an allocation based on the verified need for groundwater replenishment. The allocation would start with a member agency's ten-year average purchases of imported groundwater replenishment supplies (excluding years in which deliveries were curtailed). The amount would then be reduced by the declared WSAP Regional Shortage Level (5 percent for each Regional Shortage Level).

c) Any allocation provided under this provision for drought impacted groundwater basins is intended to help support and maintain groundwater production for consumptive use. As such, a member agency receiving an allocation under this provision will be expected to maintain groundwater production levels equivalent to the average pumping in the Base Period. Any adjustments to a member agency's M&I allocation due to lower groundwater production would be reduced by deliveries made under this provision.

d) Agencies for which this allocation does not provide sufficient supplies for the needs of the groundwater basin may use the WSAP Appeals Process to request additional supply (subject to Board approval). The appeal should include a Groundwater Management Plan that documents the need for additional supplies according to the following tenets:
    i. Maintenance of groundwater production levels;
    ii. Maintenance of, or reducing the further decline of, groundwater levels;
    iii. Maintenance of key water quality factors/indicators;
    iv. Avoidance of permanent impacts to groundwater infrastructure or geologic features; and
    v. Consideration of severe and/or inequitable financial impacts.

Final amounts and allocations will be determined following the consultations with groundwater basin managers and member agencies.

Appendix M: Water Rates, Charges, and Definitions

Table 9: Water Rates and Charges Dollars per acre-foot (except where noted)			
Rate	**Effective 1/1/2014**	**Effective 1/1/2015**	**Effective 1/1/2016**
Tier 1 Supply Rate	$148	$158	$156
Tier 2 Supply Rate	$290	$290	$290
System Access Rate	$243	$257	$259
Water Stewardship Rate	$41	$41	$41
System Power Rate	161	$126	$138
Tier 1	$593	$582	$594
Tier 2	$735	$714	$728
Treatment Surcharge	$297	$341	$348
Full Service Treated Volumetric Cost			
Tier 1	$890	$923	$942
Tier 2	$1,032	$1,055	$1,076
Readiness-to-Serve Charge (millions of dollars)	$166	$158	$153
Capacity Charge (dollars per cubic foot second)	$8,600	$11,100	$10,900

Definitions:

(1) **Tier 1 Supply Rate -** recovers the cost of maintaining a reliable amount of supply.

(2) **Tier 2 Supply Rate** - set at Metropolitan's cost of developing additional supply to encourage efficient use of local resources**.**

(3) **System Access Rate** – recovers a portion of the costs associated with the delivery of supplies.

(4) **System Power Rate** – recovers Metropolitan's power costs for pumping supplies to Southern California.

(5) **Water Stewardship Rate** – recovers the cost of Metropolitan's financial commitment to conservation, water recycling, groundwater clean-up and other local resource management programs.

(6) **Treatment Surcharge** – recovers the costs of treating imported water.

(7) **Readiness-to-Serve Charge -** a fixed charge that recovers the cost of the portion of system capacity that is on standby to provide emergency service and operational flexibility.

(8) **Capacity Charge** – the capacity charge recovers the cost of providing peak capacity within the distribution system.

Source: http://www.mwdh2o.com/WhoWeAre/Management/Financial-Information

Appendix N: Allocation Appeals Process

Step 1: Appeals Submittal

All appeals shall be submitted to the Appeals Liaison in the form of a written letter signed by the member agency General Manager. Each appeal must be submitted as a separate request, submittals with more than one appeal will not be considered. The appeal request is to include:

- A designated member agency staff person to serve as point of contact.
- The type of appeal (erroneous baseline data, loss of local supply, etc.).
- The quantity (in acre-feet) of the appeal.
- A justification for the appeal which includes supporting documentation.

A minimum of 60 days are required to coordinate the appeals process with Metropolitan's Board process.

Step 2: Notification of Response and Start of Appeals Process

The Appeals Liaison will phone the designated member agency staff contact within 3 business days of receiving the appeal to provide an initial receipt notification, and schedule an appeals conference. Subsequent to the phone call, the Liaison will send an e-mail to the Agency General Manager and designated staff contact documenting the conversation. An official notification letter confirming both receipt of the appeal submittal, and the date of the appeals conference, will be mailed within 2 business days following the phone contact

Step 3: Appeals Conference

All practical efforts will be made to hold an appeals conference between Metropolitan staff and member agency staff at Metropolitan's Union Station Headquarters within 15 business days of receiving the appeal submittal. The appeals conference will serve as a forum to review the submittal materials and ensure that there is consensus understanding as to the spirit of the appeal. Metropolitan staff will provide an initial determination of the size of the appeal (small or large) and review the corresponding steps and timeline for completing the appeals process.

Steps 4-7 of the appeals process differ depending upon the size of the appeal

Small Appeals

Small appeals are defined as those that would change an agency's allocation by less than 10 percent, or are less than 5,000 acre-feet in quantity. Small appeals are evaluated and approved or denied by Metropolitan staff.

Step 4: Preliminary Decision

Metropolitan staff will provide a preliminary notice of decision to the member agency within 10 business days of the appeals conference. The preliminary decision timeline may be extended to accommodate requests for additional information, data, and documentation. The Appeals Liaison will mail a written letter to the member agency staff contact and General Manager, stating the preliminary decision and the rationale for approving or denying the appeal.

Step 5: Clarification Conference

Following the preliminary decision the Appeals Liaison will schedule a clarification conference. The member agency may choose to decline the clarification conference if they are satisfied with the preliminary decision. Declining the clarification conference serves as acceptance of the preliminary decision, and the decision becomes final upon approval by Metropolitan's executive staff.

Step 6: Final Decision

Metropolitan staff will provide a final notice of decision to the member agency within 10 business days of the clarification conference, pending review by Metropolitan's executive staff. The Appeals Liaison will mail a written letter to the member agency staff contact and General Manager, stating the final decision and the rationale for the decision. A copy of the letter will also be provided to Metropolitan executive staff.

Step 6a: Board Resolution of Small Appeal Claims

Member agencies may request to forward appeals that are denied by Metropolitan staff to the Board of Directors through the Water Planning and Stewardship Committee for final resolution. The request for Board resolution shall be submitted to the Appeals Liaison in the form of a written letter signed by the member agency General Manager. This request will be administered according to Steps 6 and 7 of the large appeals process.

Step 7: Board Notification

Metropolitan staff will provide a report to the Board of Directors, through the Water Planning and Stewardship Committee, on all submitted appeals including the basis for determination of the outcome of the appeal.

Large Appeals

Large appeals are defined as those that would change an agency's allocation by more than 10 percent, and are larger than 5,000 acre-feet. Large appeals are evaluated and approved or denied by the Board of Directors.

Step 4: Preliminary Recommendation

Metropolitan staff will provide a preliminary notice of recommendation to the member agency within 10 business days of the appeals conference. The preliminary decision timeline may be extended to accommodate requests for additional information, data, and documentation. The Appeals Liaison will mail a written letter to the member agency staff contact and General Manager, stating the preliminary recommendation and the rationale for the recommendation. A copy of the draft recommendation will also be provided to Metropolitan executive staff.

Step 5: Clarification Conference

Following the preliminary recommendation the Appeals Liaison will schedule a clarification conference. The member agency may choose to decline the clarification conference if the satisfied with preliminary recommendation. Declining the clarification conference signifies acceptance of the preliminary recommendation, and the recommendation becomes final upon approval by Metropolitan's executive staff.

Step 6: Final recommendation

Metropolitan staff will provide a final notice of recommendation to the member agency within 10 business days of the clarification conference, pending review by Metropolitan executive staff. The Appeals Liaison will mail a written letter to the member agency staff contact and General Manager, stating the final recommendation and the rationale for the recommendation. A copy of the final recommendation will also be provided for Metropolitan executive review.

Step 7: Board Action

Metropolitan staff shall refer the appeal to the Board of Directors through the Water Planning and Stewardship Committee for approval.

Appendix O: Appeals Submittal Checklist

Appeal Submittal

- ☐ Written letter (E-mail or other electronic formats will not be accepted)
- ☐ Signed by the Agency General Manager

Mailed to the appointed Metropolitan Appeals Liaison

Contact Information

- ☐ Designated staff contact
  - o Name
  - o Address
  - o Phone Number
  - o E-mail Address
- ☐ General Manager
  - o Name
  - o Address
  - o Phone Number
  - o E-mail Address

Type of Appeal

- ☐ State the type of appeal
  - o Erroneous historical data used in base period calculations
    - Metropolitan Deliveries
    - Local Production
    - Growth adjustment
    - Conservation savings
  - o Exclusion of physically isolated areas
  - o Extraordinary supply designation
  - o Groundwater Replenishment Allocation
  - o Base Period Mandatory Rationing Adjustment
  - o Other

Quantity of Appeal

- ☐ State the quantity in acre-feet of the appeal

Justification and Supporting Documentation

- ☐ State the rationale for the appeal
- ☐ Provide verifiable documentation to support the stated rationale
  - o Examples of verifiable documentation Include, but are not limited to:
    - Billing Statements
    - Invoices for conservation device installations
    - Basin Groundwater/Watermaster Reports
    - California Department of Finance economic or population data
    - California Department of Public Health reports

ATTACHMENT C

Resolution XXXX

RESOLUTION
OF THE BOARD OF DIRECTORS
OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the Urban Water Management Planning Act requires urban water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt, in accordance with prescribed requirements, a water shortage contingency plan; an

WHEREAS, the Urban Water Management Planning Act specifies the requirements and procedures for adopting such Water Shortage Contingency Plans;

WHEREAS, the Urban Water Management Planning Act requires urban water suppliers to conduct an annual water supply and demand assessment (Annual Assessment) each year and to include in their water shortage contingency plans the procedures they use to conduct the Annual Assessment;

WHEREAS, the procedures used to conduct an Annual Assessment include, but are not limited to, the written decision-making process that an urban water supplier will use each year to determine its water supply reliability;

WHEREAS, The Metropolitan Water District of Southern California's (Metropolitan's) water shortage contingency plan provides that by June of each year, Metropolitan staff will present a completed Annual Assessment for approval by Metropolitan's Board of Directors or by the Board's authorized designee with expressly delegated authority for approval of Annual Assessment determinations;

and

WHEREAS, the Board of Directors of The Metropolitan Water District of Southern California has duly reviewed, discussed, and considered such Water Shortage Contingency Plan and has determined the Water Shortage Contingency Plan to be consistent with the Urban Water Management Planning Act and to be an accurate representation of the planned actions during shortage conditions for The Metropolitan Water District of Southern California.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of The Metropolitan Water District of Southern California that, on May XX, 20XX, this District hereby adopts this Water Shortage Contingency Plan for submittal to the State of California and expressly authorizes the General Manager of The Metropolitan Water District of Southern California to approve the Annual Assessment each year.

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California, at its meeting held on May XX, 20XX.

_____

Secretary of the Board of Directors of
The Metropolitan Water District of
Southern California

Attachment H.2 – Water Supply Shortage Memorandum

H.2

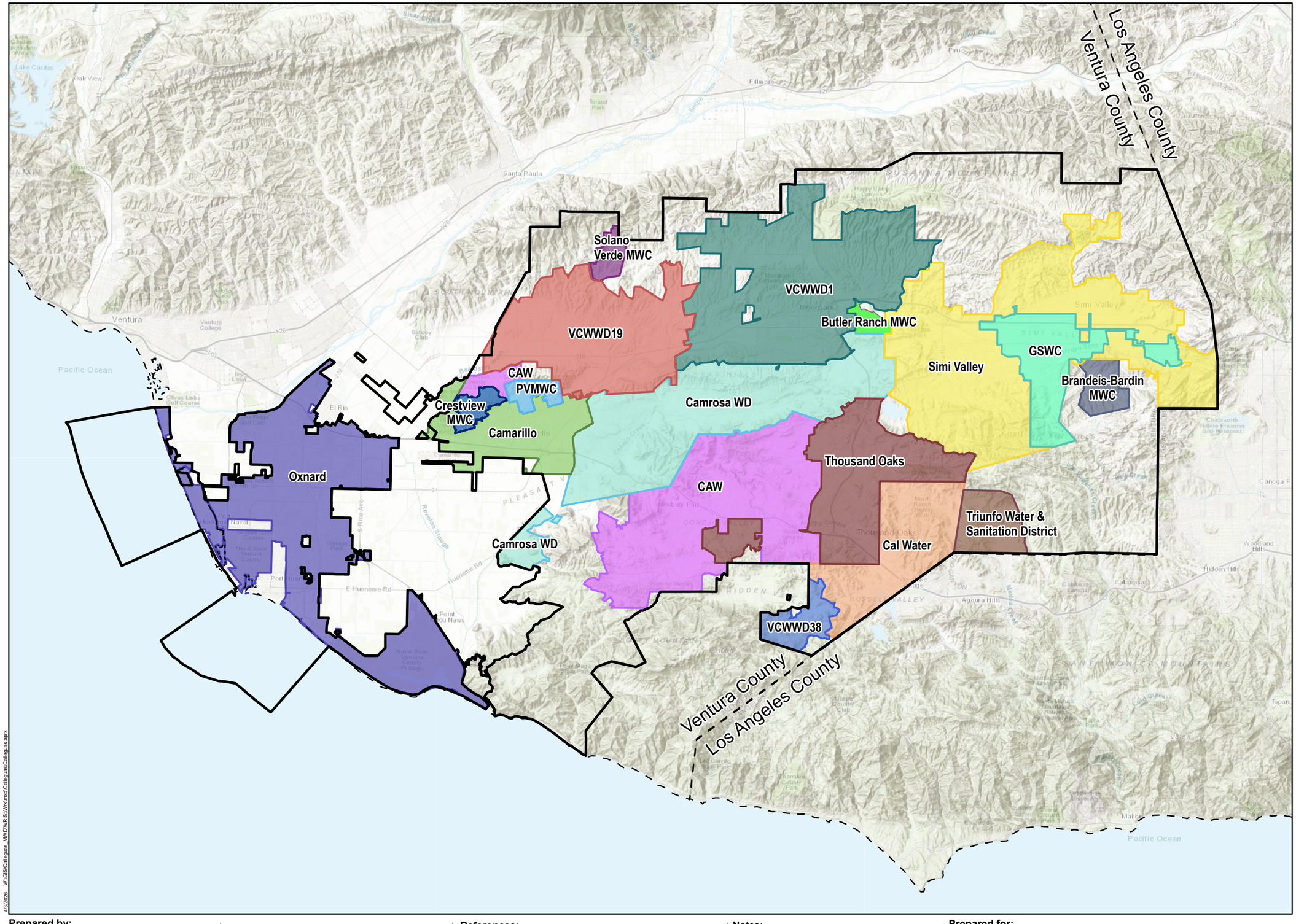
Public Draft Technical Memorandum

Date:	5/6/2026
To:	Jennifer Lancaster Manager of Water Resources
Client	Calleguas Municipal Water District
Prepared By:	Heather Freed, PE, Cason Roberts, EIT
Reviewed By:	Rob Morrow, PE
Project	2025 Urban Water Management Plan and Water Shortage Contingency Plan
Subject:	Public Draft Water Shortage Supply Plan

Calleguas Municipal Water District (Calleguas) provides high quality drinking water on a wholesale basis to 19 cities, local water agencies, county waterworks districts, investor-owned utilities, and mutual water companies (known collectively as purveyors) in southeastern Ventura County. The Calleguas service area, shown in Figure 1, spans from the City of Simi Valley in the east to the Cities of Oxnard and Port Hueneme in the west. The purveyors located in the Simi Valley and Thousand Oaks area (known as the Upper Zone), rely on imported water from Calleguas as their primary supply source and have limited to no local supply. Purveyors further west, including those in the Las Posas Valley, Pleasant Valley, and Oxnard Plain, are located in the Lower Zone and use a mix of groundwater and imported water from Calleguas to meet potable demands.

Calleguas receives primarily State Water Project (SWP) supplies from the Metropolitan Water District of Southern California (Metropolitan). Historically, SWP supplies have been reliable until the most recent droughts. The 2012 to 2016 and 2021 to 2022 statewide droughts resulted in severe SWP reductions resulting in significant water shortages to Calleguas and its purveyors. Additionally, Calleguas only has a single direct connection to receive supply from Metropolitan at its East Portal and that water is conveyed into Calleguas's service area via the Santa Susana Tunnel. If there was an earthquake or other disaster that damaged the Santa Susana Tunnel or other critical water supply facilities, Calleguas could lose access to its supply for a period of time.

While Calleguas has made recent investments to improve water supply reliability and resilience in the region and is working toward their strategic goal of "A New Model for Resilience" for the service area, imported water shortages and outages continue to be a risk for the region. A water supply shortage or imported water outage impacts purveyors differently depending on their reliance on imported supplies.



Legend

- Calleguas Municipal Water District Service Area
- County Boundary

Retail Water Purveyors

- Brandeis-Bardin Mutual Water Company
- Butler Ranch Mutual Water Company
- California American Water Company
- California Water Service Company
- Camrosa Water District
- City of Camarillo
- City of Oxnard
- City of Simi Valley
- City of Thousand Oaks
- Crestview Mutual Water Company
- Golden State Water Company
- Pleasant Valley Mutual Water Company
- Solano Verde Mutual Water Company
- Ventura County Waterworks District No. 1
- Ventura County Waterworks District No. 19
- Ventura County Waterworks District No. 38
- Triunfo Water & Sanitation District

4/9/2026 W:\GIS\Calleguas_MWD\WRSM\Wk\mxd\Calleguas\Calleguas.aprx

Prepared by: WSC

N

0 1 2 4 Mi

0 5,000 10,000 20,000 US Feet

References:

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:
Overlying agricultural purveyors and sub-agencies of purveyors are not illustrated.

Prepared for: CALLEGUAS MUNICIPAL WATER DISTRICT

2025 UWMP - Water Shortage Supply Plan

Figure 1. Retail Purveyors Served by Calleguas

This technical memorandum was prepared to support Calleguas's 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP). It describes Calleguas's projected supply reliability during a during a Normal Year, Single-Dry Year, and a Five Consecutive Dry Year Scenario as required for the UWMP. Additionally, this memorandum describes the impacts to Calleguas and the purveyors during a six-month imported water outage. This is intended to be a planning-level guide that purveyors can use to plan and prepare for water shortages. Calleguas encourages purveyors to reference this in their 2025 UWMP and WSCP updates.

1.0 Water Shortage Condition

As part of the 2025 UWMP, Calleguas coordinated with its purveyors to receive current and projected population, water demand, and water supplies, including imported water supply needs. Many of the purveyors are urban water suppliers and have prepared updated demand and supply projections considering expected population growth, planned investments in local supplies, water use trends, conservation regulations, and climate change. Many of the purveyors who are not urban water suppliers also provided their current projections. For non-urban water suppliers that did not have long term projections available[1], the average supply and demand over the last five years was assumed to be constant through 2050. This volume accounts for 4% of the total projected potable water sales.

Table 1 lists the projected total service area demand, local supplies, imported water sales, replenishment water, and recycled water demands through 2050.

[1] Non-urban water suppliers that did not have long-term projections available include California American Water – Las Posas District, Berylwood Heights Mutual Water Company, Butler Ranch Mutual Water Company, VCWWD No. 19, VCWWD No. 38, and Pleasant Valley Mutual Water Company.

Table 1. Actual (2025) and Projected (2030 – 2050) Demands (Acre-Feet per Year)

Use Type	2025	2030	2035	2040	2045	2050
Total Service Area Demand[1,2]	115,680	124,710	124,380	124,180	125,210	125,520
Local Groundwater[1,2]	35,320	43,710	41,740	40,720	39,870	39,060
Local Recycled Water[1,3]	7,620	8,300	8,560	9,060	9,570	10,070
Calleguas Imported Water Sales[1,4]	**72,740**	**72,700**	**74,090**	**74,380**	**75,770**	**76,390**
Replenishment Water[1,4]	760	650	650	650	650	650
Calleguas Total Potable Demand	**73,500**	**73,350**	**74,740**	**75,030**	**76,420**	**77,040**
Recycled Water Sales[1,5]	130	80	80	80	80	80
TOTAL	**73,630**	**73,430**	**74,820**	**75,110**	**76,500**	**77,120**

Notes:

1. All values are rounded to the nearest 10.
2. Local groundwater supply projections provided by purveyors. This includes potable groundwater, desalted groundwater, and non-potable groundwater resources.
3. Local recycled water supply projections provided by purveyors. This includes tertiary treated recycled water, non-potable surface water diverted from Conejo Creek, and future potable reuse.
4. Replenishment water projections are based on the 2021-2025 average net input to Lake Bard to account for evaporative losses.
5. Recycled water sales projections are based on the 2021-2025 average recycled water sales to Simi Valley.

Calleguas also coordinated with Metropolitan for imported water supply availability. Metropolitan's Draft 2025 UWMP projects it will have reliable supplies during a Normal, Single-Dry, and Five Consecutive Dry Year condition for the Calleguas service area (Metropolitan Water District of Southern California, 2025). However, Metropolitan's 2025 UWMP includes a single outcome approach while their 2020 Integrated Resource Plan (IRP), which is their most recent long-term, comprehensive water resources planning document, includes a wider range of scenarios of conditions than included in their UWMP assessment.

For more conservative planning, Calleguas's water reliability assessment in the 2025 UWMP relies on imported water projections developed for Calleguas's Water Resource Implementation Strategy (WRISt) rather than Metropolitan's 2025 UWMP assessment. The WRISt imported water projections were developed using Metropolitan's 2020 IRP reduced imported supply projections for the Calleguas service area, and incorporated Metropolitan's planned drought action and core supply projects. See Section 7.1.1.3 of Calleguas's 2025 UWMP for more information on the WRISt imported water supply projections used for the water reliability assessment (WSC, 2026).

Based on the projected demand on Calleguas (Table 1) and imported water supply projections developed for WRISt, Calleguas projects it will have reliable water supplies during a Normal Year, Single-Dry Year, and the first four years of a Five Consecutive Dry Year Scenario. In the fifth consecutive drought year, imported water supplies are projected to be insufficient to meet

the projected unconstrained demand. Calleguas would use its WSCP to guide actions to reduce demand ranging from 10% to 15% to match the available supply in the fifth year of a drought. In turn, purveyors would use their own WSCPs to implement the end-user demand management measures they have identified to achieve the required level of conservation. See Section 7.1.4 in the 2025 UWMP for more information on Calleguas's water reliability assessment.

Table 2 lists Calleguas's water supply reliability during each year type. The reliability is based on projected imported water demand. For example, for a purveyor with an imported water demand from Calleguas of 1,000 acre-feet per year (AFY), Calleguas projects it could meet 100% of that demand in all years except in the fifth year of a Five Consecutive Dry Year Scenario. In the fifth year of a drought, Calleguas projects it could meet 85% of demand (850 AFY) through 2050. Water supply reliability is projected to increase in the future because new local water supply projects are anticipated to come online to reduce imported water needs.

For the drought risk assessment, which focuses on a near term drought from 2026 through 2030, Calleguas utilizes Metropolitan's 2025 UWMP projections based on the 1988 to 1992 hydrology representing the driest five-consecutive year historic sequence for its water supply. These projections incorporate current conditions, including Metropolitan's existing storage balances. Metropolitan projects it will be able to meet Calleguas's imported water demand without any shortages for their drought risk assessment. See Section 7.2 of the 2025 UWMP for more information on the drought risk assessment.

Table 2. Calleguas Water Supply Reliability

Year Type	Source	2030	2035	2040	2045	2050
Normal Year	WRISt/ Met 2020 IRP Projections, Average imported water supply from 96 projections	100%	100%	100%	100%	100%
Single-Dry Year	WRISt/ Met 2020 IRP Projections, Minimum imported water supply during a single dry year from 96 projections	100%	100%	100%	100%	100%
Five Consecutive Dry Years						
1st Year	WRISt/ Met 2020 IRP Projections, Minimum imported water supply for five consecutive years from 96 projections	100%	100%	100%	100%	100%
2nd Year		100%	100%	100%	100%	100%
3rd Year		100%	100%	100%	100%	100%
4th Year		100%	100%	100%	100%	100%
5th Year		85%	85%	85%	85%	85%

Notes: Water supply reliability percentage is based on projected imported water demand.

2.0 Imported Water Outage Condition

In addition to the water supply assessment scenario required for the 2025 UWMP described above, Calleguas plans for a worst-case condition of a six-month imported water outage. This analysis leverages the Excel-based Projection Tool developed as part of Calleguas's WRISt to evaluate water supply portfolios for the Calleguas service area under varying demand, supply, and outage conditions. The Projection Tool simulates monthly operations during a six-month imported water system outage and balances water supplies and demand on a purveyor, pressure zone region, and service area-wide basis incorporating conveyance constraints and operational priorities. The Projection Tool assumes local supplies, including purveyor groundwater and recycled water supplies, are used first, and imported water or outage supplies during an outage scenario will be used to meet remaining demands. Under water shortage conditions, Calleguas-provided supplies are prioritized to meet minimum health and safety needs, with remaining supplies allocated proportionally across purveyors. During shortage and outage conditions, conservation requirements are quantified at the purveyor level.

The projected local supplies and demand by purveyors (Table 1) were input into the Projection Tool to simulate Calleguas's use of outage supplies and the conservation required under a six-month imported water outage scenario. The outage scenario was evaluated for 2026 and 2030 conditions. Calleguas has made significant investments in recent years to reduce system risk and improve resiliency during an imported water outage. While many outage projects have been completed, many other projects are expected to be completed by 2030. The 2026 condition is the most vulnerable before the completion of future outage projects. Additionally, multiple purveyors are projecting an increase in local supplies by 2030 which will further improve system resilience during an imported outage scenario.

2.1 2026 Outage Scenario

The 2026 outage scenario was developed using 2025 supply and demand provided by each purveyor. Table 3 lists the current Calleguas outage supplies included in the 2026 outage scenario. Calleguas has outage supplies that can supply up to 165.5 cubic feet per second (cfs). However, Lake Bard and the Las Posas Aquifer Storage and Recovery (ASR) Project are both limited by their storage volume.

Table 3. Near Term Outage Scenario- Outage Supplies

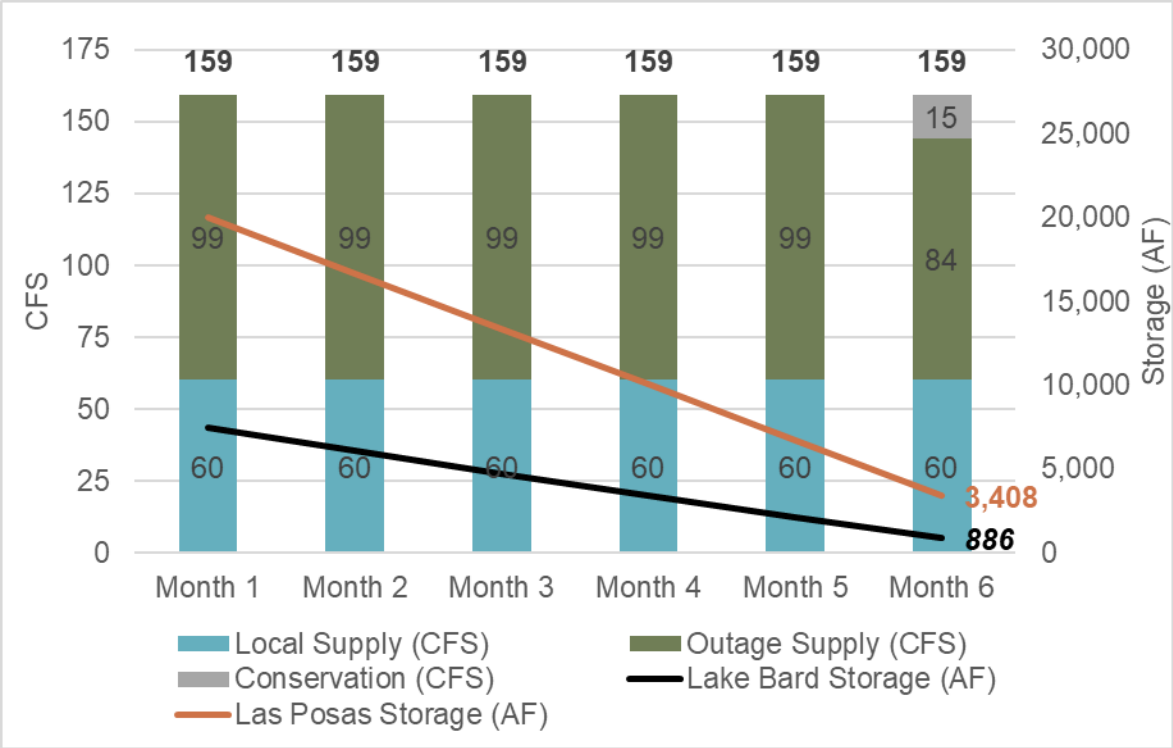
Outage Supply	Supply Capacity, cfs	Storage Volume, AF	Areas that can be served
Lake Bard	95	7,500	Entire System
Las Posas ASR Project	55	20,000	Entire System
Las Virgenes Interconnection	12.5	N/A	Triunfo Water and Sanitation District, Cal Water, and the City of Thousand Oaks and California American Water via the Lindero Reverse Flow Bypass
Crestview Interconnection	3	N/A	Crestview, City of Camarillo, California American Water-Las Posas (Camarillo), City of Oxnard, PHWA
Total	**165.5**	**27,500**	

Note: The minimum supply capacity for each outage project is assumed for conservative planning assumptions.

Figure 2 shows how local and outage supplies could be used during a six-month imported water outage in 2026. The figure shows the monthly supply use in cfs, including total local and outage supplies, used to meet the service area's demand, and the change in storage at Lake Bard and the Las Posas ASR Project as those supplies are used.

As storage volumes decline in Lake Bard and the Las Posas ASR Project, the available supply capacity is reduced to extend use of these supplies over the outage period. While this is not projected to occur for the Las Posas ASR Project, the supply capacity from Lake Bard is modeled to decline in month six due to its low storage volume. The restricted supply capacity from Lake Bard contributes to the reduced outage supply and the need for 15 cfs of conservation in month six shown in Figure 2.

Figure 2. Near Term Imported Water Outage



It is likely that Calleguas would call for conservation ahead of month six of an outage. Because the ability to meet all demands in month six is driven by supply limitations from Lake Bard due to a low storage volume, conservation would need to be sufficient to prevent the emptying of Lake Bard. Using the Projection Tool, it is estimated that Calleguas could meet water demand during a six-month imported water outage with a minimum 10% reduction in the service area's imported water demand with the existing outage supplies. Purveyors who only use imported water would need to reduce their demand by 10%, while purveyors with local supplies would be less impacted during the outage.

Figure 3 shows the use of supplies during a six-month outage with a 10% reduction in imported water demand (approximately 10 cfs conservation savings per month). Table 4 shows the water conservation required by each purveyor to meet a 10% imported water demand reduction. Purveyors that rely entirely on imported water are shown to need to meet the 10% conservation goal, while purveyors with local supplies have a lower conservation goal depending on their dependance on imported water.

Figure 3. Near Term Imported Water Outage, Mandatory 10% <u>Imported</u> Water Demand Reduction

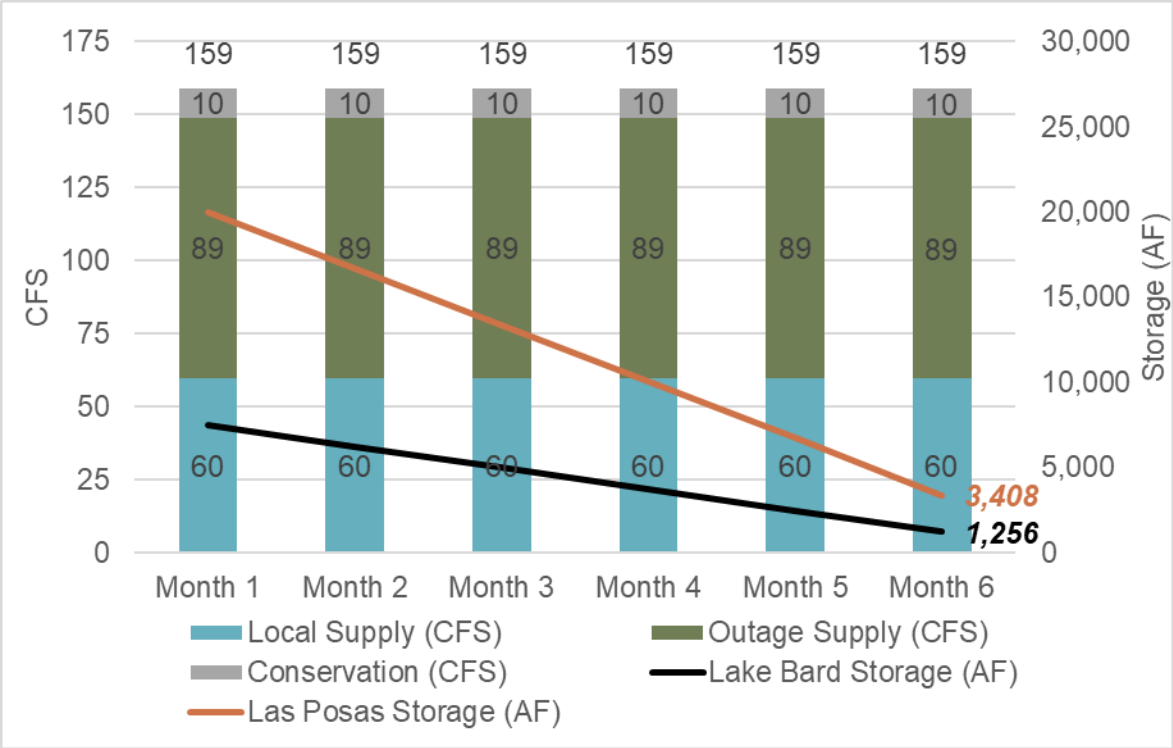


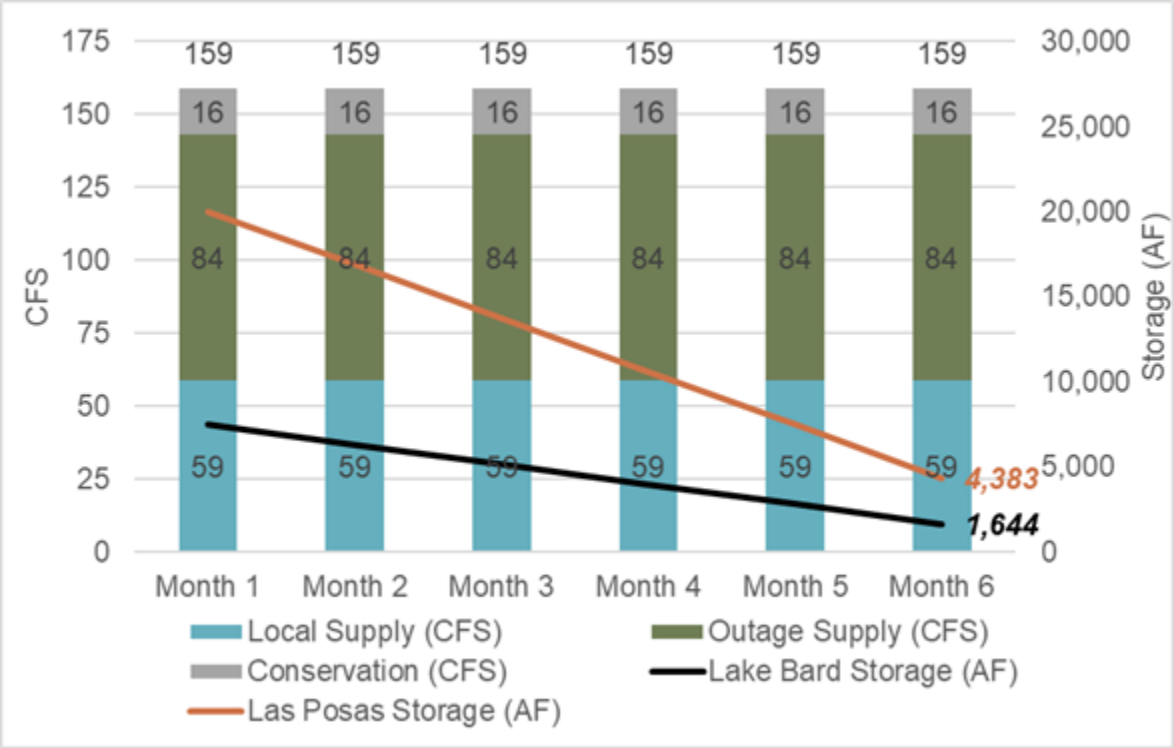
Table 4. Minimum Water Conservation by Purveyor to Achieve a 10% Reduction in Imported Water Demand

Purveyor	Minimum Conservation Needed to meet a 10% Reduction in Imported Water Demand
Berylwood Heights Mutual Water Company	0%
Brandeis-Bardin MWC	10%
Butler Ranch Mutual Water Company	0%
California American Water Company - Las Posas (Camarillo)	10%
California American Water Company - Ventura County District	10%
California Water Service Company (eastern Thousand Oaks)	10%
Camrosa Water District	3%
City of Camarillo	4%
City of Oxnard	4%
City of Thousand Oaks	10%
Crestview Mutual Water Company	1%
Golden State Water Company - Simi Valley	8%
Pleasant Valley Mutual Water Company	3%
Solano Verde Mutual Water Company	10%
Triunfo Water and Sanitation District	10%
VCWWD No. 1	8%
VCWWD No. 19	1%
VCWWD No. 38	10%
Waterworks District No. 8 - Simi Valley	10%
Zone Mutual Water Company	0%

Alternatively, Figure 4 shows the use of supplies with a 10% reduction in total water demand for all purveyors during a six-month outage. This reduction represents approximately 16 cfs of conservation savings on a monthly basis and is applied proportionally to each purveyor's baseline demand.

This scenario is provided to demonstrate how system operations and supply utilization could change if an overall demand reduction were applied to all purveyors. Calleguas's actions and any requests for conservation will be evaluated and tailored to the specific imported outage conditions at the time. In evaluating whether and how to seek demand reductions during an outage, Calleguas will consider potential tradeoffs, system flexibility, and the relative impacts to individual purveyors, and how different approaches may affect overall system operations during extended outages.

Figure 4. Near Term Imported Water Outage, Mandatory 10% Total Water Demand Reduction



2.2 2030 Outage Scenario

The 2030 outage scenario uses projected supply and demand for 2030 provided by each purveyor. Many purveyors project their imported water needs will decline by 2030 with investment in new local supplies. Additionally, Calleguas is projecting to have an additional 9.3 cfs (for a total of almost 175 cfs) of outage supplies online by 2030 and to be able to access all of Lake Bard's storage for potable use, as shown in Table 5.

Table 5. Near Term Outage Scenario - Outage Supplies

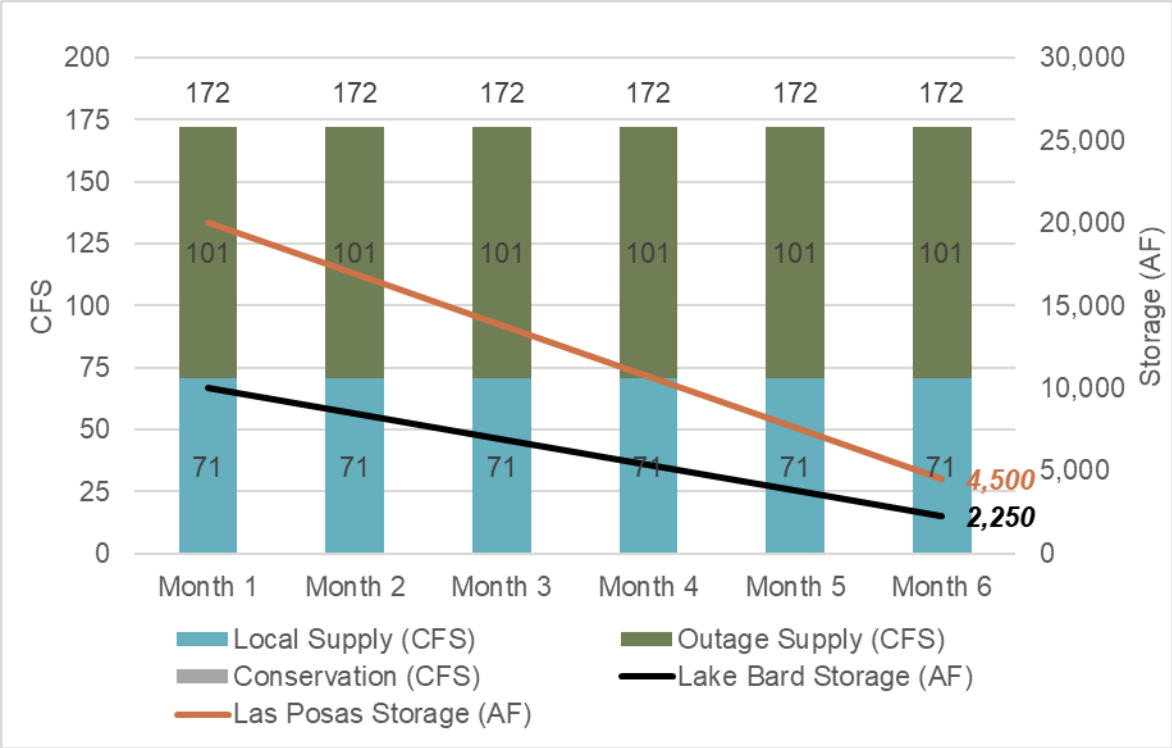
Outage Supply	Supply Capacity, cfs	Storage Volume, AF	Areas that can be served
Lake Bard	95	10,000	Entire System
Las Posas ASR Project	55	20,000	Entire System
Las Virgenes Interconnection	12.5	N/A	Triunfo Water and Sanitation District, Cal Water, and the City of Thousand Oaks and California American Water via the Lindero Reverse Flow Bypass
Crestview Interconnection	3	N/A	Crestview, City of Camarillo, California American Water-Las Posas (Camarillo), City of Oxnard
Ventura Interconnection	5	N/A	City of Oxnard, PHWA
Fairview Well	1.3	N/A	VCWWD No. 1
Total	**171.8**	**30,000**	

Note: The minimum supply capacity for each outage project is assumed for conservative planning assumptions.

Figure 55 shows the use of supplies to meet demand during a 2030 imported water outage scenario. The total water demands are projected to increase by 2030 (159 cfs to 173 cfs), but the imported water demand is projected to only increase slightly (99 cfs to 102 cfs in 2030) because purveyor local supplies are projected also to increase (60 cfs to 71 cfs in 2030).

As shown, the model predicts that, with planned local supply projects by the purveyors and Calleguas's planned outage projects, Calleguas could meet projected demands during a six-month imported water outage. The Projection Tool has limitations and may not fully capture infrastructure constraints such as the time it takes to begin using an outage supply, but it does indicate that by 2030 the region will be in a much better position to handle an imported water supply outage due to the investments by Calleguas and its purveyors.

Figure 5. 2030 Imported Water Scenario



Attachment H.3 – Calleguas Municipal Water District Ordinance 12

H.3

ORDINANCE NO. 12

AN ORDINANCE OF CALLEGUAS MUNICIPAL WATER DISTRICT
COVERING THE RULES AND REGULATIONS FOR WATER SERVICE
TO PURVEYORS WITHIN CALLEGUAS MUNICIPAL WATER DISTRICT, AS AMENDED

WHEREAS, Calleguas Municipal Water District ("District") is a public agency and special district created in 1953 by a vote of the electorate and organized pursuant to the Municipal Water District Act of 1911, as amended; and

WHEREAS, the District is a member agency of the Metropolitan Water District of Southern California ("Metropolitan"). Metropolitan is a consortium of 26 cities and water districts which cooperatively plan and manage water supply resources for approximately 19 million people in parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties; and

WHEREAS, the District's purpose is to provide a supplemental imported water supply to its service area in order to augment local water supplies for municipal, industrial, and agricultural users; and

WHEREAS, the District serves approximately 366 square miles within the southeast portion of Ventura County, including the cities of Simi Valley, Moorpark, Thousand Oaks, Camarillo, Oxnard, and Port Hueneme as well as the unincorporated areas of Oak Park, Santa Rosa Valley, Bell Canyon, Lake Sherwood, Somis, Las Posas Estates, Camarillo Heights, and Naval Base Ventura County through its Purveyors; and

WHEREAS, the Municipal Water District Act of 1911, as amended, enables the District to establish water rates it charges its Purveyors, for the purposes of paying operating expenses, providing for repairs and depreciation of works, providing a reasonable surplus, and paying interest on bonded debt, among other things; and

WHEREAS, the Board of Directors of the District (the "Board of Directors") by Ordinance No. 12, adopted July 21, 1971, established the rules, regulations and rates for water sold to its Purveyors; and

WHEREAS, the Board of Directors has determined that certain modifications to Ordinance No. 12 are necessary;

WHEREAS, the establishment, modification, and approval of rates or other charges by the District is exempt from CEQA pursuant to Public Resources Code 21080(b)(8)

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE CALLEGUAS MUNICIPAL WATER DISTRICT AS FOLLOWS:

SECTION 1. AUTHORITY. That, subject to all applicable provisions of the Municipal Water District Act of 1911, as amended, the following rules, regulations and rate structures governing the service of water to Purveyors by the District are hereby adopted and shall become effective on the date adopted by the Board of Directors.

SECTION 2. DEFINITIONS.

(a) "Board of Directors" or "Board" shall refer to the Board of Directors of the Calleguas Municipal Water District.

(b) "Capacity Charge" is a charge imposed on each Purveyor and designed to recover the cost of infrastructure to meet peaking and emergency demands.

(c) "Capacity Rate" is the rate at which the Capacity Charge is assessed.

(d) "District" shall mean the Calleguas Municipal Water District, duly organized under and by virtue of the Municipal Water District Act of 1911, as amended.

(e) "Domestic and Municipal purposes" shall mean the use of water for all domestic, municipal, commercial, industrial, and recreational purposes, commonly, but not exclusively, served by the water supply of the city, town, or other similar population group.

(f) "General Manager" shall refer to the General Manager of the Calleguas Municipal Water District.

(g) "High Flow Charge" is a charge for water, applied when a Purveyor's demand for water at a given service connection exceeds the established maximum rated flow capacity of that particular District service connection.

(h) "Low Flow Charge" is a charge for water, applied when a Purveyor's demand for water at a given service connection is more than zero but less than 10% of the established rated maximum flow capacity of that particular District service connection.

(i) "Purveyor" shall mean any city, municipal water district, county water district, county waterworks district, mutual water company, public or private utility and other public corporation, the corporate area of which, in whole or in part, is included in the District as a separate unit.

(j) "Minimum Maintenance Charge" is a charge intended to cover costs associated with service connection meter reading and processing for inactive service connections.

(k) "Pumping Charge" is a charge to a Purveyor intended to reimburse the District for electrical service costs incurred for the operation of District pump stations. The charge shall be assessed based on invoices to the District from the electrical service provider or as calculated by the District when the District is the electrical service provider.

(l) "Readiness-to-Serve Charge" is a charge intended to recover the principal and interest payments on Metropolitan's non-tax supported debt service that had been or would be issued to fund capital improvements necessary to meet the continuing reliability and water quality needs associated with current and projected demands.

(m) "Service Connection" shall mean all pipes, valves, meters and other necessary or usual appurtenances required for operation and measurement of water delivered from a District transmission pipeline to a Purveyor.

(n) "Temporary Service Connection" is a service connection for construction or other non-permanent purposes subject to all terms and conditions of a District operating agreement.

(o) "Temporary Water Rate" is the rate for water supplied to an entity other than a Purveyor at a Temporary Service Connection for construction or other short-term purposes clearly defined and approved in advance in writing by the General Manager.

(p) "Supply Rate" is a water rate for domestic and municipal water, set to recover supply costs, applicable to all water purchases.

SECTION 3. DOMESTIC AND MUNICIPAL WATER.

(a) Each Purveyor shall be obligated to pay for all water delivered to the Purveyor by the District at the appropriate rate as established annually by the Board of Directors.

(b) Not Used

(c) The Readiness-to-Serve Charge assessed by Metropolitan will be proportionally shared by the Purveyors based on the current 10 fiscal year rolling average of water purchases.

(d) A Capacity Charge shall be paid by each Purveyor annually based on the calculated total average flow rate that occurred during the Purveyor's peak week of water purchases from May 1 through September 30. The Capacity Charge will be determined in the second quarter of the calendar year during the annual rate setting process and calculated by using the prior calendar year's peak week. Each week shall begin on Tuesday. The charge shall be determined by multiplying the average flow as calculated in cubic feet per second (cfs) by the Capacity Charge as established by the Board of Directors. Payment shall be paid in 12 equal monthly installments starting in January of the following calendar year.

(e) Pumping charges associated with the delivery of water shall be passed through as a line item on the monthly water bill to the applicable Purveyors. If a District pump station delivers water to more than one Purveyor, the utility bills will be apportioned accordingly by the percentage of water purchased by the applicable Purveyors.

(f) The billing rate for water supplied to any entity at a Temporary Service Connection for construction or other short-term purposes clearly defined and approved in advance in writing by the General Manager shall be billed at the Temporary Water Rate as established by the Board of Directors. Temporary customers shall deliver to the District an executed copy of the District's "Application for Temporary Water Service" agreement and the deposit amount noted in the agreement prior to the commencement of temporary service. The entity shall be

subject to all terms and conditions as outlined in the agreement, including time and materials charges for installation, monthly maintenance, and removal of temporary service equipment. The deposit may be waived for contractors currently performing work under a contract with the District.

(g) When a Purveyor's demand for water at a given service connection exceeds the established maximum flow capacity of that particular District service connection, a High Flow Charge calculated at 150% of the rated maximum capacity of the service connection will be assessed for each tenth of an hour of operation over the established maximum flow capacity.

(h) When a Purveyor's demand for water at a given service connection is more than zero but less than 10% of the established maximum flow capacity of that particular District service connection, a Low Flow Charge calculated at 10% of the rated maximum capacity of the service connection will be assessed for each tenth of an hour of operation between zero and 10% of the established maximum flow capacity.

(i) A Minimum Maintenance Charge, as established by the Board of Directors, shall be assessed on a monthly basis, in place of monthly water sales, for each service connection with monthly water sales less than the Minimum Maintenance Charge.

G) The Board of Directors shall have the absolute and sole authority to change the rates specified in this Ordinance, and to implement new rates or pass-through charges imposed on the District. The Board of Directors shall make every reasonable effort to provide 60 days' advance notice to all Purveyors of such rate changes.

SECTION 4. BILLING. Water meters shall be read weekly, on Tuesdays, and on the nearest business day to the last calendar day of each month. As soon after the billing period as practicable, the District will mail or deliver to each Purveyor a statement of its bill for the preceding month. All bills or charges shall be due and payable immediately upon receipt. The following conditions also apply:

(a) Delinquencies/Penalties. Water service bills shall be delinquent if not paid by the last business day of the month of the date of mailing. Delinquent bills are subject to a penalty of 1% of the outstanding balance which shall be added thereto and charged to and collected from the Purveyor on a monthly basis, including the previous month's penalty. If payment for water service and/or penalty is not received in the District Office within 60 days after such bill has become delinquent, the Board will consider appropriate action including discontinuance of service. Notice of discontinuance of service will be given to the delinquent Purveyor by registered mail at least 10 days prior to the date of discontinuance.

(b) Cash Deposit. Whenever any Purveyor fails to pay its water bills, the Board of Directors may require as a condition for further service a cash deposit, at an amount determined by the Board, to guarantee the prompt payment of its account in the future. The Board of Directors shall have full power to determine whether or not such deposit shall be made and the amount thereof, and the time when the requirement for deposit by any Purveyor shall be discontinued.

(c) Application of Deposit. If a Purveyor who has made such deposit fails to pay its delinquent bill or bills, including all added penalties within 30 days after delinquency, its deposit shall be applied on its account and the service discontinued until such time as the deposit is restored by the Purveyor.

SECTION 5. GENERAL TERMS AND CONDITIONS.

(a) Authorized Distribution of District Supplied Water. The right of any Purveyor to water served by the District's facilities shall be restricted to the amount required for uses within the District's boundaries. Except as required by state law or a wheeling agreement authorized by the District's Board of Directors, no potable water conveyed by the District or produced by a Purveyor shall be delivered or sold for any use outside of the District's boundaries, nor shall water conveyed by the District or produced by a Purveyor be sold or delivered for any use within the District's boundaries in substitution for water used outside the District.

The use of water trucks, or other mobile, temporary, or otherwise non-fixed facilities and equipment to deliver District water shall be limited to short duration uses within the District's boundaries for construction purposes or to meet acute, emergency response needs, as requested by designated public health and safety agencies, including the Ventura County Public Health Department, Ventura County Fire Department, and similar federal, state, and local entities.

Distribution system interconnections between Purveyors are permitted provided that the water delivered remains within the District's boundaries.

(b) Proof of Annexation. Per the conditions outlined in Section 5.a, a Purveyor may not supply any District sourced water to a new service address until it has received a written confirmation from the District that the address lies within the District's boundaries.

(c) Violation of Authorized Distribution. Should the District suspect that a Purveyor is in violation of distributing water outside the limits of this Ordinance, the Board of Directors shall provide the Purveyor no less than 15 days to present any pertinent factual evidence and mitigating circumstances regarding the matter; the Board of Directors shall then render a decision that shall be final, conclusive, and definitive. Should it be determined by the Board of Directors that terms of this Ordinance have been, or are being, violated, the Board of Directors may assess fines or fees, request a suspension of service, and impose other actions as deemed appropriate to the Purveyor. Notice of any such determination of the District shall be in writing and mailed to such Purveyor within 10 days of such determination. Should suspension of service be imposed, deliveries shall be resumed only when the Purveyor involved proves to the satisfaction of the District that it has fully complied with the above rules and regulations. Determination of billing amounts shall be based on the retail meter totals or, if retail totals are not available, shall be based on the maximum industry standard for the Southern California region, gallons per capita per day, of use for the type of customer being served.

(d) Annual Estimate of Demand. Within 30 days of a written request, each Purveyor shall furnish the District with an estimate of its water

requirements by water service type and month for the ensuing five-year period.

(e) Development Coordination. Purveyors shall not sign and approve any plans for development, public, or other projects that affect District facilities unless those plans are already signed by the District. A project is considered to affect District facilities if any District facilities lie within the project site, are referenced in the project plans or are in the public right-of-way in the vicinity of the project site. If a Purveyor signs plans for a project that affects District facilities and is not already signed by the District, then that Purveyor assumes responsibility for any damage caused to the District's facilities by the project. Purveyors shall not approve plans that do not comply with the more stringent of California Division of Drinking Water (DDW) requirements, American Water Works Association (AWWA) Standards, or District Standard Drawings to ensure proper protection of the District's pipelines and appurtenances.

SECTION 6. AVAILABILITY OF SUPPLY.

(a) District Responsibility. It is declared that the District was formed primarily to make water available to the people of the District, through distribution systems now established, or which may hereafter be established, as are able to use and distribute water at uniform rates of flow over substantial periods. The District's primary source of supply is from Metropolitan. This water supply may not be adequate or constant. The District assumes no responsibility for quantity, quality, pressure, or constancy of supply. The District will not be liable for interruptions or shortages of supply, nor for any loss or damage occasioned thereby. During times of threatened or actual water shortage, the Board of Directors shall apportion the available water supply among Purveyors in an equitable manner with due regard to public health and safety, and in accordance with the provisions of the Municipal Water District Act of 1911, as amended.

(b) Operating Conditions. All sales and deliveries of water at the rates established by the Board shall be subject to the ability of the District to sell and deliver such water under operating conditions determined by the General Manager.

(c) Peak Hourly Demands. The District's system is not designed to serve peak

hourly demands. The District reserves the right to curtail peak hourly deliveries, as necessary, to conform to pipeline capacity and to assure equitable apportionment of available water and of service to all Purveyors.

(d) Emergency Interruptions. The District shall have the right to interrupt supply of water without prior notice in the event of an emergency.

(e) Supply Shortages. In the event reduced water supplies cause Metropolitan to impose water allocations among its member agencies and surcharges for deliveries exceeding those allocations, the Board of Directors, at its discretion, may similarly allocate available supplies among District Purveyors and levy any surcharges as deemed appropriate, including those imposed on the District by Metropolitan.

Moreover, under shortage conditions, the Board may, by resolution, impose a moratorium on District annexations and/or the installation of new retail service connections by Purveyors in an effort to extend available supplies among existing water users.

(f) Interruption of Service. Interruption of service will be necessary from time to time to facilitate routine maintenance, internal inspection, rehabilitation, and improvement projects on District facilities. Whenever maintenance of the District's system requires interruption of delivery of water at any point or points, such delivery may be interrupted, without liability on the part of the District, provided that except in cases of emergency, as determined by the General Manager, notice of such interruption of service shall be given to the affected Purveyor in advance of such interruption. The District standard for such interruption may include all services along four consecutive miles of pipeline for a minimum 72 hour period.

(g) Required Storage. In order to meet demand fluctuations, emergency interruptions and scheduled interruption of services, Purveyors within the District shall provide adequate storage or alternate supplies, other than from District facilities, to meet their peak daily and hourly demands.

SECTION 7. SERVICE CONNECTIONS.

(a) Application for Service Connection. A Purveyor wishing to take delivery of

water at a particular location shall submit a written application for a turnout and meter station to the District on a form provided by the District. The decision whether to approve the application shall be solely within the discretion of the District. The Purveyor shall be responsible for all costs associated with building the turnout and meter station at the requested location and connecting it to an existing District transmission pipeline. The Purveyor shall provide the necessary right-of-way to the District for construction, operation, and maintenance of the turnout and meter station. The Purveyor shall deposit an amount equal to the estimated cost of design of the facility prior to initiation of project design by the District and shall deposit an amount equal to the estimated cost of construction (including inspection and construction management) prior to the District's advertising the project for construction. Upon completion of construction, the District will prepare a report summarizing its costs associated with construction of the turnout, meter station, and associated pipelines and will provide an accounting to the Purveyor. In the event the actual cost is less than the deposit, the District will provide a refund. In the event the actual cost exceeds the deposit, such Purveyor shall promptly pay to the District the amount by which the costs shall exceed the deposited amounts. Service shall be initiated once full payment has been received.

(b) Ownership of Facilities. All service connections, appurtenances, meters, and transmission pipelines installed hereunder shall be and become the property of the District and shall be maintained, repaired, and renewed by the District when rendered unserviceable through normal wear and tear; provided, however, that any replacements, repairs, or adjustments to any meters, or property required because of the act, negligence or carelessness of the Purveyor, its agents or employees, or persons under its control shall be charged against and collected from such Purveyor.

(c) Operation of Valves. Shutoff valves at service connections, or in transmission pipelines belonging to the District, shall not be operated by the Purveyor, without authorized District consent. Authorized consent can be granted by the General Manager, the Manager of Operations and Maintenance, or a designee of the Manager of Operations and Maintenance.

(d) Tampering. It shall be unlawful for any person to meddle, tamper with, or operate any facilities, including, but not limited to, service connections, water meters, service pipe, transmission pipelines or valves without authorized

District consent. Authorized consent can be granted by the General Manager, the Manager of Operations and Maintenance, or a designee of the Manager of Operations and Maintenance. It shall be unlawful for any person to tap, break, or damage any District transmission pipeline, service connections, or appurtenances or any other equipment of the District.

(e) Access and Use of District Facilities. Purveyors shall not enter District distribution facilities, including buildings, cabinets, and vaults, nor use District facilities to support or house Purveyor equipment without approval from the District.

(f) Communication. Purveyors shall promptly report any leaks, failures of water supply and equipment, security breaches, and other matters requiring timely response of District staff to the District's Control Room. All requests for routine operational assistance may be directed to the District's Control Room or to the appropriate District supervisor. Inquiries about policies and procedures, general information and coordination for project planning should be directed to the Manager of Operations and Maintenance. Requests to initiate new service or modify the rated capacity of existing service connections must be made in writing and filed with the General Manager.

(g) District Equipment as Billing Meter. District equipment shall be used as the primary billing meter to calculate flow rates, accumulate water use and determine the occurrence and duration of High and Low Flow Charge penalty periods. Purveyor metering data shall only be considered when District equipment is inoperable.

(h) Metering Equipment Standards. The District's established standard for metering equipment used for Purveyor billing of potable water deliveries shall be restricted to the combination of a venturi and differential pressure transmitter(s). Transmitters shall be configured as an input to a programmable logic controller or flow totalizer to calculate rate of flow and accumulate water use.

(i) Meter Testing. The District shall calibrate and test all metering components a minimum of once annually to confirm accuracy of ±2.0%. A Purveyor may request to have a service connection meter tested by the District whenever the Purveyor suspects inaccuracy. The Purveyor affected shall have the right to witness any such test. In the event that such test shall disclose an error

exceeding ±2.0%, an adjustment shall be made in metered charges to the Purveyor affected, covering the known or estimated extent and period of duration of such error up to a six-month period. If such test shall disclose an error exceeding ±2.0% the expenses of such test shall be borne by the District; otherwise, such expenses shall be borne by the Purveyor requesting such test.

(j) District Provided Controls. The District may install and maintain flow rate signals, pulsed totalizer contacts, valve open and close control inputs, downstream pressure regulation, and rate-of-flow controls at service connections upon the issuance of a purchase order or letter of request and authorization from the Purveyor. All District supplied signals and controls are provided as courtesy to the Purveyor. It is the responsibility of the Purveyor to control their own system demands and maintain operations within the rated capacity of their service connection(s), and any reliance upon District equipment is done so solely at the risk of the Purveyor. The inaccuracy or failure of District provided signals and controls does not constitute cause to avoid payment of High or Low Flow Charges, nor to dispute the receipt of District water or metered totals. All costs for installation and maintenance of requested automation equipment shall be paid by the Purveyor. The District reserves the right to refuse installation and to remove controls if it so desires.

(k) Float Mode. If a Purveyor does not wish to use open and close control signals or if a Purveyor requests to bypass their open and close control signals at a service connection, the District shall configure the service connection to be in "Float Mode," whereby the connection instantaneously responds to changes in downstream pressure at any rate of flow needed to maintain downstream pressure regardless of the service connection's rated flow range. If Float Mode is requested, either verbally or under the execution of a Float Mode Request Form, the Purveyor understands that operation in this mode will result in the accumulation of Low Flow Charge penalty hours and potentially in High Flow Charge penalty hours, and the Purveyor agrees to pay all charges as assessed.

(l) Hydraulic Transients. Purveyors shall operate their water distribution systems in a manner which does not cause hydraulic transients or pressure changes at service connections that are greater than 125% of the average pressure delivered to the Purveyor and no less than 50% of the average pressure delivered to the Purveyor or 20 psi, whichever is greater.

SECTION 8. LEGAL CHALLENGES. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional, such decision

shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors hereby declares that it would have passed this Ordinance by section, subsection, sentence, clause, or phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses, or phrases be declared invalid or unconstitutional.

SECTION 9. ADMINISTRATION. All water service shall be made in accordance with these rules and regulations unless otherwise approved by the Board of Directors. These rules and regulations may be amended, modified, changed, or repealed by the Board of Directors.

SECTION 10. NOTICES. All notices and communications from agencies to the District relating to the service of water or the administration of these rules and regulations by the District, shall be addressed to the General Manager of the District, 2100 Olsen Road, Thousand Oaks, California 91360.

SECTION 11. PREVIOUS RESOLUTIONS. All Resolutions passed with regard to water rate structures and service connection policies that are in conflict with this ordinance are hereby cancelled.

SECTION 12. EFFECTIVE DATE AND SUNSET. This Ordinance shall be given effect at 12:01 a.m. on March 18, 2026. This Ordinance shall not have a sunset date.

ADOPTED, SIGNED AND APPROVED this eighteenth day of March, 2026

Raul Avila, President Board of Directors

On motion by Director McMillan and seconded by Director Robert, the foregoing ordinance is adopted upon this 18th day of March, 2026, by the following vote:

AYES: Directors Quady, McMillan, Pakala, Robert, Avila

NAYS: None

ABSENT: None

ABSTAIN: None

I HEREBY CERTIFY that the foregoing Ordinance was adopted at a regular meeting of the Board of Directors of Calleguas Municipal Water District held on March 18, 2026.

ATTEST:

(SEAL)

Reddy Pakala, Secretary
Board of Directors

Attachment H.4 – WSCP Adoption Resolution

H.4

Resolution to be included following adoption.